



SV680-INT Series Servo Drive Parameter Guide



Industrial
Automation



Intelligent
Elevator



New Energy
Vehicle



Industrial
Robot



Rail
Transit



Data code PS00015555A03

Preface

Introduction

The SV680-INT series servo drive is a high-end servo drive designed based on global-leading standards and high-end application needs. It is featured with high speed, high precision, high performance, and tuning-free function. Compliant with CE, UL, KC, EAC, UKCA and TUV certification requirements and top international quality standards, it is specially suitable for high-end applications.

Its power ranges from 0.05 kW to 7.5 kW. It supports Modbus, CANopen and EtherCAT communication protocols and carries necessary communication interfaces to work with the host controller for implementing a networked operation of multiple servo drives. The servo drive supports adaptive stiffness level setting, inertia auto-tuning, and vibration suppression for easy use. The drive, together with an MS1 series high-response servo motor (with ultra-low, low or medium inertia) equipped with a 23- or 26-bit single-turn/multi-turn absolute encoder, any third party servo motor, linear motor or DDR motor, serves to deliver a quiet and stable operation and accurate process control through features like fully closed-loop, internal process segment and gantry synchronization.

The drive also comes with features like safe torque off, dynamic braking, and brake output (external relay not needed) as standard and supports extension of seven kinds of functional safety and bus functional safety FSoE (the PINT version further offers 24V backup power) for continuous safe production. The drive aims to achieve quick and accurate position control, speed control, and torque control through high-performance solutions for automation equipment in such industries as electronic manufacturing, lithium batteries, manipulators, packaging, and machine tools.

This guide introduces the parameters of the drive, including a parameter list and description of parameters.

Note

The speed of a servo motor and DDR motor is in rpm and DDL motor is in mm/s. rpm is used throughout the manual. Unless otherwise specified, an rpm value is equivalent to the mm/s one.

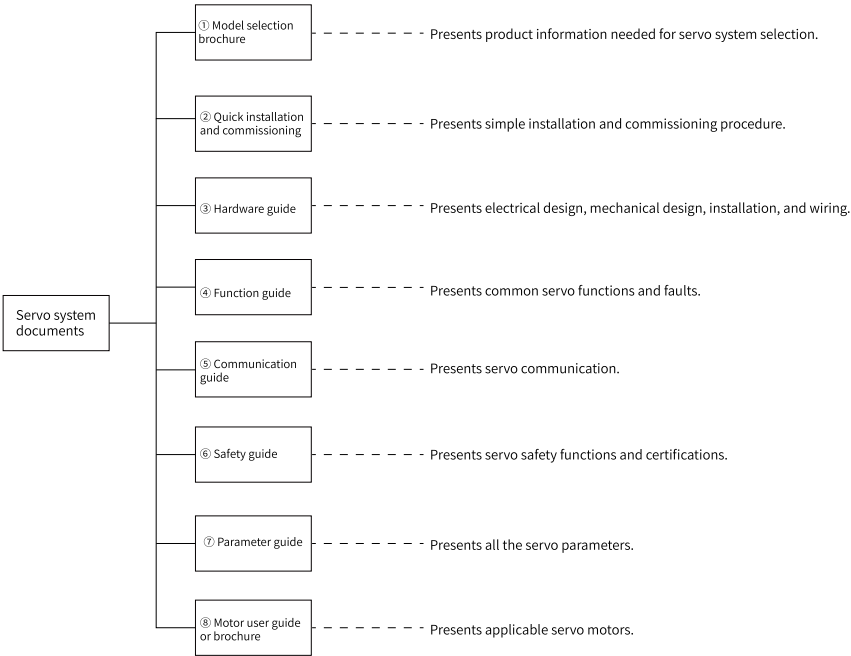
Product Name Abbreviation

The following abbreviations will be used herein to refer to the corresponding servo drives.

Abbreviation	Servo drive
[P]	SV680P*****-*INT
[N]	SV680N*****-*INT

More documents

The documents related to the drive are shown in the following figure and table.



No.	Name	Data Code	Description
①	SV680-INT series flagship servo drive	19120347	Provides instructions on product selection, including the list of supporting components, technical data on the drive, and the selection guide of cables.
②	SV680-INT Series Servo Drive Quick Installation and Commissioning	PS00015536	Describes the model number, installation, terminals and quick commissioning and operation of the drive.
③	SV680-INT Series Servo Drive Hardware Guide	PS00015494	Describes technical data, installation, terminals, required certificates and standards and solutions to common EMC problems of the drive.
④	SV680-INT Series Servo Drive Function Guide	PS00015554	Introduces the functions and faults of the drive, including function overview, adjustment, basic servo functions and fault handling.
⑤	SV680-INT Series Servo Drive Communication Guide	PS00015535	Introduces the communication of the drive, including configuration of Modbus, CANopen, and EtherCAT communication.
⑥	SV680P-INT Series Servo Drive Safety Guide	PS00009740	Describes the safety function and related certifications and standards, wiring, commissioning process, troubleshooting and parameters of the drive.
	SV680N-INT Series Servo Drive Safety Guide	PS00009768	

No.	Name	Data Code	Description
⑦	SV680-INT Series Servo Drive Parameter Guide	PS00015555	Introduces the parameters of the drive, including a parameter list and description of parameters.
⑧	MS1-R Series Servo Motor Selection Guide	PS00004605	Introduces the product information, general specifications, motor selection, cable selection, and required certificates and standards of the servo motor.
	MS1-R Series Servo Motor Installation Guide	PS00005407	Describes installation of the motor, including an installation flowchart, unpacking and transportation, mechanical installation, and electrical installation.
	Direct drive motor module platform and drive	19120011	Introduces the product information, general specifications, motor selection, cable selection, and required standards of the motor.

Revision History

Date	Version	Description
2024-08	A03	Made minor corrections. Updated content on parameters.
2024-06	A02	Minor corrections.
2024-05	A01	Minor corrections.
2024-04	A00	First release.

Access to the Guide

This guide is not delivered with the product. You can obtain the PDF version in the following way:

- Visit www.inovance.com, go to Support > Download, search by keyword, and then download the PDF file.
- Scan the QR code on the product with your mobile phone.
- Scan the QR code below to install the app, where you can search for and download manuals.



Warranty

Inovance provides warranty service within the warranty period (as specified in your order) for any fault or damage that is not caused by improper operation of the user. You will be charged for any repair work after the warranty period expires.

Within the warranty period, maintenance fee will be charged for the following damage:

- Damage caused by operations not following the instructions in the user guide
- Damage caused by fire, flood, or abnormal voltage
- Damage caused by unintended use of the product
- Damage caused by use beyond the specified scope of application of the product
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

The maintenance fee is charged according to the latest Price List of Inovance. If otherwise agreed upon, the terms and conditions in the agreement shall prevail.

For details, see the Product Warranty Card.

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1 **Parameter List [P]**

The mapping relation between the parameter displayed on the keypad (in decimal) and the object dictionary operated by the host controller (in hexadecimal, "Index" and "Sub-index") is as follows.

Object dictionary index = 0x2000 + Parameter group number

Object dictionary sub-index = Hexadecimal offset within the parameter group + 1 For example:

Panel Display	Object dictionary operated by the host controller
H02.15	2002.10h

Note

The following section only describes the display and parameter settings on the keypad side (in decimal), which are different from those displayed in the software tool (in hexadecimal). Make necessary value conversions during use.

1.1 H00 Servo Motor Parameters

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
H00.00	2000-01h	Motor SN	20000: linear motor-pulse encoder 14203: linear motor-BiSS-C encoder 14206: linear motor-SSI encoder 14207: linear motor-EnDat2.2 encoder 14202: linear motor-Inovance communication 23-bit encoder 14205: linear motor-Inovance interpolator 23-bit encoder 20001: DDR motor-pulse encoder 14210: DDR motor-Inovance interpolator 23-bit encoder 14201: DDR motor-Inovance communication 23-bit encoder 14211: DDR motor-BiSS-C encoder 14212: DDR motor-EnDat2.2 encoder 14213: DDR motor-SSI encoder 20002: rotary motor-pulse encoder	14102	-	At stop	<i>"H00_en.00"</i> <i>on page 181</i>

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
(Continued)			14000: rotary motor-Inovance communication 20-bit encoder 14101: rotary motor-Inovance communication 23-bit encoder 14102: rotary motor-Inovance communication 26-bit encoder 14020: rotary motor-Harmonic 20-bit encoder-2.5M baud rate 14021: rotary motor-Harmonic 17-bit encoder-2.5M baud rate 14022: rotary motor-Harmonic 17-bit encoder-4M baud rate 14120: rotary motor-Nikon 20-bit encoder-2.5M baud rate 14121: rotary motor-Nikon 17-bit encoder-2.5M baud rate 14122: rotary motor-Nikon 17-bit encoder-4M baud rate 14130: rotary motor-TAMAGA-WA 17-bit encoder 14131: rotary motor-TAMAGA-WA 23-bit encoder 14140: rotary motor-EnDat2.2 encoder 14150: rotary motor-SSI encoder 14160: rotary motor-BiSS-C encoder	(Continued)			
H00.02	2000-03h	Customized No.	0.00–42949672.95	0.00	-	Unchangeable	"H00_en.02" on page 182
H00.04	2000-05h	Encoder version	0.0–6553.5	0.0	-	Unchangeable	"H00_en.04" on page 183
H00.05	2000-06h	Serial-type motor code	0–65535	0	-	Unchangeable	"H00_en.05" on page 183
H00.06	2000-07h	FPGA customized SN	0.00–655.35	0.00	-	Unchangeable	"H00_en.06" on page 183
H00.07	2000-08h	STO version	0.0–6553.5	0.0	-	Unchangeable	"H00_en.07" on page 183

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
H00.08	2000-09h	Bus encoder type	0–65535	0	-	At stop	"H00_en.08" on page 184
H00.14	2000-0Fh	Rated speed	50[mm/s]/[rpm]–10000[mm/s]/[rpm]	3000	[mm/s]/[rpm]	At stop	"H00_en.14" on page 184
H00.15	2000-10h	Maximum speed	50[mm/s]/[rpm]–10000[mm/s]/[rpm]	6000	[mm/s]/[rpm]	At stop	"H00_en.15" on page 184
H00.18	2000-13h	Stator resistance	0.001Ω to 65.535Ω	0.500	Ω	At stop	"H00_en.18" on page 184
H00.19	2000-14h	Stator inductance Lq	0.01mH to 655.35mH	3.27	mH	At stop	"H00_en.19" on page 185
H00.20	2000-15h	Stator inductance Ld	0.01mH to 655.35mH	3.87	mH	At stop	"H00_en.20" on page 185
H00.22	2000-17h	Torque coefficient Kt	0.01[N/Arms]/[N·m/Arms]–655.35[N/Arms]/[N·m/Arms]	0.51	[N/Arm s]/[N·m/Arms]	At stop	"H00_en.22" on page 185
H00.40	2000-29h	Motor control type	0: General-purpose rotary motor (ROT) 1: Direct drive rotary motor (DDR) 2: Direct drive linear motor (DDL) 3: Voice coil motor (VOL)	2	-	At stop	"H00_en.40" on page 186
H00.41	2000-2Ah	Master encoder configuration	0: CN2 1: CN7	1	-	Unchangeable	"H00_en.41" on page 186
H00.43	2000-2Ch	Number of BiSS-C/SSI/EnDat2.2 data bits	0–40	32	-	At stop	"H00_en.43" on page 186
H00.44	2000-2Dh	Number of BiSS-C/SSI fault bits	0–31	2	-	At stop	"H00_en.44" on page 187
H00.45	2000-2Eh	Encoder pitch 1	0.00[mm]/[deg]–655.35[mm]/[deg]	2.00	[mm]/[deg]	At stop	"H00_en.45" on page 187
H00.46	2000-2Fh	Encoder pitch 2	0.00[mm]/[deg]–655.35[mm]/[deg]	0.50	[mm]/[deg]	At stop	"H00_en.46" on page 187
H00.47	2000-30h	Encoder Type	0: Optical scale 1: Magnetic scale	0	-	At stop	"H00_en.47" on page 187
H00.48	2000-31h	Linear motor pole pitch (N-S)	0.00 millimeters–655.35 millimeters	16.00	mm	At stop	"H00_en.48" on page 188
H00.49	2000-32h	Direct drive motor encoder resolution	0.000um/p–65.535um/p	1.000	um/p	At stop	"H00_en.49" on page 188

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
H00.54	2000-37h	BiSS-C/SSI CRC	0–1	1	-	At stop	"H00_en.54" on page 188
H00.55	2000-38h	Rated torque (Uint32)	0.00[N]/ [N·m]–42949672.95[N]/[N·m]	2.00	[N]/ [N·m]	At stop	"H00_en.55" on page 189
H00.57	2000-3Ah	Max. torque (Uint32)	0.00[N]/ [N·m]–42949672.95[N]/[N·m]	7.00	[N]/ [N·m]	At stop	"H00_en.57" on page 189
H00.59	2000-3Ch	Encoder counting direction	0: Forward 1: Reverse	0	-	At stop	"H00_en.59" on page 189
H00.63	2000-40h	Max. current (Uint32)	0.00A–42949672.95A	3.00	A	At stop	"H00_en.63" on page 189
H00.65	2000-42h	Rated current (Uint32)	0.00A–42949672.95A	1.00	A	At stop	"H00_en.65" on page 190
H00.67	2000-44h	Moment of inertia (Uint32)	0.00000[g]/ [0.00001kg·cm²]–42949.67295[g]/ [0.00001kg·cm²]	0.00001	[g]/ [0.00001kg·cm²]	At stop	"H00_en.67" on page 190
H00.69	2000-46h	Linear back EMF coefficient (Uint32)	0.00[V]/(m/s))/[100mV/rpm]–42949672.95[V/(m/s))/ [100mV/rpm]	33.00	[V]/(m/s))/ [100mV/rpm]	At stop	"H00_en.69" on page 190

1.2 H01 Servo Drive Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H01.00	2001-01h	MCU software version	0.0–6553.5	0.0	-	Unchangeable	"H01_en.00" on page 191
H01.01	2001-02h	FPGA software version	0.0–6553.5	0.0	-	Unchangeable	"H01_en.01" on page 191
H01.02	2001-03h	Servo drive series No.	0–65535	0	-	Unchangeable	"H01_en.02" on page 191
H01.06	2001-07h	Board software version	0.0–6553.5	0.0	-	Unchangeable	"H01_en.06" on page 191

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H01.10	2001-0Bh	Drive series No.	2: S1R6 3: S2R8 5: S5R5 6: S7R6 7: S012 8: S018 9: S022 10: S027 10001: T3R5 10002: T5R4 10003: T8R4 10004: T012 10005: T017 10006: T021 10007: T026	3	-	At stop	"H01_en.10" on page 192
H01.11	2001-0Ch	DC-AC voltage class	0 V–65535 V	220	V	Unchangeable	"H01_en.11" on page 193
H01.12	2001-0Dh	Drive rated power	0.00 kW–42949672.95kW	0.40	kW	Unchangeable	"H01_en.12" on page 193
H01.14	2001-0Fh	Max. output power of the drive	0.00 kW–42949672.95kW	0.40	kW	Unchangeable	"H01_en.14" on page 193
H01.16	2001-11h	Rated output current of the drive	0.00 A–42949672.95 A	2.80	A	Unchangeable	"H01_en.16" on page 194
H01.18	2001-13h	Max. output current of the drive	0.00 A–42949672.95 A	10.10	A	Unchangeable	"H01_en.18" on page 194
H01.40	2001-29h	DC bus overvoltage protection threshold	0 V–2000 V	420	V	Real-time	"H01_en.40" on page 194
H01.75	2001-4Ch	Current loop amplification factor	0.00–655.35	1.00	-	Real-time	"H01_en.75" on page 195
H01.88	2001-59h	Junction temperature parameter version 1	0.0–6553.5	0.0	-	Unchangeable	"H01_en.88" on page 195
H01.89	2001-5Ah	Junction temperature parameter version 2	0–65535	0	-	Unchangeable	"H01_en.89" on page 195
H01.90	2001-5Bh	Motor property mask	0–65535	0	-	At stop	"H01_en.90" on page 195

1.3 H02 Basic Control Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H02.00	2002-01h	Control mode	0: Speed control mode 1: Position control mode 2: Torque control mode 3: Torque/Speed control mode 4: Speed/Position control mode 5: Torque/Position control mode 6: Torque/Speed/Position compound mode 7: Process segment 8: CANopen mode	1	-	At stop	"H02_en.00" on page 196
H02.01	2002-02h	Absolute system selection	0: Incremental mode 1: Absolute position linear mode 2: Absolute position rotation mode 3: Absolute position linear mode (without encoder overflow alarm) 4: Absolute position single-turn mode	0	-	At stop	"H02_en.01" on page 196
H02.02	2002-03h	Rotation direction selection	0: Counterclockwise (CCW) as forward direction 1: Clockwise (CW) as forward direction	0	-	At stop	"H02_en.02" on page 197
H02.03	2002-04h	Output pulse phase	0: Phase A leads phase B 1: Phase A lags behind phase B	0	-	At stop	"H02_en.03" on page 198

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H02.05	2002-06h	Stop mode at S-ON OFF	-4: Stop based on ramp 2, keeping dynamic braking state -3: Stop at zero speed, keeping dynamic braking state -2: Stop based on ramp 1, keeping dynamic braking state -1: Dynamic braking stop, keeping dynamic braking state 0: Coast to stop, keeping de-energized state 1: Stop based on ramp 1, keeping de-energized state 2: Dynamic braking stop, keeping de-energized state	0	-	Real-time	" H02_en.05" on page 198
H02.06	2002-07h	Stop mode at No. 2 fault	-5: Stop at zero speed, keeping dynamic braking state -4: Stop at emergency stop torque, keeping dynamic braking state -3: Stop based on ramp 2, keeping dynamic braking state -2: Stop based on ramp 1, keeping dynamic braking state -1: Dynamic braking stop, keeping dynamic braking state 0: Coast to stop, keeping de-energized state 1: Stop based on ramp 1, keeping de-energized state 2: Stop based on ramp 2, keeping de-energized state 3: Stop at emergency stop torque, keeping de-energized state 4: Dynamic braking stop, keeping de-energized state	2	-	Real-time	" H02_en.06" on page 199

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H02.07	2002-08h	Stop mode at overtravel	0: Coast to stop, keeping de-energized state 1: Stop at zero speed, keeping position lock state 2: Stop at zero speed, keeping de-energized state 3: Stop based on ramp 2, keeping de-energized state 4: Stop based on ramp 2, keeping position lock state 5: Dynamic braking stop, keeping de-energized state 6: Dynamic braking stop, keeping dynamic braking state 7: Not responding to overtravel	1	-	At stop	"H02_en.07" on page 200
H02.08	2002-09h	Stop mode at No.1 fault	0: Coast to stop, keeping de-energized state 1: Dynamic braking stop, keeping de-energized state 2: Dynamic braking stop, keeping dynamic braking state	2	-	At stop	"H02_en.08" on page 200
H02.09	2002-0Ah	Delay from brake output ON to command received	0 ms–500 ms	250	ms	Real-time	"H02_en.09" on page 201
H02.10	2002-0Bh	Delay from brake output OFF to motor de-energized	50 ms–1000 ms	150	ms	Real-time	"H02_en.10" on page 201
H02.11	2002-0Ch	Motor speed threshold at brake output OFF in rotation state	20[mm/s]/[rpm]–3000[mm/s]/[rpm]	30	[mm/s]/[rpm]	Real-time	"H02_en.11" on page 201
H02.12	2002-0Dh	Delay from S-ON OFF to brake output OFF in rotation state	1 ms–65535 ms	500	ms	Real-time	"H02_en.12" on page 202
H02.15	2002-10h	LED Alarm Display	0: Output alarm information immediately 1: Not output alarm information	0	-	Real-time	"H02_en.15" on page 202

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H02.16	2002-11h	Brake enable switch	0: OFF 1: ON	0	-	Real-time	" H02_en.16" on page 202
H02.17	2002-12h	Stop mode upon main circuit power failure	0: Keep current action 1: Stop upon fault as defined by H02.06 2: Stop at S-ON OFF as defined by H02.05 3: Stop quickly as defined by H02.18	2	-	Real-time	" H02_en.17" on page 203
H02.18	2002-13h	Quick stop mode	0: Coast to stop, keeping de-energized state 1: Stop by ramp 1, keeping de-energized state 2: Stop by ramp 2, keeping de-energized state 3: Stop at emergency stop torque, keeping de-energized state 5: Stop by ramp 1, keeping position lock state 6: Stop by ramp 2, keeping position lock state 7: Stop at emergency stop torque, keeping position lock state	2	-	Real-time	" H02_en.18" on page 203
H02.21	2002-16h	Permissible minimum resistance of braking resistor	1Ω to 1000Ω	40	Ω	Unchangeable	" H02_en.21" on page 204
H02.22	2002-17h	Power of built-in braking resistor	0W–65535W	50	W	Unchangeable	" H02_en.22" on page 204
H02.23	2002-18h	Resistance of built-in braking resistor	0Ω to 65535Ω	50	Ω	Unchangeable	" H02_en.23" on page 204
H02.24	2002-19h	Resistor heat dissipation coefficient	10% to 100%	30	%	Real-time	" H02_en.24" on page 205
H02.25	2002-1Ah	Braking resistor type	0: Built-in 1: External, natural cooling 2: External, forced air cooling 3: No resistor needed	3	-	Real-time	" H02_en.25" on page 206
H02.26	2002-1Bh	Power of external braking resistor	1 W–65535W	40	W	Real-time	" H02_en.26" on page 206

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H02.27	2002-1Ch	Resistance of external braking resistor	15Ω to 1000Ω	50	Ω	Real-time	"H02_en.27" on page 206
H02.28	2002-1Dh	Parameters Initialization	0: Parameters in group H02 and above initialized 1: Parameters in group H00, H02 and above initialized 2: All parameters initialized (default values used for model-related parameters)	0	-	At stop	"H02_en.28" on page 207
H02.30	2002-1Fh	User password	0–65535	0	-	Real-time	"H02_en.30" on page 207
H02.31	2002-20h	System parameter initialization	0: No operation 1: Restore default settings 2: Clear fault records	0	-	At stop	"H02_en.31" on page 207
H02.32	2002-21h	Selection of parameters in group H0b	0–99	50	-	Real-time	"H02_en.32" on page 208
H02.35	2002-24h	Keypad data update frequency	0 Hz–20 Hz	0	Hz	Real-time	"H02_en.35" on page 208
H02.38	2002-27h	Overload time of external resistor	0s to 200s	40	s	Real-time	"H02_en.38" on page 208
H02.41	2002-2Ah	Manufacturer password	0–65535	0	-	Real-time	"H02_en.41" on page 209
H02.47	2002-30h	Delay time from power cable breakage to brake OFF	0 ms–1000 ms	10	ms	Real-time	"H02_en.47" on page 209

1.4 H03 Terminal Input Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H03.00	2003-01h	DI function allocation 1 (activated upon power-on)	0: 0x00: Corresponding to null 1: 0x01: Corresponding to FunIN.1 2: 0x02: Corresponding to FunIN.2 4: 0x04: Corresponding to FunIN.3 8: 0x08: Corresponding to FunIN.4 16: 0x10: Corresponding to FunIN.5 32: 0x20: Corresponding to FunIN.6 64: 0x40: Corresponding to FunIN.7 128: 0x80: Corresponding to FunIN.8 256: 0x100: Corresponding to FunIN.9 512: 0x200: Corresponding to FunIN.10 1024: 0x400: Corresponding to FunIN.11 2048: 0x800: Corresponding to FunIN.12 4096: 0x1000: Corresponding to FunIN.13 8192: 0x2000: Corresponding to FunIN.14 16384: 0x4000: Corresponding to FunIN.15 32768: 0x8000: Corresponding to FunIN.16	0x0	-	Real-time	"H03_en.00" on page 209

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H03.01	2003-02h	DI function allocation 2 (activated upon power-on)	0: 0x00: Corresponding to null 1: 0x01: Corresponding to FunIN.17 2: 0x02: Corresponding to FunIN.18 4: 0x04: Corresponding to FunIN.19 8: 0x08: Corresponding to FunIN.20 16: 0x10: Corresponding to FunIN.21 32: 0x20: Corresponding to FunIN.22 64: 0x40: Corresponding to FunIN.23 128: 0x80: Corresponding to FunIN.24 256: 0x100: Corresponding to FunIN.25 512: 0x200: Corresponding to FunIN.26 1024: 0x400: Corresponding to FunIN.27 2048: 0x800: Corresponding to FunIN.28 4096: 0x1000: Corresponding to FunIN.29 16384: 0x4000: Corresponding to FunIN.31 32768: 0x8000: Corresponding to FunIN.32	0x0	-	Real-time	<i>"H03_en.01" on page 210</i>

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H03.02	2003-03h	DI1 function	0: No assignment 1: S-ON 2: Warning reset signal 3: Gain switchover switch 4: Switchover between main and auxiliary references 5: Multi-reference direction 6: Multi-reference switchover CMD1 7: Multi-reference switchover CMD2 8: Multi-reference switchover CMD3 9: Multi-reference switchover CMD4 10: Mode switchover M1-SEL 11: Mode switchover M2-SEL 12: Zero clamp enable signal 13: Position reference inhibited 14: Positive limit switch 15: Negative limit switch 16: Positive external torque limit 17: Negative external torque limit 18: Forward jog 19: Reverse jog 20: Step enable 21: Handwheel override signal 1 22: Handwheel override signal 2 23: Hand wheel enable signal 24: Electronic gear ratio selection 25: Torque reference direction 26: Speed reference direction 27: Position reference direction 28: Multi-position reference enable 29: Interrupt positioning cancel signal	14	-	Real-time	"H03_en.02" on page 211

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H03.02	2003-03h	DI1 function	31: Home switch 32: Homing enable 33: Interrupt positioning inhibited 34: Emergency stop 35: Clear position deviation 36: Internal speed limit source 37: Pulse reference inhibited 38: Touch probe 1 39: Touch probe 2 40: Multi-speed enable 41: Current position as home 42: Axis control command executed immediately 43: Axis control command not executed immediately 44: Positioning and command completed signal clear 45: Interrupt positioning enable 46: Process segment enable 47: Process segment command switchover 1 48: Process segment command switchover 2 49: Process segment command switchover 3 50: Process segment command switchover 4 51: Event trigger process segment 1 52: Event trigger process segment 2 53: Event trigger process segment 3 54: Event trigger process segment 4 55: Process segment pause 56: Gantry alignment 57: Gantry DI alignment enable 58: Gantry DI alignment clear 59: Gantry synchronization enable	14	-	Real-time	"H03_en.02" on page 211
H03.03	2003-04h	DI1 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.03" on page 213

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H03.04	2003-05h	DI2 function	See H03.02	15	-	Real-time	"H03_en.04" on page 214
H03.05	2003-06h	DI2 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.05" on page 214
H03.06	2003-07h	DI3 function	See H03.02	13	-	Real-time	"H03_en.06" on page 214
H03.07	2003-08h	DI3 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.07" on page 214
H03.08	2003-09h	DI4 function	See H03.02	2	-	Real-time	"H03_en.08" on page 215
H03.09	2003-0Ah	DI4 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.09" on page 215
H03.10	2003-0Bh	DI5 function	See H03.02	1	-	Real-time	"H03_en.10" on page 215
H03.11	2003-0Ch	DI5 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.11" on page 215
H03.12	2003-0Dh	DI6 function	See H03.02	0	-	Real-time	"H03_en.12" on page 216
H03.13	2003-0Eh	DI6 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.13" on page 218
H03.14	2003-0Fh	DI7 function	See H03.02	45	-	Real-time	"H03_en.14" on page 218
H03.15	2003-10h	DI7 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.15" on page 220
H03.16	2003-11h	DI8 function	See H03.02	31	-	Real-time	"H03_en.16" on page 221
H03.17	2003-12h	DI8 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.17" on page 222

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H03.34	2003-23h	DI function allocation 3 (activated upon power-on)	0: 0x00: Corresponding to null 1: 0x01: Corresponding to FunIN.33 2: 0x02: Corresponding to FunIN.34 4: 0x04: Corresponding to FunIN.35 8: 0x08: Corresponding to FunIN.36 16: 0x10: Corresponding to FunIN.37 32: 0x20: Corresponding to FunIN.38 64: 0x40: Corresponding to FunIN.39 128: 0x80: Corresponding to FunIN.40 256: 0x100: Corresponding to FunIN.41 512: 0x200: Corresponding to FunIN.42 1024: 0x400: Corresponding to FunIN.43 2048: 0x800: Corresponding to FunIN.44 4096: 0x1000: Corresponding to FunIN.45 8192: 0x2000: Corresponding to FunIN.46 16384: 0x4000: Corresponding to FunIN.47 32768: 0x8000: Corresponding to FunIN.48	0x0	-	Real-time	"H03_en.34" on page 223

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H03.35	2003-24h	DI function allocation 4 (activated upon power-on)	0: 0x00: Corresponding to null 1: 0x01: Corresponding to FunIN.49 2: 0x02: Corresponding to FunIN.50 4: 0x04: Corresponding to FunIN.51 8: 0x08: Corresponding to FunIN.52 16: 0x10: Corresponding to FunIN.53 32: 0x20: Corresponding to FunIN.54 64: 0x40: Corresponding to FunIN.55 128: 0x80: Corresponding to FunIN.56 256: 0x100: Corresponding to FunIN.57 512: 0x200: Corresponding to FunIN.58 1024: 0x400: Corresponding to FunIN.59 2048: 0x800: Corresponding to FunIN.60 4096: 0x1000: Corresponding to FunIN.61 8192: 0x2000: Corresponding to FunIN.62 16384: 0x4000: Corresponding to FunIN.63	0x0	-	Real-time	"H03_en.35" on page 223
H03.50	2003-33h	Voltage-type AI1 offset	-5000 mV to 5000 mV	0	mV	Real-time	"H03_en.50" on page 224
H03.51	2003-34h	Voltage-type AI1 input filter time constant	0.00 ms–655.35 ms	2.00	ms	Real-time	"H03_en.51" on page 224
H03.53	2003-36h	Voltage-type AI1 dead zone	0.0 mV to 1000.0 mV	10.0	mV	Real-time	"H03_en.53" on page 225
H03.54	2003-37h	Voltage-type AI1 zero drift	-500.0 mV–500.0 mV	0.0	mV	Real-time	"H03_en.54" on page 225
H03.55	2003-38h	Voltage-type AI2 offset	-5000 mV to 5000 mV	0	mV	Real-time	"H03_en.55" on page 225
H03.56	2003-39h	Voltage-type AI2 input filter time constant	0.00 ms–655.35 ms	2.00	ms	Real-time	"H03_en.56" on page 226

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H03.58	2003-3Bh	Voltage-type AI2 dead zone	0.0 mV to 1000.0 mV	10.0	mV	Real-time	"H03_en.58" on page 226
H03.59	2003-3Ch	Voltage-type AI2 zero drift	-500.0 mV–500.0 mV	0.0	mV	Real-time	"H03_en.59" on page 226
H03.60	2003-3Dh	DI1 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.60" on page 227
H03.61	2003-3Eh	DI2 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.61" on page 227
H03.62	2003-3Fh	DI3 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.62" on page 227
H03.63	2003-40h	DI4 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.63" on page 228
H03.64	2003-41h	DI5 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.64" on page 228
H03.65	2003-42h	DI6 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.65" on page 228
H03.66	2003-43h	DI7 fitter time	0.00 ms–500.00 ms	0.00	ms	Real-time	"H03_en.66" on page 228
H03.67	2003-44h	DI8 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.67" on page 229
H03.80	2003-51h	Speed corresponding to analog 10 V	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	3000	[mm/s]/[rpm]	At stop	"H03_en.80" on page 229
H03.81	2003-52h	Torque corresponding to analog 10 V	0.00 to 8.00	1.00	Multiplier	At stop	"H03_en.81" on page 229

1.5 H04 Terminal Output Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H04.00	2004-01h	DO1 function	0: No function 1: Servo ready 2: Motor rotation signal 3: Zero speed signal 4: Speed matching signal 5: Positioning completed 6: Positioning near 7: Torque limited signal 8: Speed limited signal 9: Braking 10: Warning 11: Fault 15: Interrupt positioning completed 16: Homing completed 17: Electrical homing completed 18: Torque reached signal 19: Speed reached signal 21: Enable completed 22: Internal command completed 23: Writing next command allowed 24: Internal motion completed 25: Comparison DO 26: Closed-loop state 27: Left limit 28: Right limit 30: Alarm or fault output 31: Communication-forced DO 32: EDM output 33: Gantry alignment	1	-	Real-time	"H04_en.00" on page 230
H04.01	2004-02h	DO1 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H04_en.01" on page 231

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H04.02	2004-03h	DO2 function	0: No function 1: Servo ready 2: Motor rotation signal 3: Zero speed signal 4: Speed matching signal 5: Positioning completed 6: Positioning near 7: Torque limited signal 8: Speed limited signal 9: Braking 10: Warning 11: Fault 15: Interrupt positioning completed 16: Homing completed 17: Electrical homing completed 18: Torque reached signal 19: Speed reached signal 21: Enable completed 22: Internal command completed 23: Writing next command allowed 24: Internal motion completed 25: Comparison DO 26: Closed-loop state 27: Left limit 28: Right limit 30: Alarm or fault output 31: Communication-forced DO 32: EDM output 33: Gantry alignment	5	-	Real-time	" H04_en.02" on page 231
H04.03	2004-04h	DO2 logic selection	0: Normally open 1: Closed	0	-	Real-time	" H04_en.03" on page 232

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H04.04	2004-05h	DO3 function	0: No function 1: Servo ready 2: Motor rotation signal 3: Zero speed signal 4: Speed matching signal 5: Positioning completed 6: Positioning near 7: Torque limited signal 8: Speed limited signal 9: Braking 10: Warning 11: Fault 15: Interrupt positioning completed 16: Homing completed 17: Electrical homing completed 18: Torque reached signal 19: Speed reached signal 21: Enable completed 22: Internal command completed 23: Writing next command allowed 24: Internal motion completed 25: Comparison DO 26: Closed-loop state 27: Left limit 28: Right limit 30: Alarm or fault output 31: Communication-forced DO 32: EDM output 33: Gantry alignment	0	-	Real-time	" H04_en.04" on page 233
H04.05	2004-06h	DO3 logic selection	0: Normally open 1: Closed	0	-	Real-time	" H04_en.05" on page 234

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H04.06	2004-07h	DO4 function	0: No function 1: Servo ready 2: Motor rotation signal 3: Zero speed signal 4: Speed matching signal 5: Positioning completed 6: Positioning near 7: Torque limited signal 8: Speed limited signal 9: Braking 10: Warning 11: Fault 15: Interrupt positioning completed 16: Homing completed 17: Electrical homing completed 18: Torque reached signal 19: Speed reached signal 21: Enable completed 22: Internal command completed 23: Writing next command allowed 24: Internal motion completed 25: Comparison DO 26: Closed-loop state 27: Left limit 28: Right limit 30: Alarm or fault output 31: Communication-forced DO 32: EDM output 33: Gantry alignment	11	-	Real-time	" H04_en.06" on page 234
H04.07	2004-08h	DO4 logic selection	0: Normally open 1: Closed	0	-	Real-time	" H04_en.07" on page 235

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H04.08	2004-09h	DO5 function	0: No function 1: Servo ready 2: Motor rotation signal 3: Zero speed signal 4: Speed matching signal 5: Positioning completed 6: Positioning near 7: Torque limited signal 8: Speed limited signal 9: Braking 10: Warning 11: Fault 15: Interrupt positioning completed 16: Homing completed 17: Electrical homing completed 18: Torque reached signal 19: Speed reached signal 21: Enable completed 22: Internal command completed 23: Writing next command allowed 24: Internal motion completed 25: Comparison DO 26: Closed-loop state 27: Left limit 28: Right limit 30: Alarm or fault output 31: Communication-forced DO 32: EDM output 33: Gantry alignment	16	-	Real-time	" H04_en.08" on page 236
H04.09	2004-0Ah	DO5 logic selection	0: Normally open 1: Closed	0	-	Real-time	" H04_en.09" on page 237

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H04.22	2004-17h	DO source selection	bit0: DO1 0: DO1 function output 1: bit0 of H31.04 bit1: DO2 0: DO2 function output 1: bit1 of H31.04 bit2: DO3 0: DO3 function output 1: bit2 of H31.04 bit3: DO4 0: DO4 function output 1: bit3 of H31.04 bit4: DO5 0: DO5 function output 1: bit4 of H31.04	0	-	Real-time	"H04_en.22" on page 237
H04.23	2004-18h	Communication-forced DO logic in non-OP status	bit0: DO1 0: Status unchanged 1: No output bit1: DO2 0: Status unchanged 1: No output bit2: DO3 0: Status unchanged 1: No output bit3: DO4 0: Status unchanged 1: No output bit4: DO5 0: Status unchanged 1: No output	0	-	Real-time	"H04_en.23" on page 238
H04.24	2004-19h	DO brake enable	0: Disabled 1: Enabled	0	-	At stop	"H04_en.24" on page 239

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H04.50	2004-33h	AO1 signal selection	0: Motor speed (1 V/1000 [mm/s]/[rpm]) 1: Speed reference (1 V/1000 [mm/s]/[rpm]) 2: Torque reference (1 V/100 x rated torque) 3: Position deviation (0.5 mV/1 reference unit) 4: Position deviation (0.5 mV/1 encoder unit) 5: Position reference speed (1 V/1000 [mm/s]/[rpm]) 6: Positioning completed 8: AI1 voltage 9: AI2 voltage 10: Defined by H31.05	0	-	Real-time	"H04_en.50" on page 239
H04.51	2004-34h	AO1 offset voltage	-10000 mV–10000 mV	0	mV	Real-time	"H04_en.51" on page 240
H04.52	2004-35h	AO1 ratio	-99.99–99.99	1.00	-	Real-time	"H04_en.52" on page 240

1.6 H05 Position Control Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.00	2005-01h	Primary position reference source	2: Multi-position reference	2	-	Real-time	"H05_en.00" on page 893
H05.02	2005-03h	Pulses per revolution	0–4294967295	0	[P/N]/[P/Rev]	At stop	"H05_en.02" on page 893
H05.04	2005-05h	First-order low-pass filter time constant	0.0 ms–6553.5 ms	0.0	ms	At stop	"H05_en.04" on page 893
H05.06	2005-07h	Moving average filter time constant 1	0.0 ms–128.0 ms	0.0	ms	At stop	"H05_en.06" on page 894
H05.07	2005-08h	Electronic gear ratio 1 (numerator)	1–1073741824	1	-	Real-time	"H05_en.07" on page 894

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.09	2005-0Ah	Electronic gear ratio 1 (denominator)	1–1073741824	1	-	Real-time	"H05_en.09" on page 894
H05.11	2005-0Ch	Electronic gear ratio 2 (numerator)	1–1073741824	1	-	Real-time	"H05_en.11" on page 894
H05.13	2005-0Eh	Electronic gear ratio 2 (denominator)	1–1073741824	1	-	Real-time	"H05_en.13" on page 895
H05.17	2005-12h	Number of encoder frequency-division pulses	0–4194303	2500	[P/N-N]/[P/Rev]	At stop	"H05_en.17" on page 895
H05.19	2005-14h	Speed feedforward control	0: No speed feedforward 1: Internal speed feedforward 2: H05.72 3: Zero phase	1	-	At stop	"H05_en.19" on page 895

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.20	2005-15h	Condition for positioning completed signal output	0: When absolute value of position deviation is smaller than the value of H05.21, a positioning completion ON signal is output. 1: When filtered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. 2: When unfiltered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. 3: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the unfiltered position command and the absolute value of the position deviation.	0	-	Real-time	"H05_en.20" on page 896

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
		Continued	4: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the filtered position command and the absolute value of the position deviation. 5: When the unfiltered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.			Continued	

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
		Continued	6: When the filtered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. 7: When the unfiltered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. 8: When the filtered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.			Continued	

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
Continued			9: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. 10: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.	Continued			
H05.21	2005-16h	Threshold of positioning completed	1 to 65535	46976	Encoder unit	Real-time	"H05_en.21" on page 899
H05.22	2005-17h	Proximity threshold	1 to 65535	65535	Encoder unit	Real-time	"H05_en.22" on page 900
H05.30	2005-1Fh	Homing enable selection	0: Disabled 6: Current position as home	0	-	Real-time	"H05_en.30" on page 900
H05.35	2005-24h	Home search time limit	0 ms–65535 ms	10000	ms	Real-time	"H05_en.35" on page 901
H05.36	2005-25h	Mechanical home offset	-2147483648 to 2147483647	0	Reference unit	Real-time	"H05_en.36" on page 901
H05.38	2005-27h	Frequency-division output source	0: Encoder frequency-division output 2: Frequency-division output inhibited 3: Second encoder frequency-division output 4: H31-01 reference frequency output	0	-	Real-time	"H05_en.38" on page 901

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.39	2005-28h	Electronic gear ratio switchover condition	0: Switchover after position reference is kept 0 for 2.5 ms 1: Switched in real time	0	-	At stop	"H05_en.39" on page 902
H05.40	2005-29h	Mechanical home offset and action upon overtravel	0: H05.36 as the coordinate after homing, reverse homing applied after homing triggered again on overtravel 1: H05.36 as the relative offset after homing, reverse homing applied after homing triggered again on overtravel 2: H05.36 as the coordinate after homing, reverse homing auto-applied on overtravel 3: H05.36 as the relative offset after homing, reverse homing auto-applied on overtravel	0	-	Real-time	"H05_en.40" on page 902
H05.41	2005-2Ah	Z pulse output polarity	bit0: Frequency-division Z output polarity 0: Positive (high level upon active Z pulse) 1: Negative (low level upon active Z pulse) bit1: OCZ output polarity 0: Positive (high level upon active Z pulse) 1: Negative (low level upon active Z pulse) bit2: Inner loop probe Z signal source 0: Motor Z signal 1: Frequency-division output Z signal	0x1	-	At stop	"H05_en.41" on page 903
H05.44	2005-2Dh	Numerator of frequency-division output reduction ratio	1–16383	1	-	At stop	"H05_en.44" on page 903
H05.45	2005-2Eh	Denominator of frequency-division output reduction ratio	1–8191	1	-	At stop	"H05_en.45" on page 904

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.46	2005-2Fh	DI selection of multi-turn frequency-division Z starting point	0: No operation 1: DI1 2: DI2 3: DI3 4: DI4 5: DI5	0	-	Real-time	"H05_en.46" on page 904
H05.47	2005-30h	Frequency-division Z pulse width	0μs to 400μs	0	μs	Real-time	"H05_en.47" on page 905
H05.48	2005-31h	Frequency-division output dead zone setting threshold	0 to 255	0	Encoder unit	Real-time	"H05_en.48" on page 905
H05.50	2005-33h	Mechanical gear ratio in absolute position rotation mode (numerator)	1–65535	1	-	At stop	"H05_en.50" on page 905
H05.51	2005-34h	Mechanical gear ratio in absolute position rotation mode (denominator)	1–65535	1	-	At stop	"H05_en.51" on page 906
H05.52	2005-35h	Pulses per revolution of the load in absolute position rotation mode (low 32 bits)	0 to 4294967295	0	Encoder unit	At stop	"H05_en.52" on page 906
H05.54	2005-37h	Pulses per revolution of the load in absolute position rotation mode (high 32 bits)	0 to 4294967295	0	Encoder unit	At stop	"H05_en.54" on page 906
H05.58	2005-3Bh	Torque threshold in homing upon hit-and-stop	0.0% to 400.0%	100.0	%	Real-time	"H05_en.58" on page 906
H05.59	2005-3Ch	Positioning window time	0 ms–30000 ms	0	ms	Real-time	"H05_en.59" on page 907

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.60	2005-3Dh	Hold time of positioning completed	0 ms–30000 ms	0	ms	Real-time	"H05_en.60" on page 907
H05.66	2005-43h	Homing time unit	0: 1 ms 1: 10 ms 2: 100 ms	2	-	At stop	"H05_en.66" on page 908
H05.67	2005-44h	Offset between zero point and single-turn absolute position	-2147483648 to 2147483647	0	Encoder unit	At stop	"H05_en.67" on page 908
H05.71	2005-48h	Motor Z signal width	1 ms–100 ms	4	ms	Real-time	"H05_en.71" on page 909
H05.72	2005-49h	External speed feedforward source selection	0: 60B1 1: AI1 2: AI2	0	-	Real-time	"H05_en.72" on page 909

1.7 H06 Speed Control Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.00	2006-01h	Source of main speed reference A	0: Digital setting (H06.03) 1: AI1 2: AI2	0	-	At stop	"H06_en.00" on page 267
H06.01	2006-02h	Source of auxiliary speed reference B	0: Digital setting (H06.03) 1: AI1 2: AI2 5: Multi-speed reference	1	-	At stop	"H06_en.01" on page 267
H06.02	2006-03h	Speed reference source	0: Source of main speed reference A 1: Source of auxiliary speed reference B 2: A+B 3: Switched between A and B 4: Communication	0	-	At stop	"H06_en.02" on page 268
H06.03	2006-04h	Speed reference set through keypad	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H06_en.03" on page 269
H06.04	2006-05h	DI jog speed reference	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	150	[mm/s]/[rpm]	Real-time	"H06_en.04" on page 269

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.05	2006-06h	Acc. ramp time of speed reference	0 ms–65535 ms	0	ms	Real-time	"H06_en.05" on page 270
H06.06	2006-07h	Dec. ramp time of speed reference	0 ms–65535 ms	0	ms	Real-time	"H06_en.06" on page 270
H06.07	2006-08h	Maximum speed limit	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	7000	[mm/s]/[rpm]	Real-time	"H06_en.07" on page 270
H06.08	2006-09h	Forward speed threshold	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	7000	[mm/s]/[rpm]	Real-time	"H06_en.08" on page 271
H06.09	2006-0Ah	Reverse speed threshold	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	7000	[mm/s]/[rpm]	Real-time	"H06_en.09" on page 271
H06.10	2006-0Bh	Deceleration unit in emergency stop	0: Multiplied by 1 1: Multiplied by 10 2: Multiplied by 100	0	-	At stop	"H06_en.10" on page 271
H06.11	2006-0Ch	Torque feedforward control	0: No torque feedforward 1: Internal torque feedforward 3: STune mode 5	1	-	Real-time	"H06_en.11" on page 272
H06.12	2006-0Dh	Acc./dec. ramp time of speed jog	0 ms–65535 ms	10	ms	Real-time	"H06_en.12" on page 272
H06.13	2006-0Eh	Speed feedforward smoothing filter	0μs to 65535μs	0	μs	Real-time	"H06_en.13" on page 272
H06.15	2006-10h	Zero clamp speed threshold	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	10	[mm/s]/[rpm]	Real-time	"H06_en.15" on page 273
H06.16	2006-11h	Threshold of TGON (motor rotation) signal	0[mm/s]/[rpm]–1000[mm/s]/[rpm]	20	[mm/s]/[rpm]	Real-time	"H06_en.16" on page 273
H06.17	2006-12h	Threshold of V-Cmp (speed matching) signal	0[mm/s]/[rpm]–100[mm/s]/[rpm]	10	[mm/s]/[rpm]	Real-time	"H06_en.17" on page 273
H06.18	2006-13h	Threshold of speed reach signal	20[mm/s]/[rpm]–10000[mm/s]/[rpm]	1000	[mm/s]/[rpm]	Real-time	"H06_en.18" on page 274
H06.19	2006-14h	Threshold of zero speed output signal	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	10	[mm/s]/[rpm]	Real-time	"H06_en.19" on page 274

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.40	2006-29h	Ramp 1 deceleration time	0 ms–65535 ms	0	ms	Real-time	"H06_en.40" on page 274
H06.41	2006-2Ah	Ramp 2 deceleration time	0 ms–65535 ms	0	ms	Real-time	"H06_en.41" on page 274
H06.50	2006-33h	Speed S-curve enable switch	0: Disabled 1: Enabled	1	-	At stop	"H06_en.50" on page 275
H06.51	2006-34h	Increasing acceleration 1 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.51" on page 275
H06.52	2006-35h	Decreasing acceleration 1 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.52" on page 275
H06.53	2006-36h	Decreasing deceleration 1 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.53" on page 276
H06.54	2006-37h	Decreasing acceleration 1 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.54" on page 276
H06.55	2006-38h	Increasing acceleration 2 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.55" on page 276
H06.56	2006-39h	Decreasing acceleration 2 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.56" on page 276

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.57	2006-3Ah	Decreasing deceleration 2 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.57" on page 277
H06.58	2006-3Bh	Decreasing acceleration 2 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.58" on page 277
H06.59	2006-3Ch	Increasing acceleration 3 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.59" on page 277
H06.60	2006-3Dh	Decreasing acceleration 3 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.60" on page 278
H06.61	2006-3Eh	Decreasing deceleration 3 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.61" on page 278
H06.62	2006-3Fh	Decreasing acceleration 3 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.62" on page 278
H06.63	2006-40h	Increasing acceleration 4 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.63" on page 279

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.64	2006-41h	Decreasing acceleration 4 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	" H06_en.64" on page 279
H06.65	2006-42h	Decreasing deceleration 4 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	" H06_en.65" on page 279
H06.66	2006-43h	Decreasing acceleration 4 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	" H06_en.66" on page 280
H06.67	2006-44h	Increasing acceleration 5 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	" H06_en.67" on page 280
H06.68	2006-45h	Decreasing acceleration 5 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	" H06_en.68" on page 280
H06.69	2006-46h	Decreasing deceleration 5 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	" H06_en.69" on page 281
H06.70	2006-47h	Decreasing acceleration 5 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	" H06_en.70" on page 281

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.71	2006-48h	Increasing acceleration 6 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.71" on page 281
H06.72	2006-49h	Decreasing acceleration 6 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.72" on page 282
H06.73	2006-4Ah	Decreasing deceleration 6 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.73" on page 282
H06.74	2006-4Bh	Decreasing acceleration 6 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.74" on page 282
H06.75	2006-4Ch	Increasing acceleration 7 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.75" on page 283
H06.76	2006-4Dh	Decreasing acceleration 7 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.76" on page 283
H06.77	2006-4Eh	Decreasing deceleration 7 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.77" on page 283

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.78	2006-4Fh	Decreasing acceleration 7 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.78" on page 284
H06.79	2006-50h	Increasing acceleration 8 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.79" on page 284
H06.80	2006-51h	Decreasing acceleration 8 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.80" on page 284
H06.81	2006-52h	Decreasing deceleration 8 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.81" on page 285
H06.82	2006-53h	Decreasing acceleration 8 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.82" on page 285

1.8 H07 Torque Control Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H07.00	2007-01h	Source of main torque reference A	0: Keypad (H07.03) 1: AI1 2: AI2	0	-	At stop	"H07_en.00" on page 285
H07.01	2007-02h	Source of auxiliary torque reference B	0: Keypad (H07.03) 1: AI1 2: AI2	1	-	At stop	"H07_en.01" on page 286

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H07.02	2007-03h	Torque reference source	0: Source of main torque reference A 1: Source of auxiliary torque reference B 2: Source of A+B 3: Switched between A and B 4: Communication	0	-	At stop	"H07_en.02" on page 286
H07.03	2007-04h	Torque reference set through keypad	-400.0% to 400.0%	0.0	%	Real-time	"H07_en.03" on page 287
H07.05	2007-06h	Torque reference filter time constant 1	0.00 ms–30.00 ms	0.50	ms	Real-time	"H07_en.05" on page 287
H07.06	2007-07h	Torque reference filter time constant 2	0.00 ms–30.00 ms	0.27	ms	Real-time	"H07_en.06" on page 288
H07.07	2007-08h	Torque Limit source	0: Positive/Negative internal torque limit 1: Internal or external limit as defined by DI 2: T_LMT 3: T_LMT or external limit as defined by DI (FunIN.16 or FunIN.17) 4: T_LMT or internal limit (FunIN.16 or FunIN.17) as defined by DI	0	-	Real-time	"H07_en.07" on page 288
H07.08	2007-09h	T-LMT selection	1: AI1 2: AI2	1	-	Real-time	"H07_en.08" on page 288
H07.09	2007-0Ah	Positive internal torque limit	0.0% to 400.0%	350.0	%	Real-time	"H07_en.09" on page 289
H07.10	2007-0Bh	Negative internal torque limit	0.0% to 400.0%	350.0	%	Real-time	"H07_en.10" on page 289
H07.11	2007-0Ch	Positive external torque limit	0.0% to 400.0%	350.0	%	Real-time	"H07_en.11" on page 289
H07.12	2007-0Dh	Negative external torque limit	0.0% to 400.0%	350.0	%	Real-time	"H07_en.12" on page 289
H07.15	2007-10h	Emergency-stop torque	0.0% to 400.0%	100.0	%	Real-time	"H07_en.15" on page 290

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H07.17	2007-12h	Speed limit source	0: Internal speed limit 1: V-LMT 2: H07.19 or H07.20 as defined by DI	0	-	Real-time	"H07_en.17" on page 290
H07.18	2007-13h	V-LMT selection	1: AI1 2: AI2	1	-	Real-time	"H07_en.18" on page 290
H07.19	2007-14h	Positive speed limit/Speed limit 1 in torque control	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	3000	[mm/s]/[rpm]	Real-time	"H07_en.19" on page 291
H07.20	2007-15h	Negative speed limit/Speed limit 2 in torque control	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	3000	[mm/s]/[rpm]	Real-time	"H07_en.20" on page 291
H07.21	2007-16h	Torque reach base value	0.0% to 400.0%	0.0	%	Real-time	"H07_en.21" on page 291
H07.22	2007-17h	Torque reach valid value	0.0% to 400.0%	20.0	%	Real-time	"H07_en.22" on page 292
H07.23	2007-18h	Torque reach invalid value	0.0% to 400.0%	10.0	%	Real-time	"H07_en.23" on page 292
H07.24	2007-19h	Field weakening depth	60% to 115%	115	%	Real-time	"H07_en.24" on page 292
H07.25	2007-1Ah	Max. permissible demagnetizing current	0% to 300%	100	%	Real-time	"H07_en.25" on page 292
H07.26	2007-1Bh	Field weakening selection	0: Disabled 1: Enabled	0	-	At stop	"H07_en.26" on page 293
H07.27	2007-1Ch	Flux weakening gain	0.001 kHz–1.000 kHz	0.030	kHz	Real-time	"H07_en.27" on page 293
H07.28	2007-1Dh	Speed of flux weakening point	0–65535	0	-	Unchangeable	"H07_en.28" on page 293
H07.35	2007-24h	Torque non-standard feature enable	bit0: Motor output correction enable bit1: Shield compensation data enable	0	-	At stop	"H07_en.35" on page 294
H07.36	2007-25h	Time constant of low-pass filter 2	0.00 ms–10.00 ms	0.00	ms	Real-time	"H07_en.36" on page 294
H07.37	2007-26h	Torque reference filter selection	0: First-order filter 1: Biquad filter	0	-	Real-time	"H07_en.37" on page 294

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H07.38	2007-27h	Biquad filter attenuation ratio	0–50	16	-	Real-time	"H07_en.38" on page 295
H07.40	2007-29h	Speed limit threshold in torque control mode	0 ms–300 ms	10	ms	Real-time	"H07_en.40" on page 295
H07.42	2007-2Bh	Biquad low pass filter damping coefficient	0.001–10.000	1.000	-	Real-time	"H07_en.42" on page 295

1.9 H08 Gain Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.00	2008-01h	Speed loop gain	0.0 Hz–2000.0 Hz	40.0	Hz	Real-time	"H08_en.00" on page 295
H08.01	2008-02h	Speed loop integral time constant	0.15 ms–512.00 ms	19.89	ms	Real-time	"H08_en.01" on page 296
H08.02	2008-03h	Position loop gain	0.0 Hz–2000.0 Hz	64.0	Hz	Real-time	"H08_en.02" on page 296
H08.03	2008-04h	2nd speed loop gain	0.1 Hz–2000.0 Hz	75.0	Hz	Real-time	"H08_en.03" on page 297
H08.04	2008-05h	2nd speed loop integral time constant	0.15 ms–512.00 ms	10.61	ms	Real-time	"H08_en.04" on page 297
H08.05	2008-06h	2nd position loop gain	0.1 Hz–2000.0 Hz	120.0	Hz	Real-time	"H08_en.05" on page 297
H08.08	2008-09h	2nd gain mode setting	0: Fixed to the 1st gain, switched between P and PI as defined by bit26 of external 60FEh 1: Switched between the 1st and 2nd gain sets as defined by H08.09	1	-	Real-time	"H08_en.08" on page 297

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.09	2008-0Ah	Gain switchover condition	0: Fixed to the 1st gain set (PS) 1: Switched as defined by bit26 of 60FEh 2: Torque reference too large (PS) 3: Speed reference too large (PS) 4: Speed reference change rate too large (PS) 5: Speed reference low/high speed threshold (PS) 6: Position deviation too large (P) 7: Position reference available (P) 8: Positioning unfinished (P) 9: Actual speed (P) 10: Position reference + Actual speed (P)	0	-	Real-time	"H08_en.09" on page 298
H08.10	2008-0Bh	Gain switchover delay	0.0 ms–1000.0 ms	5.0	ms	Real-time	"H08_en.10" on page 300
H08.11	2008-0Ch	Gain switchover level	0–20000	50	-	Real-time	"H08_en.11" on page 300
H08.12	2008-0Dh	Gain switchover hysteresis	0–20000	30	-	Real-time	"H08_en.12" on page 301
H08.13	2008-0Eh	Position gain switchover time	0.0 ms–1000.0 ms	3.0	ms	Real-time	"H08_en.13" on page 301
H08.15	2008-10h	Load moment of inertia ratio	0.00–120.00	1.00	-	Real-time	"H08_en.15" on page 301
H08.17	2008-12h	Zero phase delay	0.0 ms–4.0 ms	0.0	ms	Real-time	"H08_en.17" on page 302
H08.18	2008-13h	Time constant of speed feedforward filter	0.00 ms–64.00 ms	0.50	ms	Real-time	"H08_en.18" on page 302
H08.19	2008-14h	Speed feedforward gain	0.0% to 100.0%	0.0	%	Real-time	"H08_en.19" on page 302
H08.20	2008-15h	Torque feedforward filter time constant	0.00 ms–64.00 ms	0.50	ms	Real-time	"H08_en.20" on page 303

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.21	2008-16h	Torque feedforward gain	0.0% to 300.0%	0.0	%	Real-time	"H08_en.21" on page 303
H08.22	2008-17h	Speed feedback filtering option	0: Inhibited 1: 2 times 2: 4 times 3: 8 times 4: 16 times	0	-	At stop	"H08_en.22" on page 304
H08.23	2008-18h	Cutoff frequency of speed feedback low-pass filter	100 Hz–8000 Hz	8000	Hz	Real-time	"H08_en.23" on page 304
H08.24	2008-19h	PDFF control coefficient	0.0% to 200.0%	100.0	%	Real-time	"H08_en.24" on page 305
H08.25	2008-1Ah	Speed measurement method	0: M-method 1: MT-method	0	-	At stop	"H08_en.25" on page 305
H08.27	2008-1Ch	Speed observer cutoff frequency	50 Hz–600 Hz	170	Hz	Real-time	"H08_en.27" on page 305
H08.28	2008-1Dh	Speed observer inertia correction coefficient	1% to 1600%	100	%	Real-time	"H08_en.28" on page 306
H08.29	2008-1Eh	Speed observer filter time	0.00 ms–10.00 ms	0.80	ms	Real-time	"H08_en.29" on page 306
H08.31	2008-20h	Disturbance cutoff frequency	1 Hz–4000 Hz	600	Hz	Real-time	"H08_en.31" on page 306
H08.32	2008-21h	Disturbance compensation gain	0% to 100%	0	%	Real-time	"H08_en.32" on page 307
H08.33	2008-22h	Disturbance observer inertia correction coefficient	1% to 1600%	100	%	Real-time	"H08_en.33" on page 307
H08.37	2008-26h	Phase modulation for medium-frequency jitter suppression 2	-90° to 90°	0	°	Real-time	"H08_en.37" on page 307
H08.38	2008-27h	Medium-frequency suppression 2 frequency	0 Hz–1000 Hz	0	Hz	Real-time	"H08_en.38" on page 307

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.39	2008-28h	Compensation gain of medium-frequency jitter suppression 2	0% to 300%	0	%	Real-time	"H08_en.39" on page 308
H08.40	2008-29h	Speed observer selection	0: Disabled 1: Enabled	0	-	Real-time	"H08_en.40" on page 308
H08.42	2008-2Bh	Model control selection	0: Disabled 1: Enabled 2: Reserved 4: Model tracking B	0	-	Real-time	"H08_en.42" on page 308
H08.43	2008-2Ch	Model gain	0.1–2000.0	40.0	-	Real-time	"H08_en.43" on page 309
H08.46	2008-2Fh	Feedforward value	0.0–102.4	95.0	-	Real-time	"H08_en.46" on page 309
H08.48	2008-31h	Model torque feedforward forward compensation coefficient	0.0–204.8	102.4	-	Real-time	"H08_en.48" on page 309
H08.49	2008-32h	Model torque feedforward reverse compensation coefficient	0.0–204.8	102.4	-	Real-time	"H08_en.49" on page 310
H08.53	2008-36h	Medium- and low-frequency jitter suppression frequency 3	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H08_en.53" on page 310
H08.54	2008-37h	Medium- and low-frequency jitter suppression compensation 3	0% to 200%	0	%	Real-time	"H08_en.54" on page 310
H08.56	2008-39h	Medium- and low-frequency jitter suppression phase modulation 3	0% to 600%	100	%	Real-time	"H08_en.56" on page 310

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.59	2008-3Ch	Medium- and low-frequency jitter suppression frequency 4	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H08_en.59" on page 311
H08.60	2008-3Dh	Medium- and low-frequency jitter suppression compensation 4	0% to 200%	0	%	Real-time	"H08_en.60" on page 311
H08.61	2008-3Eh	Medium- and low-frequency jitter suppression phase modulation 4	0% to 600%	100	%	Real-time	"H08_en.61" on page 311
H08.62	2008-3Fh	Position loop integral time constant	0.15–512.00	512.00	-	Real-time	"H08_en.62" on page 312
H08.63	2008-40h	2nd position loop integral time constant	0.15–512.00	512.00	-	Real-time	"H08_en.63" on page 312
H08.64	2008-41h	Speed observer feedback source	0: Observer output speed 1: Observer observed speed	0	-	Real-time	"H08_en.64" on page 312
H08.65	2008-42h	Zero deviation control selection	0: Disabled 1: Enabled	0	-	Real-time	"H08_en.65" on page 312
H08.66	2008-43h	Zero deviation control position average filter	0.0 ms–320.0 ms	5.0	ms	At stop	"H08_en.66" on page 313
H08.68	2008-45h	Speed feedforward of zero deviation control	0.0% to 100.0%	100.0	%	Real-time	"H08_en.68" on page 313

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.69	2008-46h	Torque feedforward of zero deviation control	0.0% to 100.0%	100.0	%	Real-time	"H08_en.69" on page 313
H08.90	2008-5Bh	Encoder scale spacing ripple suppressor enable	0: Disabled 1: 1st group activated only-adaptive mode 2: 1st group activated only-hysteresis mode 3: Two groups activated-adaptive mode 4: Two groups activated-hysteresis mode	0	-	Real-time	"H08_en.90" on page 314

1.10 H09 Auto-tuning Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.00	2009-01h	Auto-adjustment mode	0: Disabled, manual gain tuning required 1: Enabled, gain parameters generated automatically based on the stiffness level 2: Positioning mode, gain parameters generated automatically based on the stiffness level 3: Interpolation mode+Inertia auto-tuning 4: Normal mode+Inertia auto-tuning 5: Stune mode 5 6: Quick positioning mode+Inertia auto-tuning 9: Model tracking + Inertia auto-tuning + Friction force compensation	4	-	Real-time	"H09_en.00" on page 314
H09.01	2009-02h	Stiffness level selection	0–41	15	-	Real-time	"H09_en.01" on page 315

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.02	2009-03h	Mode selection of adaptive notch	0: Adaptive notch no longer updated 1: One adaptive notch activated (3rd notch) 2: Two adaptive notches activated (3rd and 4th notches) 3: Resonance point tested only (displayed in H09.24) 4: Adaptive notch cleared, values of 3rd and 4th notches restored to default	0	-	Real-time	"H09_en.02" on page 316
H09.03	2009-04h	Online inertia auto-tuning mode	0: Disabled 1: Enabled, changing slowly 2: Enabled, changing normally 3: Enabled, changing quickly	0	-	Real-time	"H09_en.03" on page 316
H09.05	2009-06h	Offline inertia auto-tuning mode	0: Bi-directional 1: Unidirectional	0	-	At stop	"H09_en.05" on page 316
H09.06	2009-07h	Max. speed of inertia auto-tuning	100[mm/s]/[rpm]–1000[mm/s]/[rpm]	500	[mm/s]/[rpm]	At stop	"H09_en.06" on page 317
H09.07	2009-08h	Time constant for accelerating to max. speed during inertia auto-tuning	10 ms–5000 ms	125	ms	At stop	"H09_en.07" on page 317
H09.08	2009-09h	Interval time after an individual inertia auto-tuning	50 ms–10000 ms	800	ms	At stop	"H09_en.08" on page 317
H09.09	2009-0Ah	Motor rotating distance per inertia auto-tuning	0.00[mm]/[Rev]–100.00[mm]/[Rev]	1.00	[mm]/[Rev]	Real-time	"H09_en.09" on page 318
H09.11	2009-0Ch	Vibration threshold	0.0% to 100.0%	5.0	%	Real-time	"H09_en.11" on page 318
H09.12	2009-0Dh	Frequency of the 1st notch	50 Hz–8000 Hz	8000	Hz	Real-time	"H09_en.12" on page 318
H09.13	2009-0Eh	Width level of the 1st notch	0–20	2	-	Real-time	"H09_en.13" on page 319
H09.14	2009-0Fh	Depth level of the 1st notch	0–99	0	-	Real-time	"H09_en.14" on page 319

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.15	2009-10h	Frequency of the 2nd notch	50 Hz–8000 Hz	8000	Hz	Real-time	"H09_en.15" on page 319
H09.16	2009-11h	Width level of the 2nd notch	0–20	2	-	Real-time	"H09_en.16" on page 320
H09.17	2009-12h	Depth level of the 2nd notch	0–99	0	-	Real-time	"H09_en.17" on page 320
H09.18	2009-13h	Frequency of the 3rd notch	50 Hz–8000 Hz	8000	Hz	Real-time	"H09_en.18" on page 320
H09.19	2009-14h	Width level of the 3rd notch	0–20	2	-	Real-time	"H09_en.19" on page 321
H09.20	2009-15h	Depth level of the 3rd notch	0–99	0	-	Real-time	"H09_en.20" on page 321
H09.21	2009-16h	Frequency of the 4th notch	50 Hz–8000 Hz	8000	Hz	Real-time	"H09_en.21" on page 321
H09.22	2009-17h	Width level of the 4th notch	0–20	2	-	Real-time	"H09_en.22" on page 321
H09.23	2009-18h	Depth level of the 4th notch	0–99	0	-	Real-time	"H09_en.23" on page 322
H09.24	2009-19h	Auto-tuned resonance frequency	0 Hz–5000 Hz	0	Hz	Unchangeable	"H09_en.24" on page 322
H09.32	2009-21h	Gravity compensation value	-100.0% to 100.0%	0.0	%	Real-time	"H09_en.32" on page 322
H09.33	2009-22h	Positive friction compensation value	0.0% to 100.0%	0.0	%	Real-time	"H09_en.33" on page 322
H09.34	2009-23h	Negative friction compensation value	-100.0% to 0.0%	0.0	%	Real-time	"H09_en.34" on page 323
H09.35	2009-24h	Friction compensation speed	0.0–20.0	2.0	-	Real-time	"H09_en.35" on page 323

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.36	2009-25h	Friction compensation speed	0: Slow mode+Speed reference 1: Slow mode+Model speed 2: Slow mode+Speed feedback 3: Slow mode+Observe speed 16: Quick mode +Speed reference 17: Quick mode +Model speed 18: Quick mode +Speed feedback 19: Quick mode+Observe speed	0x0	-	Real-time	" H09_en.36" on page 323
H09.37	2009-26h	Vibration monitoring time	0–65535	300	-	Real-time	" H09_en.37" on page 324
H09.38	2009-27h	Frequency of low-frequency resonance suppression 1 at the mechanical end	1.0 Hz–100.0 Hz	100.0	Hz	At stop	" H09_en.38" on page 324
H09.39	2009-28h	Low-frequency resonance suppression 1 at the mechanical end	0–3	2	-	At stop	" H09_en.39" on page 325
H09.44	2009-2Dh	Frequency of low-frequency resonance suppression 2 at mechanical load end	0.0–200.0	0.0	-	At stop	" H09_en.44" on page 325
H09.45	2009-2Eh	Responsiveness of low-frequency resonance suppression 2 at mechanical load end	0.01–10.00	1.00	-	At stop	" H09_en.45" on page 325

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.47	2009-30h	Width of low-frequency resonance suppression 2 at mechanical load end	0.00–2.00	1.00	-	At stop	"H09_en.47" on page 326
H09.49	2009-32h	Frequency of low-frequency resonance suppression 3 at mechanical load end	0.0–200.0	0.0	-	At stop	"H09_en.49" on page 326
H09.50	2009-33h	Responsiveness of low-frequency resonance suppression 3 at mechanical load end	0.01–10.00	1.00	-	At stop	"H09_en.50" on page 326
H09.52	2009-35h	Width of low-frequency resonance suppression 3 at mechanical load end	0.00–2.00	1.00	-	At stop	"H09_en.52" on page 326
H09.54	2009-37h	Resonance detection torque threshold	0.0% to 300.0%	50.0	%	Real-time	"H09_en.54" on page 327
H09.56	2009-39h	Max. overshoot allowed by ETune	0–65535	2936	-	Real-time	"H09_en.56" on page 327
H09.57	2009-3Ah	STune resonance suppression switchover frequency	0 Hz–4000 Hz	650	Hz	Real-time	"H09_en.57" on page 327
H09.58	2009-3Bh	STune resonance suppression reset selection	0: Disabled 1: Enabled	0	-	Real-time	"H09_en.58" on page 328
H09.62	2009-3Fh	Stune stop delay judgment	0.00 ms–50.00 ms	1.00	ms	Real-time	"H09_en.62" on page 328
H09.63	2009-40h	STune quick convergence speed	0.00–50.00	1.00	-	Real-time	"H09_en.63" on page 328

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.71	2009-48h	Starting frequency	0 Hz–8000 Hz	15	Hz	Real-time	"H09_en.71" on page 329
H09.72	2009-49h	End frequency	0 Hz–8000 Hz	8000	Hz	Real-time	"H09_en.72" on page 329
H09.73	2009-4Ah	Frequency subdivision	0–500	50	-	Real-time	"H09_en.73" on page 329
H09.74	2009-4Bh	Excitation amplitude	0.0% to 400.0%	15.0	%	Real-time	"H09_en.74" on page 329
H09.75	2009-4Ch	Starting frequency 2	0 Hz–8000 Hz	500	Hz	Real-time	"H09_en.75" on page 330
H09.76	2009-4Dh	Frequency subdivision 2	0–1000	500	-	Real-time	"H09_en.76" on page 330
H09.77	2009-4Eh	Biquad filter mode	0: Disabled 1: First-order low-pass 2: Second-order low-pass 3: Notch 4: Lead-lag 5: User-defined	0	-	Real-time	"H09_en.77" on page 330
H09.78	2009-4Fh	Biquad filter numerator frequency	0 Hz–16000 Hz	8000	Hz	Real-time	"H09_en.78" on page 331
H09.79	2009-50h	Biquad filter numerator damping coefficient	0.001–10.000	1.000	-	Real-time	"H09_en.79" on page 331
H09.80	2009-51h	Biquad filter denominator frequency	0 Hz–16000 Hz	8000	Hz	Real-time	"H09_en.80" on page 331
H09.81	2009-52h	Biquad filter denominator damping coefficient	0.001–10.000	1.000	-	Real-time	"H09_en.81" on page 332
H09.82	2009-53h	Vibration frequency 1	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H09_en.82" on page 332
H09.83	2009-54h	Resonance frequency 1	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H09_en.83" on page 332
H09.84	2009-55h	Vibration damping 1	0.00–0.50	0.05	-	Real-time	"H09_en.84" on page 333
H09.85	2009-56h	Resonance damping 1	0.00–0.50	0.05	-	Real-time	"H09_en.85" on page 333
H09.86	2009-57h	Vibration frequency 2	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H09_en.86" on page 333
H09.87	2009-58h	Resonance frequency 2	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H09_en.87" on page 333

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.88	2009-59h	Vibration damping 2	0.00–0.50	0.05	-	Real-time	"H09_en.88" on page 334
H09.89	2009-5Ah	Resonance damping 2	0.00–0.50	0.05	-	Real-time	"H09_en.89" on page 334
H09.92	2009-5Dh	Model friction force compensation enable	0: Disabled 1: Enabled	1	-	Real-time	"H09_en.92" on page 334
H09.93	2009-5Eh	Model friction force compensation coefficient	0.00%/1000 rpm–50.00%/1000 rpm	0.00	%/1000 rpm	Real-time	"H09_en.93" on page 334
H09.98	2009-63h	Vibration suppression auto-tuning	0: Disabled 1: Fast auto-tuning 2: Slow auto-tuning	0	-	Real-time	"H09_en.98" on page 335

1.11 H0A Fault and Protection Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.00	200A-01h	Power input phase loss and failure protection	0: Enable 1: Disable	0	-	Real-time	"H0A_en.00" on page 335
H0A.01	200A-02h	Absolute position limit	0: Disabled 1: Enabled 2: Enabled after homing	0	-	Real-time	"H0A_en.01" on page 336
H0A.04	200A-05h	Motor overload protection gain	50–300	100	-	Real-time	"H0A_en.04" on page 336
H0A.08	200A-09h	Overspeed threshold	0[mm/s]/[rpm]–20000[mm/s]/[rpm]	0	[mm/s]/[rpm]	Real-time	"H0A_en.08" on page 336
H0A.09	200A-0Ah	Max. pulse input frequency in position control	100 kHz–16000 kHz	16000	kHz	At stop	"H0A_en.09" on page 337
H0A.10	200A-0Bh	Threshold of excessive local position deviation	0 to 4294967295	219895614	Encoder unit	Real-time	"H0A_en.10" on page 337

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.12	200A-0Dh	Runaway protection enable	0: Disabled 1: Runaway protection scheme 1 2: Runaway protection scheme 2	1	-	At stop	"H0A_en.12" on page 338
H0A.13	200A-0Eh	Angle auto-tuning mode	0: pre-positioning 1: Inching 2: Voltage injection 6: Static hall 8: Closed-loop pre-positioning 9: Position locking	0	-	At stop	"" on page 338
H0A.17	200A-12h	Reference pulse selection	0: Pulse unit 1: Reference unit	0	-	At stop	"H0A_en.17" on page 338
H0A.18	200A-13h	IGBT over-temperature threshold	120°C–175°C	140	°C	Real-time	"H0A_en.18" on page 338
H0A.19	200A-14h	Filter time constant of touch probe 1	0.00μs to 6.30μs	2.00	μs	Real-time	"H0A_en.19" on page 339
H0A.20	200A-15h	Filter time constant of touch probe 2	0.00μs to 6.30μs	2.00	μs	Real-time	"H0A_en.20" on page 339
H0A.21	200A-16h	STO function display selection	0–7	0	-	Real-time	"H0A_en.21" on page 339
H0A.23	200A-18h	TZ signal filter time	0 ns–31 ns	15	25ns	At stop	"H0A_en.23" on page 340
H0A.24	200A-19h	Filter time constant of low-speed pulse input terminal	0 ns–255 ns	30	25ns	At stop	"H0A_en.24" on page 340
H0A.25	200A-1Ah	Speed display DO low-pass filter time	0 ms–5000 ms	0	ms	At stop	"H0A_en.25" on page 340
H0A.26	200A-1Bh	Motor overload detection	0: Show motor overload alarm (E909.0) and fault (E620.0) 1: Hide motor overload alarm (E909.0) and fault (E620.0)	0	-	Real-time	"H0A_en.26" on page 341
H0A.27	200A-1Ch	Average filter time for speed display DO	0 ms–100 ms	50	ms	At stop	"H0A_en.27" on page 341
H0A.28	200A-1Dh	Quadrature encoder filter time	0 ns–255 ns	2	25ns	At stop	"H0A_en.28" on page 341

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.29	200A-1Eh	Fully closed-loop encoder (ABZ) filter time	bit0–bit7: Fully closed loop encoder (ABZ) pulse signal filtering time bit8–bit15: Fully closed loop encoder (ABZ) wire breakage filter time	4111	25ns	At stop	"H0A_en.29" on page 342
H0A.30	200A-1Fh	Filter time constant of high-speed pulse input terminal	0 ns–255 ns	2	ns	At stop	"H0A_en.30" on page 342
H0A.32	200A-21h	Time threshold for locked motor overheat protection	10 ms–65535 ms	200	ms	Real-time	"H0A_en.32" on page 342
H0A.33	200A-22h	Locked motor overheat protection	0: Disabled 1: Enabled	1	-	Real-time	"H0A_en.33" on page 343
H0A.36	200A-25h	Encoder multi-turn overflow fault selection	0: Not hide 1: Hide	0	-	Real-time	"H0A_en.36" on page 343
H0A.40	200A-29h	Compensation function selection	bit0: Overtravel compensation 0: Enabled 1: Disabled bit1: Touch probe rising edge compensation 0: Disabled 1: Enabled bit2: Touch probe falling edge compensation 0: Disabled 1: Enabled bit3: Touch probe scheme 0: New scheme 1: Old scheme (same as SV660N) bit4: Probe 2 separate compensation time enable 0: Disabled 1: Enabled	0x6	-	At stop	"H0A_en.40" on page 343
H0A.41	200A-2Ah	Forward position of software position limit	-2147483648 to 2147483647	2147483647	Encoder unit	At stop	"H0A_en.41" on page 344

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.43	200A-2Ch	Reverse position of software position limit	-2147483648 to 2147483647	-2147483648	Encoder unit	At stop	"H0A_en.43" on page 344
H0A.50	200A-33h	Encoder communication fault tolerance threshold	0–31	31	-	Real-time	"H0A_en.50" on page 345
H0A.51	200A-34h	Phase loss detection filter times	3 ms–36 ms	20	55ms	Real-time	"H0A_en.51" on page 345
H0A.52	200A-35h	Encoder temperature protection threshold	0°C–175°C	120	°C	Real-time	"H0A_en.52" on page 345
H0A.53	200A-36h	Probe DI ON compensation time	-3000 ns–3000 ns	200	25ns	Real-time	"H0A_en.53" on page 346
H0A.54	200A-37h	Probe DI OFF compensation time	-3000 ns–3000 ns	1512	25ns	Real-time	"H0A_en.54" on page 346
H0A.55	200A-38h	Runaway current threshold	100.0% to 400.0%	200.0	%	Real-time	"H0A_en.55" on page 346
H0A.56	200A-39h	Fault reset delay	0 ms–60000 ms	10000	ms	Real-time	"H0A_en.56" on page 346
H0A.57	200A-3Ah	Runaway speed threshold	1[mm/s]/[rpm]–1000[mm/s]/[rpm]	50	[mm/s]/[rpm]	Real-time	"H0A_en.57" on page 347
H0A.58	200A-3Bh	Runaway speed filter time	0.1 ms–100.0 ms	2.0	ms	Real-time	"H0A_en.58" on page 347
H0A.59	200A-3Ch	Runaway protection detection time	10 ms–1000 ms	30	ms	Real-time	"H0A_en.59" on page 347
H0A.60	200A-3Dh	Black box function mode 0: Disable 1: Any fault 2: Designated fault 3: Triggered based on designated condition		1	-	Real-time	"H0A_en.60" on page 347
H0A.61	200A-3Eh	Designated fault code	0.0–6553.5	0.0	-	Real-time	"H0A_en.61" on page 348
H0A.62	200A-3Fh	Trigger source	0–25	0	-	Real-time	"H0A_en.62" on page 348
H0A.63	200A-40h	Trigger level	-2147483648–2147483647	0	-	Real-time	"H0A_en.63" on page 348

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.65	200A-42h	Trigger level	0: Rising edge 1: Equal 2: Falling edge 3: Edge-triggered	0	-	Real-time	"H0A_en.65" on page 349
H0A.66	200A-43h	Trigger position	0% to 100%	75	%	Real-time	"H0A_en.66" on page 349
H0A.67	200A-44h	Sampling frequency	0: Current loop 1: Position loop 2: Main cycle	0	-	Real-time	"H0A_en.67" on page 349
H0A.70	200A-47h	Overspeed threshold 2	0[mm/s]/[rpm]–20000[mm/s]/[rpm]	0	[mm/s]/[rpm]	Real-time	"H0A_en.70" on page 350
H0A.71	200A-48h	Internal function switch	0–65535	4098	-	Real-time	"H0A_en.71" on page 350
H0A.72	200A-49h	Maximum stop time in ramp-to-stop	0 ms–65535 ms	10000	ms	At stop	"H0A_en.72" on page 351
H0A.73	200A-4Ah	STO 24 V disconnection filter time	1 ms–5 ms	1	ms	Real-time	"H0A_en.73" on page 351
H0A.74	200A-4Bh	Filter time for two inconsistent STO channels	1 ms–1000 ms	100	ms	Real-time	"H0A_en.74" on page 352
H0A.75	200A-4Ch	Servo OFF delay after STO triggered	0 ms–25 ms	20	ms	Real-time	"H0A_en.75" on page 352
H0A.87	200A-58h	Hall state fault filtering count	0–1000	1	-	Real-time	"H0A_en.87" on page 352
H0A.88	200A-59h	Alarm enable	0–3	0	-	At stop	"H0A_en.88" on page 353
H0A.89	200A-5Ah	Correct state of DDL BiSS-C data	0–31	1	-	At stop	"H0A_en.89" on page 353
H0A.90	200A-5Bh	Speed display low-pass filter time	0 ms–100 ms	0	ms	At stop	"H0A_en.90" on page 353
H0A.91	200A-5Ch	Moving average filter time for torque display values	0 ms–100 ms	0	ms	At stop	"H0A_en.91" on page 353
H0A.92	200A-5Dh	Moving average filter time for position display values	0 ms–100 ms	0	ms	At stop	"H0A_en.92" on page 354

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.93	200A-5Eh	Low-pass filter time for voltage display values	0 ms–250 ms	0	ms	At stop	"H0A_en.93" on page 354
H0A.94	200A-5Fh	Low-pass filter time for thermal display values	0 ms–250 ms	0	ms	At stop	"H0A_en.94" on page 354

1.12 H0b Monitoring Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.00	200b-01h	Motor speed actual value	-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]	0	[mm/s]/[rpm]	Unchangeable	"H0b_en.00" on page 355
H0b.01	200b-02h	Speed reference	-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]	0	[mm/s]/[rpm]	Unchangeable	"H0b_en.01" on page 355
H0b.02	200b-03h	Internal torque reference	-3276.7% to 3276.7%	0.0	%	Unchangeable	"H0b_en.02" on page 355
H0b.03	200b-04h	Input (DI) signal monitoring	0–65535	0	-	Unchangeable	"H0b_en.03" on page 356
H0b.05	200b-06h	Output (DO) signal monitoring	0–65535	0	-	Unchangeable	"H0b_en.05" on page 356
H0b.07	200b-08h	Absolute position counter	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"H0b_en.07" on page 356
H0b.09	200b-0Ah	Mechanical angle	0.0° to 360.0°	0.0	°	Unchangeable	"H0b_en.09" on page 356
H0b.10	200b-0Bh	Electrical angle	0.0° to 360.0°	0.0	°	Unchangeable	"H0b_en.10" on page 357
H0b.12	200b-0Dh	Average load ratio	0.0% to 800.0%	0.0	%	Unchangeable	"H0b_en.12" on page 357
H0b.13	200b-0Eh	Input reference counter	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"H0b_en.13" on page 358
H0b.15	200b-10h	Position following error (encoder unit)	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.15" on page 358

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.17	200b-12h	Feedback pulse counter	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.17" on page 358
H0b.19	200b-14h	Total power-on time	0.0s–429496729.5s	0.0	s	Unchangeable	"H0b_en.19" on page 359
H0b.21	200b-16h	Displayed AI1 voltage	-327.67 V–327.67 V	0.00	V	Unchangeable	"H0b_en.21" on page 359
H0b.22	200b-17h	Displayed AI2 voltage	-327.67 V–327.67 V	0.00	V	Unchangeable	"H0b_en.22" on page 359
H0b.24	200b-19h	Phase current RMS value	0.0 A–6553.5 A	0.0	A	Unchangeable	"H0b_en.24" on page 359
H0b.25	200b-1Ah	Angle obtained upon voltage injection auto-tuning	0.0° to 360.0°	0.0	°	Unchangeable	"H0b_en.25" on page 360
H0b.26	200b-1Bh	Bus voltage	0.0 V–6553.5 V	0.0	V	Unchangeable	"H0b_en.26" on page 360
H0b.27	200b-1Ch	Module temperature	-20°C–200°C	0	°C	Unchangeable	"H0b_en.27" on page 360
H0b.28	200b-1Dh	Absolute encoder fault information given by FPGA	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.28" on page 361
H0b.29	200b-1Eh	Axis status information given by FPGA	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.29" on page 361
H0b.30	200b-1Fh	Axis fault information given by FPGA	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.30" on page 361
H0b.31	200b-20h	Encoder fault information	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.31" on page 361

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.33	200b-22h	Fault log	0: Present fault 1: Last fault 2: 2nd to last fault 3: 3rd to last fault 4: 4th to last fault 5: 5th to last fault 6: 6th to last fault 7: 7th to last fault 8: 8th to last fault 9: 9th to last fault 10: 10th to last fault 11: 11th to last fault 12: 12th to last fault 13: 13th to last fault 14: 14th to last fault 15: 15th to last fault 16: 16th to last fault 17: 17th to last fault 18: 18th to last fault 19: 19th to last fault	0	-	Real-time	"H0b_en.33" on page 362
H0b.34	200b-23h	Fault code of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.34" on page 363
H0b.35	200b-24h	Timestamp of the selected fault	0.0s–429496729.5s	0.0	s	Unchangeable	"H0b_en.35" on page 363
H0b.37	200b-26h	Motor speed upon occurrence of the selected fault	-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]	0	[mm/s]/[rpm]	Unchangeable	"H0b_en.37" on page 364
H0b.38	200b-27h	Motor phase U current upon occurrence of the selected fault	-3276.7 A–3276.7 A	0.0	A	Unchangeable	"H0b_en.38" on page 364
H0b.39	200b-28h	Motor phase V current upon occurrence of the selected fault	-3276.7 A–3276.7 A	0.0	A	Unchangeable	"H0b_en.39" on page 364
H0b.40	200b-29h	Bus voltage upon occurrence of the selected fault	0.0 V–6553.5 V	0.0	V	Unchangeable	"H0b_en.40" on page 364

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.41	200b-2Ah	Input terminal state on selected fault	0–65535	0	-	Unchangeable	"H0b_en.41" on page 365
H0b.43	200b-2Ch	Output terminal status upon occurrence of the selected fault	0–65535	0	-	Unchangeable	"H0b_en.43" on page 365
H0b.45	200b-2Eh	Internal fault code	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.45" on page 365
H0b.46	200b-2Fh	Absolute encoder fault information given by FPGA upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.46" on page 365
H0b.47	200b-30h	System status information given by FPGA upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.47" on page 366
H0b.48	200b-31h	System fault information given by FPGA upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.48" on page 366
H0b.49	200b-32h	Encoder fault information upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.49" on page 366
H0b.51	200b-34h	Internal fault code upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.51" on page 367

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.52	200b-35h	FPGA timeout fault standard bit upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.52" on page 367
H0b.53	200b-36h	Position following error (reference unit)	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"H0b_en.53" on page 367
H0b.55	200b-38h	Actual motor speed 2	-214748364.8[mm/s]/[rpm]–214748364.7[mm/s]/[rpm]	0.0	[mm/s]/[rpm]	Unchangeable	"H0b_en.55" on page 368
H0b.57	200b-3Ah	Control circuit bus voltage	0.0 V–6553.5 V	0.0	V	Unchangeable	"H0b_en.57" on page 368
H0b.58	200b-3Bh	Mechanical absolute position (low 32 bits)	0 to 4294967295	0	Encoder unit	Unchangeable	"H0b_en.58" on page 368
H0b.60	200b-3Dh	Mechanical absolute position (high 32 bits)	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.60" on page 368
H0b.63	200b-40h	NotRdy state	0: Normal 1: Control circuit error 2: Main circuit power input error 3: Bus undervoltage 4: Soft start failed 5: Encoder initialization undone 6: Short circuit to ground failed 7: Others 9: Fully closed-loop encoder initialization not completed	0	-	Unchangeable	"H0b_en.63" on page 369
H0b.64	200b-41h	Real-time input position reference counter	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"H0b_en.64" on page 369
H0b.66	200b-43h	Encoder temperature	-32768°C–32767°C	0	°C	Unchangeable	"H0b_en.66" on page 370
H0b.67	200b-44h	Load rate of braking resistor	0.0% to 200.0%	0.0	%	Unchangeable	"H0b_en.67" on page 370

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.70	200b-47h	Number of absolute encoder revolutions	-32768Rev to 32767Rev	0	Rev	Unchangeable	"H0b_en.70" on page 370
H0b.71	200b-48h	Single-turn position fed back by the absolute encoder	0 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.71" on page 371
H0b.74	200b-4Bh	System fault information given by FPGA	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.74" on page 371
H0b.77	200b-4Eh	Encoder position (low 32 bits)	0 to 4294967295	0	Encoder unit	Unchangeable	"H0b_en.77" on page 371
H0b.79	200b-50h	Encoder position (high 32 bits)	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.79" on page 371
H0b.81	200b-52h	Single-turn position of the rotary load (low 32 bits)	0 to 4294967295	0	Encoder unit	Unchangeable	"H0b_en.81" on page 372
H0b.83	200b-54h	Single-turn position of the rotary load (high 32 bits)	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.83" on page 372
H0b.85	200b-56h	Single-turn position of the rotary load (reference unit)	0 to 4294967295	0	Reference unit	Unchangeable	"H0b_en.85" on page 372
H0b.87	200b-58h	IGBT junction temperature	0–200	0	-	Unchangeable	"H0b_en.87" on page 373
H0b.90	200b-5Bh	Group No. of the abnormal parameter	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.90" on page 373
H0b.91	200b-5Ch	Offset within the group of the abnormal parameter	0–65535	0	-	Unchangeable	"H0b_en.91" on page 373
H0b.92	200b-5Dh	Hall state	0–65535	0	-	Unchangeable	"H0b_en.92" on page 373
H0b.93	200b-5Eh	Closed loop state	0: Half closed loop 1: Fully closed loop	0	-	Unchangeable	"H0b_en.93" on page 374
H0b.94	200b-5Fh	Individual power-on time	0.0s–429496729.5s	0.0	s	Unchangeable	"H0b_en.94" on page 374

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.96	200b-61h	Individual power-on time upon occurrence of the selected fault	0.0s–429496729.5s	0.0	s	Unchangeable	"H0b_en.96" on page 374
H0b.98	200b-63h	Dynamic braking resistor load rate	0.0% to 200.0%	0.0	%	Unchangeable	"H0b_en.98" on page 375

1.13 H0C Fault and Protection Parameters 2

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0C.53	200C-36h	Probe DI ON compensation time 2	-3000 ns–3000 ns	200	25ns	Real-time	"H0C_en.53" on page 375
H0C.54	200C-37h	Probe DI OFF compensation time 2	-3000 ns–3000 ns	1512	25ns	Real-time	"H0C_en.54" on page 375
H0C.71	200C-48h	Internal function switch 2	0–65535	512	-	Real-time	"H0C_en.71" on page 375

1.14 H0d Auxiliary Function Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0d.00	200d-01h	Software Reset	0: No operation 1: Enable	0	-	At stop	"H0d_en.00" on page 376
H0d.01	200d-02h	Fault Reset	0: No operation 1: Enable	0	-	At stop	"H0d_en.01" on page 376
H0d.02	200d-03h	Inertia auto-tuning enable	0–65	0	-	Real-time	"H0d_en.02" on page 377
H0d.04	200d-05h	Read/write in encoder ROM	0: No operation 1: Write ROM 2: Read ROM 3: ROM failure	0	-	At stop	"H0d_en.04" on page 377
H0d.05	200d-06h	Emergency stop	0: No operation 1: Emergency stop	0	-	Real-time	"H0d_en.05" on page 378

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0d.06	200d-07h	Current loop auto-tuning test	0: No operation 1: Enable current loop auto-tuning 2: Enable current loop step test (static) 3: Enable current loop step test	0	-	At stop	"H0d_en.06" on page 378
H0d.10	200d-08h	Analog channel auto adjusting	0: No operation 1: Adjusted through AI1 2: Adjusted through AI2	0	-	At stop	"H0d_en.10" on page 378
H0d.12	200d-0Dh	Phase U/V current balance correction enable	0: Disabled 1: Enabled	0	-	At stop	"H0d_en.12" on page 379
H0d.17	200d-12h	Forced DI/DO enable switch	bit0: Forced DI enable switch 0: Disabled 1: Enabled bit1: Forced DO enable switch 0: Disabled 1: Enabled	0	-	Real-time	"H0d_en.17" on page 379
H0d.18	200d-13h	Forced DI value	0x0 to 0xFF	0xFF	-	Real-time	"H0d_en.18" on page 380
H0d.19	200d-14h	Forced DO value	0x0 to 0x1F	0x0	-	Real-time	"H0d_en.19" on page 380
H0d.20	200d-15h	Absolute encoder reset	0: No operation 1: Reset fault 2: Reset fault and multi-turn data 3: Reset Inovance 2nd encoder fault 4: Reset Inovance 2nd encoder fault and multi-turn data	0	-	At stop	"H0d_en.20" on page 380
H0d.21	200d-16h	Read error status bit of Nikon and EnDat2.2 encoders	0: No operation 1: Reading error status bit	0	-	At stop	"H0d_en.21" on page 381
H0d.29	200d-1Eh	Motor parameter auto-tuning	0: No operation 1: Enabled	0	-	At stop	"H0d_en.29" on page 381

1.15 H0E Communication Function Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0E.00	200E-01h	Node address	1–127	1	-	At stop	"H0E_en.00" on page 382
H0E.01	200E-02h	Save objects written through communication to EEPROM	0: Not save 1: Save parameters 2: Save object dictionaries 3: Save parameters and object dictionaries 4: Save object dictionaries written before communication (OP) 255: Determine through H0E03 and H0E04	1	-	Real-time	"H0E_en.01" on page 382
H0E.03	200E-04h	Save objects written through software (commissioning protocol) to EEPROM	0: Do not save 1: Save	1	-	Real-time	"H0E_en.03" on page 382
H0E.04	200E-05h	Save objects written through communication to EEPROM (excluding commissioning protocol)	0: Do not save 1: Save	0	-	Real-time	"H0E_en.04" on page 383
H0E.07	200E-08h	Object dictionary unit selection	0: Reference unit system (p/s, p/s ²) 1: User unit system (0.01 [mm/s]/[rpm], ms)	0	-	At stop	"H0E_en.07" on page 383
H0E.10	200E-0Bh	CAN selection	0: Pulse/Axis control command 1: Enhanced axis control command 2: CANopen	0	-	At stop	"H0E_en.10" on page 384
H0E.11	200E-0Ch	CAN baud rate	0: 20 kbps 1: 50 kbps 2: 100 kbps 3: 125 kbps 4: 250 kbps 5: 500 kbps 6: 1 Mbps 7: 1 Mbps - non-standard	5	-	At stop	"H0E_en.11" on page 384

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0E.12	200E-0Dh	Excessive IP position command increment count	1–30	20	-	Real-time	"H0E_en.12" on page 385
H0E.13	200E-0Eh	CANopen sync period error limit	0: 1/4 1: 1/2 2: 3/4 3: 1 4: 2 5: Disabled	0	-	At stop	"H0E_en.13" on page 385
H0E.14	200E-0Fh	CANopen communication state	0–9	0	-	Unchangeable	"H0E_en.14" on page 386
H0E.17	200E-12h	Get the count of received NMT frames with incorrect length	0–65535	0	-	Unchangeable	"H0E_en.17" on page 386
H0E.18	200E-13h	Get the count of received NMT frames with incorrect command	0–65535	0	-	Unchangeable	"H0E_en.18" on page 386
H0E.19	200E-14h	Get received heartbeat frames of wrong length	0–65535	0	-	Unchangeable	"H0E_en.19" on page 387
H0E.80	200E-51h	Modbus baud rate	0: 300 bps 1: 600 bps 2: 1200 bps 3: 2400 bps 4: 4800 bps 5: 9600 bps 6: 19200 bps 7: 38400 bps 8: 57600 bps 9: 115200 bps	9	-	Real-time	"H0E_en.80" on page 387
H0E.81	200E-52h	Modbus data format	0: No parity, 2 stop bits (N-2) 1: Even parity, 1 stop bit (E-1) 2: Odd parity, 1 stop bit (O-1) 3: No parity, 1 stop bit (N-1)	3	-	Real-time	"H0E_en.81" on page 388
H0E.82	200E-53h	Modbus response delay	0 ms–20 ms	0	ms	Real-time	"H0E_en.82" on page 388

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0E.83	200E-54h	Modbus communication timeout	0 ms–600 ms	0	ms	Real-time	"H0E_en.83" on page 388
H0E.84	200E-55h	Sequence of Modbus communication data bits	0: High bits before low bits 1: Low bits before high bits	1	-	Real-time	"H0E_en.84" on page 389
H0E.90	200E-5Bh	Communication version	0.00–655.35	0.00	-	Unchangeable	"H0E_en.90" on page 389
H0E.97	200E-62h	Communication monitoring parameter 1	0–65535	0	-	Real-time	"H0E_en.97" on page 389
H0E.98	200E-63h	Communication monitoring parameter 2	0–65535	0	-	Real-time	"H0E_en.98" on page 390

1.16 H0F Fully Closed-loop Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0F.00	200F-01h	Encoder feedback mode	0: Internal encoder feedback 1: External encoder feedback 2: Inner/Outer loop switchover	0	-	Real-time	"H0F_en.00" on page 390
H0F.01	200F-02h	Fully closed-loop encoder application mode	0: Standard operating direction 1: Reverse operating direction	0	-	Real-time	"H0F_en.01" on page 390
H0F.02	200F-03h	Fully closed-loop encoder absolute value	0: Incremental mode 1: Absolute linear mode	0	-	At stop	"H0F_en.02" on page 391
H0F.03	200F-04h	Fully closed-loop encoder feedback type	0: Quadrature pulse 1: Inovance 2: BiSS-C 3: EnDat2.2 4: SSI	0	-	At stop	"H0F_en.03" on page 391
H0F.04	200F-05h	Number of fully closed-loop encoder pulses per revolution	1–2147483647	10000	-	At stop	"H0F_en.04" on page 392
H0F.06	200F-07h	Fully closed-loop encoder interface	0: CN2 1: CN7	1	-	At stop	"H0F_en.06" on page 392

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0F.08	200F-09h	Excessive deviation threshold in compound control mode	0–2147483647	1000	-	Real-time	"H0F_en.08" on page 393
H0F.10	200F-0Bh	Clear deviation in compound control mode	0 Rev to 100 Rev	1	Rev	Real-time	"H0F_en.10" on page 393
H0F.13	200F-0Eh	Compound vibration suppression filter time	0.0 ms–6553.5 ms	0.0	ms	At stop	"H0F_en.13" on page 393
H0F.16	200F-11h	Pulse deviation display in compound control mode	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0F_en.16" on page 394
H0F.18	200F-13h	Internal position pulse feedback display	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0F_en.18" on page 394
H0F.20	200F-15h	Fully closed-loop encoder position pulse feedback display	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0F_en.20" on page 395
H0F.22	200F-17h	Quadrature pulse phase Z detection invalid in fully closed-loop mode	0: Detected 1: Not detected	0	-	Real-time	"H0F_en.22" on page 395
H0F.23	200F-18h	BiSS-C/SSI/EDNAT2.2 fully closed-loop encoder absolute homing offset	-2147483648–2147483647	0	-	Real-time	"H0F_en.23" on page 395
H0F.25	200F-1Ah	Set the source of touch probe Z signal in fully closed-loop mode.	0: Motor Z signal 1: External feedback Z signal	0	-	Real-time	"H0F_en.25" on page 396

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0F.26	200F-1Bh	BiSS-C/SSI/EDNAT2.2 fully closed-loop encoder absolute feedback offset	-2147483648–2147483647	0	-	Real-time	"H0F_en.26" on page 396
H0F.28	200F-1Dh	Index value of BiSS-C/SSI communication alarm	0–65535	0	-	Unchangeable	"H0F_en.28" on page 396
H0F.29	200F-1Eh	CRC of BiSS-C/SSI fully closed-loop encoder feedback	0: Positive 1: Negative	1	-	Real-time	"H0F_en.29" on page 397
H0F.30	200F-1Fh	BiSS-C/SSI/EDNAT2.2 valid bits of encoder communication position feedback in full closed-loop mode	0–127	29	-	At stop	"H0F_en.30" on page 397
H0F.31	200F-20h	Valid bit of BiSS-C/SSI encoder communication alarm index in full closed-loop mode	0–31	2	-	At stop	"H0F_en.31" on page 398
H0F.32	200F-21h	BiSS-C/SSI/ENDAT encoder communication frequency in fully closed-loop mode	0 kHz–10000 kHz	2000	kHz	Real-time	"H0F_en.32" on page 399
H0F.33	200F-22h	SSI/ENDAT encoder recovery time in fully closed-loop mode	0.000µs to 40.000µs	0.500	µs	Real-time	"H0F_en.33" on page 399
H0F.35	200F-24h	BiSS-C error detection enable in fully closed-loop mode	0: Disabled 1: Enabled	0	-	At stop	"H0F_en.35" on page 399

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0F.36	200F-25h	BiSS-C error bit polarity in fully closed-loop mode	0: Positive 1: Negative	0	-	At stop	"H0F_en.36" on page 399
H0F.40	200F-29h	Fully closed-loop communication encoder fault info	0–65535	0	-	Unchangeable	"H0F_en.40" on page 400
H0F.41	200F-2Ah	Inovance fully closed-loop encoder version	0.0–6553.5	0.0	-	Unchangeable	"H0F_en.41" on page 402
H0F.42	200F-2Bh	Inovance fully closed-loop encoder resolution	0–4294967295	0	-	Unchangeable	"H0F_en.42" on page 402
H0F.45	200F-2Eh	Positioning completed/ Position deviation threshold in fully closed-loop mode	0: Threshold scaled to outer loop unit 1: Same threshold used for inner and outer loops	0	-	At stop	"H0F_en.45" on page 402
H0F.51	200F-34h	SSI encoder check bit selection in fully closed-loop mode	0: No check 1: Check applied	1	-	At stop	"H0F_en.51" on page 403
H0F.52	200F-35h	SSI encoder code system in full closed-loop mode	0: Binary 1: Gray code	1	-	At stop	"H0F_en.52" on page 403
H0F.53	200F-36h	SSI encoder state word code system in fully closed-loop mode	0: Binary 1: Gray code	1	-	At stop	"H0F_en.53" on page 403
H0F.54	200F-37h	SSI encoder parity check in fully closed-loop mode	0: Disabled 1: Enabled	0	-	At stop	"H0F_en.54" on page 404

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0F.55	200F-38h	Fully closed-loop encoder communication timeout error count	0-65535	0	-	Unchangeable	"H0F_en.55" on page 404
H0F.56	200F-39h	Encoder CRC error count in fully closed-loop mode	0-65535	0	-	Unchangeable	"H0F_en.56" on page 404
H0F.57	200F-3Ah	Fully closed-loop encoder communication frame stop bit error count.	0-65535	0	-	Unchangeable	"H0F_en.57" on page 405

1.17 H11 Multi-Position Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.00	2011-01h	Multi-position running mode	0: Single run (number of displacements selected in H11.01) 1: Cyclic operation (number of displacement selected in H11.01) 2: DI-based operation (selected by DI) 3: Sequential operation 5: Axis-controlled continuous operation	1	-	At stop	"H11_en.00" on page 405
H11.01	2011-02h	Number of displacement references in multi-position mode	1-16	1	-	At stop	"H11_en.01" on page 409
H11.02	2011-03h	Starting displacement No. after pause	0: Continue to execute the unexecuted displacements 1: Start from displacement 1	0	-	At stop	"H11_en.02" on page 409
H11.03	2011-04h	Interval time unit	0: ms 1: s	0	-	At stop	"H11_en.03" on page 410
H11.04	2011-05h	Displacement reference type	0: Relative displacement reference 1: Absolute displacement reference	0	-	Real-time	"H11_en.04" on page 410

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.05	2011-06h	Starting displacement No. in sequential operation	0–16	0	-	At stop	"H11_en.05" on page 411
H11.09	2011-0Ah	Deceleration upon axis control OFF	0 ms–65535 ms	65535	ms	Real-time	"H11_en.09" on page 411
H11.10	2011-0Bh	Starting speed of displacement 1	0[mm/s]/[rpm]–6000[mm/s]/[rpm]	0	[mm/s]/[rpm]	Real-time	"H11_en.10" on page 411
H11.11	2011-0Ch	Stop speed of displacement 1	0[mm/s]/[rpm]–6000[mm/s]/[rpm]	0	[mm/s]/[rpm]	Real-time	"H11_en.11" on page 412
H11.12	2011-0Dh	Displacement 1	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.12" on page 412
H11.14	2011-0Fh	Max. speed of displacement 1	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.14" on page 412
H11.15	2011-10h	Acc/Dec time of displacement 1	0 ms–65535 ms	10	ms	Real-time	"H11_en.15" on page 413
H11.16	2011-11h	Interval time after displacement 1	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.16" on page 413
H11.17	2011-12h	Displacement 2	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.17" on page 414
H11.19	2011-14h	Max. speed of displacement 2	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.19" on page 414
H11.20	2011-15h	Acc/Dec time of displacement 2	0 ms–65535 ms	10	ms	Real-time	"H11_en.20" on page 414
H11.21	2011-16h	Interval time after displacement 2	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.21" on page 414
H11.22	2011-17h	Displacement 3	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.22" on page 415
H11.24	2011-19h	Max. speed of displacement 3	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.24" on page 415
H11.25	2011-1Ah	Acc/Dec time of displacement 3	0 ms–65535 ms	10	ms	Real-time	"H11_en.25" on page 415

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.26	2011-1Bh	Interval time after displacement 3	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.26" on page 415
H11.27	2011-1Ch	Displacement 4	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.27" on page 416
H11.29	2011-1Eh	Max. speed of displacement 4	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.29" on page 416
H11.30	2011-1Fh	Acc/Dec time of displacement 4	0 ms–65535 ms	10	ms	Real-time	"H11_en.30" on page 416
H11.31	2011-20h	Interval time after displacement 4	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.31" on page 417
H11.32	2011-21h	Displacement 5	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.32" on page 417
H11.34	2011-23h	Max. speed of displacement 5	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.34" on page 417
H11.35	2011-24h	Acc/Dec time of displacement 5	0 ms–65535 ms	10	ms	Real-time	"H11_en.35" on page 417
H11.36	2011-25h	Interval time after displacement 5	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.36" on page 418
H11.37	2011-26h	Displacement 6	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.37" on page 418
H11.39	2011-28h	Max. speed of displacement 6	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.39" on page 418
H11.40	2011-29h	Acc/Dec time of displacement 6	0 ms–65535 ms	10	ms	Real-time	"H11_en.40" on page 418
H11.41	2011-2Ah	Interval time after displacement 6	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.41" on page 419
H11.42	2011-2Bh	Displacement 7	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.42" on page 419
H11.44	2011-2Dh	Max. speed of displacement 7	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.44" on page 419
H11.45	2011-2Eh	Acc/Dec time of displacement 7	0 ms–65535 ms	10	ms	Real-time	"H11_en.45" on page 420

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.46	2011-2Fh	Interval time after displacement 7	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.46" on page 420
H11.47	2011-30h	Displacement 8	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.47" on page 420
H11.49	2011-32h	Max. speed of displacement 8	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.49" on page 420
H11.50	2011-33h	Acc/Dec time of displacement 8	0 ms–65535 ms	10	ms	Real-time	"H11_en.50" on page 421
H11.51	2011-34h	Interval time after displacement 8	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.51" on page 421
H11.52	2011-35h	Displacement 9	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.52" on page 421
H11.54	2011-37h	Max. speed of displacement 9	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.54" on page 421
H11.55	2011-38h	Acc/Dec time of displacement 9	0 ms–65535 ms	10	ms	Real-time	"H11_en.55" on page 422
H11.56	2011-39h	Interval time after displacement 9	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.56" on page 422
H11.57	2011-3Ah	Displacement 10	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.57" on page 422
H11.59	2011-3Ch	Max. speed of displacement 10	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.59" on page 423
H11.60	2011-3Dh	Acc/Dec time of displacement 10	0 ms–65535 ms	10	ms	Real-time	"H11_en.60" on page 423
H11.61	2011-3Eh	Interval time after displacement 10	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.61" on page 423
H11.62	2011-3Fh	Displacement 11	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.62" on page 423
H11.64	2011-41h	Max. speed of displacement 11	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.64" on page 424

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.65	2011-42h	Acc/Dec time of displacement 11	0 ms–65535 ms	10	ms	Real-time	"H11_en.65" on page 424
H11.66	2011-43h	Interval time after displacement 11	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.66" on page 424
H11.67	2011-44h	Displacement 12	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.67" on page 424
H11.69	2011-46h	Max. speed of displacement 12	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.69" on page 425
H11.70	2011-47h	Acc/Dec time of displacement 12	0 ms–65535 ms	10	ms	Real-time	"H11_en.70" on page 425
H11.71	2011-48h	Interval time after displacement 12	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.71" on page 425
H11.72	2011-49h	Displacement 13	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.72" on page 426
H11.74	2011-4Bh	Max. speed of displacement 13	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.74" on page 426
H11.75	2011-4Ch	Acc/Dec time of displacement 13	0 ms–65535 ms	10	ms	Real-time	"H11_en.75" on page 426
H11.76	2011-4Dh	Interval time after displacement 13	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.76" on page 426
H11.77	2011-4Eh	Displacement 14	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.77" on page 427
H11.79	2011-50h	Max. speed of displacement 14	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.79" on page 427
H11.80	2011-51h	Acc/Dec time of displacement 14	0 ms–65535 ms	10	ms	Real-time	"H11_en.80" on page 427
H11.81	2011-52h	Interval time after displacement 14	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.81" on page 427

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.82	2011-53h	Displacement 15	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.82" on page 428
H11.84	2011-55h	Max. speed of displacement 15	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.84" on page 428
H11.85	2011-56h	Acc/Dec time of displacement 15	0 ms–65535 ms	10	ms	Real-time	"H11_en.85" on page 428
H11.86	2011-57h	Interval time after displacement 15	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.86" on page 429
H11.87	2011-58h	Displacement 16	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.87" on page 429
H11.89	2011-5Ah	Max. speed of displacement 16	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.89" on page 429
H11.90	2011-5Bh	Acc/Dec time of displacement 16	0 ms–65535 ms	10	ms	Real-time	"H11_en.90" on page 429
H11.91	2011-5Ch	Interval time after displacement 16	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.91" on page 430

1.18 H12 Multi-Speed Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.00	2012-01h	Multi-speed operation mode	0: Individual operation (number of speeds selected in H12.01) 1: Cyclic operation (number of speeds selected in H12.01) 2: DI-based operation	1	-	At stop	"H12_en.00" on page 430
H12.01	2012-02h	Number of speed references in multi-speed mode	1–16	16	-	At stop	"H12_en.01" on page 431

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.02	2012-03h	Operating time unit	0: s 1: min	0	-	At stop	"H12_en.02" on page 432
H12.03	2012-04h	Acceleration time 1	0 ms–65535 ms	10	ms	Real-time	"H12_en.03" on page 432
H12.04	2012-05h	Deceleration time 1	0 ms–65535 ms	10	ms	Real-time	"H12_en.04" on page 433
H12.05	2012-06h	Acceleration time 2	0 ms–65535 ms	50	ms	Real-time	"H12_en.05" on page 433
H12.06	2012-07h	Deceleration time 2	0 ms–65535 ms	50	ms	Real-time	"H12_en.06" on page 433
H12.07	2012-08h	Acceleration time 3	0 ms–65535 ms	100	ms	Real-time	"H12_en.07" on page 434
H12.08	2012-09h	Deceleration time 3	0 ms–65535 ms	100	ms	Real-time	"H12_en.08" on page 434
H12.09	2012-0Ah	Acceleration time 4	0 ms–65535 ms	150	ms	Real-time	"H12_en.09" on page 434
H12.10	2012-0Bh	Deceleration time 4	0 ms–65535 ms	150	ms	Real-time	"H12_en.10" on page 435
H12.20	2012-15h	1st speed reference	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	0	[mm/s]/[rpm]	Real-time	"H12_en.20" on page 435
H12.21	2012-16h	Operating time of speed 1	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.21" on page 435
H12.22	2012-17h	1st speed rise/drop and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.22" on page 436
H12.23	2012-18h	Reference 2	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	100	[mm/s]/[rpm]	Real-time	"H12_en.23" on page 438
H12.24	2012-19h	Operating time of speed 2	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.24" on page 438

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.25	2012-1Ah	2nd speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.25" on page 438
H12.26	2012-1Bh	Reference 3	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	300	[mm/s]/[rpm]	Real-time	"H12_en.26" on page 439
H12.27	2012-1Ch	Operating time of speed 3	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.27" on page 439
H12.28	2012-1Dh	3rd speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.28" on page 440
H12.29	2012-1Eh	Reference 4	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	500	[mm/s]/[rpm]	Real-time	"H12_en.29" on page 440
H12.30	2012-1Fh	Operating time of speed 4	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.30" on page 440

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.31	2012-20h	4th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.31" on page 441
H12.32	2012-21h	Reference 5	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	700	[mm/s]/[rpm]	Real-time	"H12_en.32" on page 441
H12.33	2012-22h	Operating time of speed 5	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.33" on page 442
H12.34	2012-23h	5th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.34" on page 442
H12.35	2012-24h	Reference 6	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	900	[mm/s]/[rpm]	Real-time	"H12_en.35" on page 442
H12.36	2012-25h	Operating time of speed 6	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.36" on page 443

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.37	2012-26h	6th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.37" on page 443
H12.38	2012-27h	Reference 7	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	600	[mm/s]/[rpm]	Real-time	"H12_en.38" on page 444
H12.39	2012-28h	Operating time of speed 7	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.39" on page 444
H12.40	2012-29h	7th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.40" on page 444
H12.41	2012-2Ah	Reference 8	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	300	[mm/s]/[rpm]	Real-time	"H12_en.41" on page 445
H12.42	2012-2Bh	Operating time of speed 8	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.42" on page 445

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.43	2012-2Ch	8th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.43" on page 446
H12.44	2012-2Dh	Reference 9	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	100	[mm/s]/[rpm]	Real-time	"H12_en.44" on page 446
H12.45	2012-2Eh	Operating time of speed 9	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.45" on page 446
H12.46	2012-2Fh	9th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.46" on page 447
H12.47	2012-30h	Reference 10	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-100	[mm/s]/[rpm]	Real-time	"H12_en.47" on page 447
H12.48	2012-31h	Operating time of speed 10	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.48" on page 448

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.49	2012-32h	10th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.49" on page 448
H12.50	2012-33h	Reference 11	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-300	[mm/s]/[rpm]	Real-time	"H12_en.50" on page 448
H12.51	2012-34h	Operating time of speed 11	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.51" on page 449
H12.52	2012-35h	11th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.52" on page 449
H12.53	2012-36h	Reference 12	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-500	[mm/s]/[rpm]	Real-time	"H12_en.53" on page 450
H12.54	2012-37h	Operating time of speed 12	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.54" on page 450

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.55	2012-38h	12th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.55" on page 450
H12.56	2012-39h	Reference 13	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-700	[mm/s]/[rpm]	Real-time	"H12_en.56" on page 451
H12.57	2012-3Ah	Operating time of speed 13	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.57" on page 451
H12.58	2012-3Bh	13th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.58" on page 452
H12.59	2012-3Ch	Reference 14	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-900	[mm/s]/[rpm]	Real-time	"H12_en.59" on page 452
H12.60	2012-3Dh	Operating time of speed 14	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.60" on page 452

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.61	2012-3Eh	14th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.61" on page 453
H12.62	2012-3Fh	Reference 15	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-600	[mm/s]/[rpm]	Real-time	"H12_en.62" on page 453
H12.63	2012-40h	Operating time of speed 15	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.63" on page 454
H12.64	2012-41h	15th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.64" on page 454
H12.65	2012-42h	Reference 16	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-300	[mm/s]/[rpm]	Real-time	"H12_en.65" on page 454

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.66	2012-43h	Operating time of speed 16	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.66" on page 455
H12.67	2012-44h	16th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.67" on page 455

1.19 H13 Application Safety Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H13.00	2013-01h	Auto-tuned scheme 2 runaway distance threshold	0.00[mm]/[Rev]–655.35[mm]/[Rev]	0.00	[mm]/[Rev]	Unchangeable	"H13_en.00" on page 456
H13.01	2013-02h	Scheme 2 runaway distance threshold	0.00[mm]/[Rev]–15.00[mm]/[Rev]	0.50	[mm]/[Rev]	At stop	"H13_en.01" on page 456
H13.02	2013-03h	Scheme 2 runaway current threshold	0.0% to 400.0%	50.0	%	At stop	"H13_en.02" on page 456
H13.03	2013-04h	Runaway speed threshold in scheme 2 speed or position mode	1[mm/s]/[rpm]–6000[mm/s]/[rpm]	50	[mm/s]/[rpm]	At stop	"H13_en.03" on page 456

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H13.04	2013-05h	Runaway speed threshold in scheme 2 torque mode	1[mm/s]/[rpm]–6000[mm/s]/[rpm]	500	[mm/s]/[rpm]	At stop	"H13_en.04" on page 457
H13.05	2013-06h	Scheme 2 runaway inspection window time	10 ms–100 ms	30	ms	At stop	"H13_en.05" on page 457

1.20 H14 Gantry Synchronization Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H14.00	2014-01h	Gantry communication state	0–1	0	-	Unchangeable	"H14_en.00" on page 457
H14.01	2014-02h	Gantry alignment state	0–1	0	-	Unchangeable	"H14_en.01" on page 458
H14.02	2014-03h	Gantry function selection	0: None 1: Gantry synchronization	0	-	At stop	"H14_en.02" on page 458
H14.03	2014-04h	Gantry axis attribute (master-slave)	0: Slave axis 1: Master axis	0	-	At stop	"H14_en.03" on page 458
H14.04	2014-05h	Gantry mechanical attribute	0: Rigid gantry scheme 1-Two-axis position control 1: Flexible gantry scheme 1-Two-axis position control 2: Rigid gantry scheme 2-Master axis position control and slave axis torque control	0	-	At stop	"H14_en.04" on page 459
H14.05	2014-06h	Current axis position sync direction	0: Forward 1: Reverse	0	-	At stop	"H14_en.05" on page 459
H14.07	2014-08h	Gantry sync enable	0: Disabled 1: Enabled 2: DI-enabled	0	-	Real-time	"H14_en.07" on page 459
H14.08	2014-09h	Gantry sync position loop proportional gain	0.0% to 300.0%	0.0	%	Real-time	"H14_en.08" on page 460

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H14.09	2014-0Ah	Gantry sync position loop integral time constant	0.5 ms–1000.0 ms	1000.0	ms	Real-time	"H14_en.09" on page 460
H14.10	2014-0Bh	Gantry sync speed loop proportional gain	0.0% to 300.0%	0.0	%	Real-time	"H14_en.10" on page 460
H14.11	2014-0Ch	Gantry sync speed loop integral time constant	0.5 ms–1000.0 ms	1000.0	ms	Real-time	"H14_en.11" on page 461
H14.12	2014-0Dh	Gantry sync speed limit	0.0rpm to 6000.0rpm	50.0	rpm	Real-time	"H14_en.12" on page 461
H14.13	2014-0Eh	Gantry alignment speed	0.0rpm to 3000.0rpm	10.0	rpm	Real-time	"H14_en.13" on page 461
H14.14	2014-0Fh	Gantry alignment acc./dec. time	0 ms–1000 ms	100	ms	Real-time	"H14_en.14" on page 461
H14.18	2014-13h	Torque pre-alignment before gantry homing	0: Disabled 1: Enabled	0	-	At stop	"H14_en.18" on page 462
H14.20	2014-15h	Gantry aligned by default upon power-on	0: No operation 1: Align at first power-on	1	-	At stop	"H14_en.20" on page 462
H14.21	2014-16h	Gantry alignment mode	0: Gantry homing alignment 2: Gantry torque alignment 3: Gantry enable alignment 4: Gantry DI alignment	0	-	At stop	"H14_en.21" on page 462
H14.25	2014-1Ah	Flexible gantry homing - Master/slave home deviation auto-tuning	0: Disabled 1: Torque alignment auto-tuning 2: Position auto-tuning	0	-	Real-time	"H14_en.25" on page 463
H14.26	2014-1Bh	Gantry torque alignment enable	0: Disabled 1: Enabled 2: DI-enabled 3: Enabled at power-on	0	-	Real-time	"H14_en.26" on page 463
H14.27	2014-1Ch	Gantry torque alignment torque	0.0% to 300.0%	10.0	%	Real-time	"H14_en.27" on page 464

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H14.28	2014-1Dh	Gantry torque alignment count	1–2	2	-	Real-time	"H14_en.28" on page 464
H14.29	2014-1Eh	Gantry torque alignment speed	0.0rpm to 3000.0rpm	10.0	rpm	Real-time	"H14_en.29" on page 464
H14.30	2014-1Fh	Gantry torque alignment timeout alarm time	1s to 65535s	100	s	Real-time	"H14_en.30" on page 465
H14.31	2014-20h	Gantry torque alignment acc./dec. time	0 ms–1000 ms	100	ms	Real-time	"H14_en.31" on page 465
H14.32	2014-21h	Gantry torque alignment zero speed threshold	0.0rpm to 100.0rpm	2.0	rpm	Real-time	"H14_en.32" on page 465
H14.33	2014-22h	Gantry torque alignment mechanical limit evaluation position loop period count	0–65535	5	-	Real-time	"H14_en.33" on page 465
H14.35	2014-24h	2-axis position deviation (encoder unit)	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H14_en.35" on page 466
H14.37	2014-26h	2-axis speed deviation	-32767rpm to 32767rpm	0	rpm	Unchangeable	"H14_en.37" on page 466
H14.38	2014-27h	Torque reference of active axis	-3276.7% to 3276.7%	0.0	%	Unchangeable	"H14_en.38" on page 466
H14.39	2014-28h	Torque reference of paired axis	-3276.7% to 3276.7%	0.0	%	Unchangeable	"H14_en.39" on page 467
H14.40	2014-29h	Motor speed of active axis	-32767rpm to 32767rpm	0	rpm	Unchangeable	"H14_en.40" on page 467
H14.41	2014-2Ah	Motor speed of paired axis	-32767rpm to 32767rpm	0	rpm	Unchangeable	"H14_en.41" on page 467
H14.44	2014-2Dh	Alarm time threshold of large gantry deviation	0.5 ms–1000.0 ms	3.0	ms	Real-time	"H14_en.44" on page 467
H14.45	2014-2Eh	Gantry position alarm threshold	0 to 4294967295	50000	Encoder unit	At stop	"H14_en.45" on page 468

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H14.47	2014-30h	Large gantry position deviation alarm enable	0: Disabled 1: Enabled	1	-	Real-time	"H14_en.47" on page 468
H14.48	2014-31h	Alarm time threshold of large gantry torque deviation	0.5 ms–1000.0 ms	3.0	ms	Real-time	"H14_en.48" on page 468
H14.49	2014-32h	Gantry torque deviation alarm threshold	0.0% to 800.0%	300.0	%	At stop	"H14_en.49" on page 469
H14.50	2014-33h	Large gantry torque deviation alarm enable	0: Disabled 1: Enabled	0	-	Real-time	"H14_en.50" on page 469
H14.52	2014-35h	Gantry mismatch	0–1451	0	-	Unchangeable	"H14_en.52" on page 469
H14.71	2014-48h	Flexible gantry homing - Enable aligning slave axis homing position to home offset	0: No operation 1: Enabled	0	-	Real-time	"H14_en.71" on page 469
H14.74	2014-4Bh	Gantry scheme 2 slave axis enable	0: No operation 1: Enabled	0	-	At stop	"H14_en.74" on page 470

1.21 H17 Virtual DI/DO Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.90	2017-5Bh	Communication VDI enable	0: Disabled 1: Enabled	0	-	At stop	"H17_en.90" on page 470
H17.91	2017-5Ch	VDI default value after power-on	bit0: VDI1 bit1: VDI2 bit2: VDI3 bit3: VDI4 bit4: VDI5 bit5: VDI6 bit6: VDI7 bit7: VDI8 bit8: VDI9 bit9: VDI10 bit10: VDI11 bit11: VDI12 bit12: VDI13 bit13: VDI14 bit14: VDI15 bit15: VDI16	0	-	Real-time	"H17_en.91" on page 471

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.00	2017-01h	VDI1 function	0: No assignment 1: S-ON 2: Warning reset signal 3: Gain switchover switch 4: Switchover between main and auxiliary references 5: Multi-reference direction 6: Multi-reference switchover CMD1 7: Multi-reference switchover CMD2 8: Multi-reference switchover CMD3 9: Multi-reference switchover CMD4 10: Mode switchover M1-SEL 11: Mode switchover M2-SEL 12: Zero clamp enable signal 13: Position reference inhibited 14: Positive limit switch 15: Negative limit switch 16: Positive external torque limit 17: Negative external torque limit 18: Forward jog 19: Reverse jog 20: Step enable 21: Handwheel override signal 1 22: Handwheel override signal 2 23: Hand wheel enable signal 24: Electronic gear ratio selection 25: Torque reference direction 26: Speed reference direction 27: Position reference direction 28: Multi-position reference enable 29: Interrupt positioning cancel signal	0	-	Real-time	"H17_en.00" on page 471

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.00	2017-01h	VDI1 function	31: Home switch 32: Homing enable 33: Interrupt positioning inhibited 34: Emergency stop 35: Clear position deviation 36: Internal speed limit source 37: Pulse reference inhibited 40: Multi-speed enable 41: Current position as home 42: Axis control command executed immediately 43: Axis control command not executed immediately 44: Positioning and command completed signal clear 46: Process segment enable 47: Process segment command switchover 1 48: Process segment command switchover 2 49: Process segment command switchover 3 50: Process segment command switchover 4 51: Event trigger process segment 1 52: Event trigger process segment 2 53: Event trigger process segment 3 54: Event trigger process segment 4 55: Process segment pause 56: Gantry alignment 57: Gantry DI alignment enable 58: Gantry DI alignment clear 59: Gantry synchronization enable	0	-	Real-time	"H17_en.00" on page 471
H17.01	2017-02h	VDI1 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.01" on page 473
H17.02	2017-03h	VDI2 function	See H17.00	0	-	Real-time	"H17_en.02" on page 474

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.03	2017-04h	VDI2 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.03" on page 475
H17.04	2017-05h	VDI3 function	See H17.00	0	-	Real-time	"H17_en.04" on page 476
H17.05	2017-06h	VDI3 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.05" on page 477
H17.06	2017-07h	VDI4 function	See H17.00	0	-	Real-time	"H17_en.06" on page 478
H17.07	2017-08h	VDI4 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.07" on page 479
H17.08	2017-09h	VDI5 function	See H17.00	0	-	Real-time	"H17_en.08" on page 480
H17.09	2017-0Ah	VDI5 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.09" on page 481
H17.10	2017-0Bh	VDI6 function	See H17.00	0	-	Real-time	"H17_en.10" on page 482
H17.11	2017-0Ch	VDI6 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.11" on page 483
H17.12	2017-0Dh	VDI7 function	See H17.00	0	-	Real-time	"H17_en.12" on page 484
H17.13	2017-0Eh	VDI7 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.13" on page 485
H17.14	2017-0Fh	VDI8 function	See H17.00	0	-	Real-time	"H17_en.14" on page 486
H17.15	2017-10h	VDI8 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.15" on page 487
H17.16	2017-11h	VDI9 function	See H17.00	0	-	Real-time	"H17_en.16" on page 488

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.17	2017-12h	VDI9 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.17" on page 489
H17.18	2017-13h	VDI10 function	See H17.00	0	-	Real-time	"H17_en.18" on page 490
H17.19	2017-14h	VDI10 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.19" on page 491
H17.20	2017-15h	VDI11 function	See H17.00	0	-	Real-time	"H17_en.20" on page 492
H17.21	2017-16h	VDI11 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.21" on page 493
H17.22	2017-17h	VDI12 function	See H17.00	0	-	Real-time	"H17_en.22" on page 494
H17.23	2017-18h	VDI12 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.23" on page 495
H17.24	2017-19h	VDI13 function	See H17.00	0	-	Real-time	"H17_en.24" on page 496
H17.25	2017-1Ah	VDI13 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.25" on page 497
H17.26	2017-1Bh	VDI14 function	See H17.00	0	-	Real-time	"H17_en.26" on page 498
H17.27	2017-1Ch	VDI14 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.27" on page 499
H17.28	2017-1Dh	VDI15 function	See H17.00	0	-	Real-time	"H17_en.28" on page 500
H17.29	2017-1Eh	VDI15 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.29" on page 501
H17.30	2017-1Fh	VDI16 function	See H17.00	0	-	Real-time	"H17_en.30" on page 502

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.31	2017-20h	VDI16 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.31" on page 503
H17.92	2017-5Dh	Communication VDO enable	0: Disabled 1: Enabled	0	-	At stop	"H17_en.92" on page 504
H17.93	2017-5Eh	VDO default value after power-on	bit0: VDO1 bit1: VDO2 bit2: VDO3 bit3: VDO4 bit4: VDO5 bit5: VDO6 bit6: VDO7 bit7: VDO8 bit8: VDO9 bit9: VDO10 bit10: VDO11 bit11: VDO12 bit12: VDO13 bit13: VDO14 bit14: VDO15 bit15: VDO16	0x0	-	At stop	"H17_en.93" on page 504
H17.32	2017-21h	VDO virtual level	0x0 to 0xFFFF	0x0	-	Unchangeable	"H17_en.32" on page 505
H17.33	2017-22h	VDO1 function	0: No function 1: Servo ready 2: Motor rotation signal 3: Zero speed signal 4: Speed matching signal 5: Positioning completed 6: Positioning near 7: Torque limited signal 8: Speed limited signal 9: Braking 10: Warning 11: Fault	0	-	Real-time	"H17_en.33" on page 505

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
(Continued)			15: Interrupt positioning completed 16: Homing completed 17: Electrical homing completed 18: Torque reached signal 19: Speed reached signal 21: Enable completed 22: Internal command completed 23: Writing next command allowed 24: Internal motion completed 26: Closed-loop state 27: Left limit 28: Right limit 30: Warning or fault output 32: EDM output 33: Gantry alignment	(Continued)			
H17.34	2017-23h	VDO1 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.34" on page 506
H17.35	2017-24h	VDO2 function	See H17.33.	0	-	Real-time	"H17_en.35" on page 507
H17.36	2017-25h	VDO2 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.36" on page 507
H17.37	2017-26h	VDO3 function	See H17.33.	0	-	Real-time	"H17_en.37" on page 508
H17.38	2017-27h	VDO3 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.38" on page 509
H17.39	2017-28h	VDO4 function	See H17.33.	0	-	Real-time	"H17_en.39" on page 509
H17.40	2017-29h	VDO4 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.40" on page 510
H17.41	2017-2Ah	VDO5 function	See H17.33.	0	-	Real-time	"H17_en.41" on page 511
H17.42	2017-2Bh	VDO5 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.42" on page 511
H17.43	2017-2Ch	VDO6 function	See H17.33.	0	-	Real-time	"H17_en.43" on page 512
H17.44	2017-2Dh	VDO6 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.44" on page 513

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.45	2017-2Eh	VDO7 function	See H17.33.	0	-	Real-time	"H17_en.45" on page 513
H17.46	2017-2Fh	VDO7 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.46" on page 514
H17.47	2017-30h	VDO8 function	See H17.33.	0	-	Real-time	"H17_en.47" on page 515
H17.48	2017-31h	VDO8 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.48" on page 515
H17.49	2017-32h	VDO9 function	See H17.33.	0	-	Real-time	"H17_en.49" on page 516
H17.50	2017-33h	VDO9 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.50" on page 517
H17.51	2017-34h	VDO10 function	See H17.33.	0	-	Real-time	"H17_en.51" on page 517
H17.52	2017-35h	VDO10 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.52" on page 518
H17.53	2017-36h	VDO11 function	See H17.33.	0	-	Real-time	"H17_en.53" on page 519
H17.54	2017-37h	VDO11 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.54" on page 519
H17.55	2017-38h	VDO12 function	See H17.33.	0	-	Real-time	"H17_en.55" on page 520
H17.56	2017-39h	VDO12 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.56" on page 521
H17.57	2017-3Ah	VDO13 function	See H17.33.	0	-	Real-time	"H17_en.57" on page 521
H17.58	2017-3Bh	VDO13 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.58" on page 522
H17.59	2017-3Ch	VDO14 function	See H17.33.	0	-	Real-time	"H17_en.59" on page 523
H17.60	2017-3Dh	VDO14 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.60" on page 523
H17.61	2017-3Eh	VDO15 function	See H17.33.	0	-	Real-time	"H17_en.61" on page 524
H17.62	2017-3Fh	VDO15 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.62" on page 525
H17.63	2017-40h	VDO16 function	See H17.33.	0	-	Real-time	"H17_en.63" on page 525
H17.64	2017-41h	VDO16 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.64" on page 526

1.22 H18 Position Comparison Output Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H18.00	2018-01h	Position comparison output selection	0: Disable 1: Enable (rising edge-triggered)	0	-	Real-time	"H18_en.00" on page 527
H18.01	2018-02h	Position comparison output feedback source	0: Motor encoder feedback 1: Fully closed-loop position feedback	0	-	Real-time	"H18_en.01" on page 527
H18.02	2018-03h	Position comparison resolution	0: 24-bit 1: 23-bit 2: 22-bit 3: 21-bit 4: 20-bit 5: 19-bit 6: 18-bit 7: 17-bit	1	-	Real-time	"H18_en.02" on page 527
H18.03	2018-04h	Position comparison mode	0: Individual comparison mode 1: Cyclic comparison mode 2: Fixed cyclic comparison mode	0	-	Real-time	"H18_en.03" on page 528
H18.04	2018-05h	Current position as zero	0: Disable 1: Enable (rising edge-triggered)	0	-	Real-time	"H18_en.04" on page 528
H18.05	2018-06h	Position comparison output width	0.1 ms–204.7 ms	0.1	ms	Real-time	"H18_en.05" on page 529
H18.06	2018-07h	Position comparison output ABZ port polarity	Bit 0: OCZ output logic 0: Positive, output high level upon active logic 1: Negative, output low level upon active logic Bit 1: Z port output logic 0: Positive, output high level upon active logic 1: Negative, output low level upon active logic bit2: A/B output logic 0: Positive, output high level upon active logic 1: Negative, output low level upon active logic	0	-	Real-time	"H18_en.06" on page 529

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H18.07	2018-08h	Position comparison start point	1–40	1	-	Real-time	"H18_en.07" on page 530
H18.08	2018-09h	Position comparison end point	1–40	1	-	Real-time	"H18_en.08" on page 530
H18.09	2018-0Ah	Current state of position comparison	0–1024	0	-	Unchangeable	"H18_en.09" on page 530
H18.10	2018-0Bh	Real-time position of position comparison	-2147483648–2147483647	0	-	Unchangeable	"H18_en.10" on page 530
H18.12	2018-0Dh	Zero offset of position comparison	-2147483648–2147483647	0	-	Real-time	"H18_en.12" on page 531
H18.14	2018-0Fh	Position comparison output delay compensation	-12.00μs to 12.00μs	0.00	μs	Real-time	"H18_en.14" on page 531
H18.15	2018-10h	Fixed cyclic comparison	1–65535	1	-	Real-time	"H18_en.15" on page 531
H18.16	2018-11h	ABZ output function setting	bit0: OCZ output function 0: Frequency-division output 1: Position comparison bit1: Z port output function 0: Frequency-division output 1: Position comparison bit2: A/B port output function 0: Frequency-division output 1: Position comparison	0	-	Real-time	"H18_en.16" on page 531
H18.17	2018-12h	Number of fixed mode cycles	0–65535	0	-	Unchangeable	"H18_en.17" on page 532

1.23 H19 Target Position Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.00	2019-01h	Target value of position comparison 1	-2147483648–2147483647	0	-	Real-time	"H19_en.00" on page 532
H19.02	2019-03h	Attribute value of position comparison 1	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.02" on page 533
H19.03	2019-04h	Target value of position comparison 2	-2147483648–2147483647	0	-	Real-time	"H19_en.03" on page 534

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.05	2019-06h	Attribute value of position comparison 2	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.05" on page 534
H19.06	2019-07h	Target value of position comparison 3	-2147483648–2147483647	0	-	Real-time	" H19_en.06" on page 534

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.08	2019-09h	Attribute value of position comparison 3	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.08" on page 535
H19.09	2019-0Ah	Target value of position comparison 4	-2147483648–2147483647	0	-	Real-time	" H19_en.09" on page 535

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.11	2019-0Ch	Attribute value of position comparison 4	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.11" on page 536
H19.12	2019-0Dh	Target value of position comparison 5	-2147483648–2147483647	0	-	Real-time	" H19_en.12" on page 536

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.14	2019-0Fh	Attribute value of position comparison 5	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.14" on page 537
H19.15	2019-10h	Target value of position comparison 6	-2147483648–2147483647	0	-	Real-time	" H19_en.15" on page 537

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.17	2019-12h	Attribute value of position comparison 6	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.17" on page 538
H19.18	2019-13h	Target value of position comparison 7	-2147483648–2147483647	0	-	Real-time	" H19_en.18" on page 538

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.20	2019-15h	Attribute value of position comparison 7	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.20" on page 538
H19.21	2019-16h	Target value of position comparison 8	-2147483648–2147483647	0	-	Real-time	" H19_en.21" on page 539

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.23	2019-18h	Attribute value of position comparison 8	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.23" on page 539
H19.24	2019-19h	Target value of position comparison 9	-2147483648–2147483647	0	-	Real-time	" H19_en.24" on page 540

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.26	2019-1Bh	Attribute value of position comparison 9	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.26" on page 540
H19.27	2019-1Ch	Target value of position comparison 10	-2147483648–2147483647	0	-	Real-time	" H19_en.27" on page 541

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.29	2019-1Eh	Attribute value of position comparison 10	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.29" on page 541
H19.30	2019-1Fh	Target value of position comparison 11	-2147483648–2147483647	0	-	Real-time	" H19_en.30" on page 542

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.32	2019-21h	Attribute value of position comparison 11	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.32" on page 542
H19.33	2019-22h	Target value of position comparison 12	-2147483648–2147483647	0	-	Real-time	" H19_en.33" on page 543

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.35	2019-24h	Attribute value of position comparison 12	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.35" on page 543
H19.36	2019-25h	Target value of position comparison 13	-2147483648–2147483647	0	-	Real-time	" H19_en.36" on page 544

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.38	2019-27h	Attribute value of position comparison 13	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.38" on page 544
H19.39	2019-28h	Target value of position comparison 14	-2147483648–2147483647	0	-	Real-time	" H19_en.39" on page 545

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.41	2019-2Ah	Attribute value of position comparison 14	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.41" on page 545
H19.42	2019-2Bh	Target value of position comparison 15	-2147483648–2147483647	0	-	Real-time	" H19_en.42" on page 546

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.44	2019-2Dh	Attribute value of position comparison 15	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.44" on page 546
H19.45	2019-2Eh	Target value of position comparison 16	-2147483648–2147483647	0	-	Real-time	" H19_en.45" on page 547

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.47	2019-30h	Attribute value of position comparison 16	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.47" on page 547
H19.48	2019-31h	Target value of position comparison 17	-2147483648–2147483647	0	-	Real-time	" H19_en.48" on page 548

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.50	2019-33h	Attribute value of position comparison 17	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.50" on page 548
H19.51	2019-34h	Target value of position comparison 18	-2147483648–2147483647	0	-	Real-time	" H19_en.51" on page 549

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.53	2019-36h	Attribute value of position comparison 18	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.53" on page 549
H19.54	2019-37h	Target value of position comparison 19	-2147483648–2147483647	0	-	Real-time	" H19_en.54" on page 550

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.56	2019-39h	Attribute value of position comparison 19	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.56" on page 550
H19.57	2019-3Ah	Target value of position comparison 20	-2147483648–2147483647	0	-	Real-time	" H19_en.57" on page 551

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.59	2019-3Ch	Attribute value of position comparison 20	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.59" on page 551
H19.60	2019-3Dh	Target value of position comparison 21	-2147483648–2147483647	0	-	Real-time	" H19_en.60" on page 552

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.62	2019-3Fh	Attribute value of position comparison 21	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.62" on page 552
H19.63	2019-40h	Target value of position comparison 22	-2147483648–2147483647	0	-	Real-time	" H19_en.63" on page 553

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.65	2019-42h	Attribute value of position comparison 22	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.65" on page 553
H19.66	2019-43h	Target value of position comparison 23	-2147483648–2147483647	0	-	Real-time	" H19_en.66" on page 554

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.68	2019-45h	Attribute value of position comparison 23	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.68" on page 554
H19.69	2019-46h	Target value of position comparison 24	-2147483648–2147483647	0	-	Real-time	" H19_en.69" on page 555

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.71	2019-48h	Attribute value of position comparison 24	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.71" on page 555
H19.72	2019-49h	Target value of position comparison 25	-2147483648–2147483647	0	-	Real-time	" H19_en.72" on page 556

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.74	2019-4Bh	Attribute value of position comparison 25	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.74" on page 556
H19.75	2019-4Ch	Target value of position comparison 26	-2147483648–2147483647	0	-	Real-time	" H19_en.75" on page 557

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.77	2019-4Eh	Attribute value of position comparison 26	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.77" on page 557
H19.78	2019-4Fh	Target value of position comparison 27	-2147483648–2147483647	0	-	Real-time	" H19_en.78" on page 558

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.80	2019-51h	Attribute value of position comparison 27	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.80" on page 558
H19.81	2019-52h	Target value of position comparison 28	-2147483648–2147483647	0	-	Real-time	" H19_en.81" on page 559

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.83	2019-54h	Attribute value of position comparison 28	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.83" on page 559
H19.84	2019-55h	Target value of position comparison 29	-2147483648–2147483647	0	-	Real-time	" H19_en.84" on page 560

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.86	2019-57h	Attribute value of position comparison 29	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.86" on page 560
H19.87	2019-58h	Target value of position comparison 30	-2147483648–2147483647	0	-	Real-time	" H19_en.87" on page 561

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.89	2019-5Ah	Attribute value of position comparison 30	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.89" on page 561
H19.90	2019-5Bh	Target value of position comparison 31	-2147483648–2147483647	0	-	Real-time	" H19_en.90" on page 562

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.92	2019-5Dh	Attribute value of position comparison 31	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.92" on page 562
H19.93	2019-5Eh	Target value of position comparison 32	-2147483648–2147483647	0	-	Real-time	" H19_en.93" on page 563

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.95	2019-60h	Attribute value of position comparison 32	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.95" on page 563
H19.96	2019-61h	Target value of position comparison 33	-2147483648–2147483647	0	-	Real-time	" H19_en.96" on page 564

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.98	2019-63h	Attribute value of position comparison 33	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	" H19_en.98" on page 564
H19.99	2019-64h	Target value of position comparison 34	-2147483648–2147483647	0	-	Real-time	" H19_en.99" on page 565

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.101	2019-66h	Attribute value of position comparison 34	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.101" on page 565
H19.102	2019-67h	Target value of position comparison 35	-2147483648–2147483647	0	-	Real-time	"H19_en.102" on page 566

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.104	2019-69h	Attribute value of position comparison 35	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.104" on page 566
H19.105	2019-6Ah	Target value of position comparison 36	-2147483648–2147483647	0	-	Real-time	"H19_en.105" on page 567

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.107	2019-6Ch	Attribute value of position comparison 36	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.107" on page 567
H19.108	2019-6Dh	Target value of position comparison 37	-2147483648–2147483647	0	-	Real-time	"H19_en.108" on page 568

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.110	2019-6Fh	Attribute value of position comparison 37	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.110" on page 568
H19.111	2019-70h	Target value of position comparison 38	-2147483648–2147483647	0	-	Real-time	"H19_en.111" on page 569

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.113	2019-72h	Attribute value of position comparison 38	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.113" on page 569
H19.114	2019-73h	Target value of position comparison 39	-2147483648–2147483647	0	-	Real-time	"H19_en.114" on page 570

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.116	2019-75h	Attribute value of position comparison 39	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.116" on page 570
H19.117	2019-76h	Target value of position comparison 40	-2147483648–2147483647	0	-	Real-time	"H19_en.117" on page 571

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.119	2019-78h	Attribute value of position comparison 40	bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: Reserved bit3: Reserved bit4: Reserved bit5: Reserved bit6: Reserved bit7: DO1 output bit8: DO2 output bit9: DO3 output bit10: DO4 output bit11: DO5 output bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.119" on page 571

1.24 H1F Software Tool Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H1F.90	201F-5Bh	DI function status 1 read through communication	0-65535	0	-	Unchangeable	"H1F_en.90" on page 572
H1F.91	201F-5Ch	DI function status 2 read through communication	0-65535	0	-	Unchangeable	"H1F_en.91" on page 572
H1F.92	201F-5Dh	DI function status 3 read through communication	0-65535	0	-	Unchangeable	"H1F_en.92" on page 573

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H1F.93	201F-5Eh	DI function status 4 read through communication	0–65535	0	-	Unchangeable	"H1F_en.93" on page 573
H1F.94	201F-5Fh	DO function status 1 read through communication	0–65535	0	-	Unchangeable	"H1F_en.94" on page 574
H1F.95	201F-60h	DO function status 2 read through communication	0–65535	0	-	Unchangeable	"H1F_en.95" on page 574

1.25 H21 Current Loop Gain Switchover Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H21.00	2021-01h	Current loop gain switchover	0: No operation 1: Enabled	0	-	Real-time	"H21_en.00" on page 574

1.26 H22 Process Segment Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H22.00	2022-01h	Process segment command trigger	0–1000	0	-	Real-time	"H22_en.00" on page 575
H22.01	2022-02h	Process segment triggered by the event rising edge	0–65535	0	-	Real-time	"H22_en.01" on page 575

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H22.02	2022-03h	Process segment triggered by the event falling edge	0–65535	0	-	Real-time	"H22_en.02" on page 576
H22.03	2022-04h	Acceleration/Deceleration time upon technology segment pause	0: Acceleration/Deceleration time 1: Acceleration/Deceleration time 1 2: Acceleration/Deceleration time 2 3: Acceleration/Deceleration time 3 4: Acceleration/Deceleration time 4 5: Acceleration/Deceleration time 5 6: Acceleration/Deceleration time 6 7: Acceleration/Deceleration time 7	0	-	Real-time	"H22_en.03" on page 576
H22.04	2022-05h	Positive software position limit	-2147483648 to 2147483647	2147483647	Reference unit	Real-time	"H22_en.04" on page 577
H22.06	2022-07h	Negative software position limit	-2147483648 to 2147483647	-2147483648	Reference unit	Real-time	"H22_en.06" on page 577
H22.08	2022-09h	Process segment number	0–65535	0	-	Unchangeable	"H22_en.08" on page 578
H22.09	2022-0Ah	Process segment function switch	0–65535	0	-	At stop	"H22_en.09" on page 578
H22.10	2022-0Bh	Process segment state	0–65535	0	-	Unchangeable	"H22_en.10" on page 578
H22.19	2022-14h	Target speed	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	50.0	[mm/s]/[rpm]	Real-time	"H22_en.19" on page 579
H22.20	2022-15h	Target speed 1	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	200.0	[mm/s]/[rpm]	Real-time	"H22_en.20" on page 579
H22.21	2022-16h	Target speed 2	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	500.0	[mm/s]/[rpm]	Real-time	"H22_en.21" on page 579

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H22.22	2022-17h	Target speed 3	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	1000.0	[mm/s]/[rpm]	Real-time	"H22_en.22" on page 580
H22.23	2022-18h	Target speed 4	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	1500.0	[mm/s]/[rpm]	Real-time	"H22_en.23" on page 580
H22.24	2022-19h	Target speed 5	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	2000.0	[mm/s]/[rpm]	Real-time	"H22_en.24" on page 580
H22.25	2022-1Ah	Target speed 6	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	2500.0	[mm/s]/[rpm]	Real-time	"H22_en.25" on page 580
H22.26	2022-1Bh	Target speed 7	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	3000.0	[mm/s]/[rpm]	Real-time	"H22_en.26" on page 581
H22.35	2022-24h	Accel/Decel time	0 ms–65535 ms	50	ms	Real-time	"H22_en.35" on page 581
H22.36	2022-25h	Acceleration/Deceleration time 1	0 ms–65535 ms	200	ms	Real-time	"H22_en.36" on page 581
H22.37	2022-26h	Acceleration/Deceleration time 2	0 ms–65535 ms	500	ms	Real-time	"H22_en.37" on page 582
H22.38	2022-27h	Acceleration/Deceleration time 3	0 ms–65535 ms	1000	ms	Real-time	"H22_en.38" on page 582
H22.39	2022-28h	Acceleration/Deceleration time 4	0 ms–65535 ms	1500	ms	Real-time	"H22_en.39" on page 582
H22.40	2022-29h	Acceleration/Deceleration time 5	0 ms–65535 ms	2000	ms	Real-time	"H22_en.40" on page 582
H22.41	2022-2Ah	Acceleration/Deceleration time 6	0 ms–65535 ms	2500	ms	Real-time	"H22_en.41" on page 583
H22.42	2022-2Bh	Acceleration/Deceleration time 7	0 ms–65535 ms	3000	ms	Real-time	"H22_en.42" on page 583
H22.51	2022-34h	Delay after completion of the process segment	0 ms–65535 ms	0	ms	Real-time	"H22_en.51" on page 583

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H22.52	2022-35h	Delay time 1 after completion of the process segment	0 ms–65535 ms	50	ms	Real-time	"H22_en.52" on page 584
H22.53	2022-36h	Delay time 2 after completion of the process segment	0 ms–65535 ms	200	ms	Real-time	"H22_en.53" on page 584
H22.54	2022-37h	Delay time 3 after completion of the process segment	0 ms–65535 ms	500	ms	Real-time	"H22_en.54" on page 584
H22.55	2022-38h	Delay time 4 after completion of the process segment	0 ms–65535 ms	1000	ms	Real-time	"H22_en.55" on page 584
H22.56	2022-39h	Delay time 5 after completion of the process segment	0 ms–65535 ms	1500	ms	Real-time	"H22_en.56" on page 585
H22.57	2022-3Ah	Delay time 6 after completion of the process segment	0 ms–65535 ms	2000	ms	Real-time	"H22_en.57" on page 585
H22.58	2022-3Bh	Delay time 7 after completion of the process segment	0 ms–65535 ms	3000	ms	Real-time	"H22_en.58" on page 585
H22.70	2022-47h	Process segment homing mode	-32768–32767	-2	-	Real-time	"H22_en.70" on page 585
H22.71	2022-48h	Speed of high-speed search for home switch signal	0[mm/s]/[rpm]–3000[mm/s]/[rpm]	100	[mm/s]/[rpm]	Real-time	"H22_en.71" on page 586
H22.72	2022-49h	Speed of low-speed search for home switch signal	0[mm/s]/[rpm]–1000[mm/s]/[rpm]	10	[mm/s]/[rpm]	Real-time	"H22_en.72" on page 586

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H22.73	2022-4Ah	Acceleration/Deceleration time during homing	0 ms–1000 ms	1000	ms	Real-time	"H22_en.73" on page 586
H22.74	2022-4Bh	Home search time limit	0 ms–65535 ms	10000	ms	Real-time	"H22_en.74" on page 587
H22.75	2022-4Ch	Mechanical home offset	-2147483648 to 2147483647	0	Reference unit	Real-time	"H22_en.75" on page 587
H22.79	2022-50h	Relative/Absolute homing	0–65535	0	-	Real-time	"H22_en.79" on page 587
H22.83	2022-54h	Jump count threshold	0–65534	0	-	Real-time	"H22_en.83" on page 588
H22.84	2022-55h	Jump count threshold 1	0–65534	20	-	Real-time	"H22_en.84" on page 588
H22.85	2022-56h	Jump count threshold 2	0–65534	40	-	Real-time	"H22_en.85" on page 588
H22.86	2022-57h	Jump count threshold 3	0–65534	80	-	Real-time	"H22_en.86" on page 589
H22.87	2022-58h	Jump count threshold 4	0–65534	160	-	Real-time	"H22_en.87" on page 589
H22.88	2022-59h	Jump count threshold 5	0–65534	320	-	Real-time	"H22_en.88" on page 589
H22.89	2022-5Ah	Jump count threshold 6	0–65534	640	-	Real-time	"H22_en.89" on page 589
H22.90	2022-5Bh	Jump count threshold 7	0–65534	1280	-	Real-time	"H22_en.90" on page 590

1.27 H23 Process Segment Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H23.00	2023-01h	Definition of homing	0–4294967295	0	-	Real-time	"H23_en.00" on page 590
H23.02	2023-03h	Homing data	-2147483648–2147483647	0	-	Real-time	"H23_en.02" on page 590
H23.04	2023-05h	Definition of process segment 1	0–4294967295	0	-	Real-time	"H23_en.04" on page 591

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H23.06	2023-07h	Data of process segment 1	-2147483648–2147483647	0	-	Real-time	"H23_en.06" on page 591
H23.08	2023-09h	Definition of process segment 2	0–4294967295	0	-	Real-time	"H23_en.08" on page 591
H23.10	2023-0Bh	Data of process segment 2	-2147483648–2147483647	0	-	Real-time	"H23_en.10" on page 592
H23.12	2023-0Dh	Definition of process segment 3	0–4294967295	0	-	Real-time	"H23_en.12" on page 592
H23.14	2023-0Fh	Data of process segment 3	-2147483648–2147483647	0	-	Real-time	"H23_en.14" on page 592
H23.16	2023-11h	Definition of process segment 4	0–4294967295	0	-	Real-time	"H23_en.16" on page 592
H23.18	2023-13h	Data of process segment 4	-2147483648–2147483647	0	-	Real-time	"H23_en.18" on page 593
H23.20	2023-15h	Definition of process segment 5	0–4294967295	0	-	Real-time	"H23_en.20" on page 593
H23.22	2023-17h	Data of process segment 5	-2147483648–2147483647	0	-	Real-time	"H23_en.22" on page 593
H23.24	2023-19h	Definition of process segment 6	0–4294967295	0	-	Real-time	"H23_en.24" on page 593
H23.26	2023-1Bh	Data of process segment 6	-2147483648–2147483647	0	-	Real-time	"H23_en.26" on page 594
H23.28	2023-1Dh	Definition of process segment 7	0–4294967295	0	-	Real-time	"H23_en.28" on page 594
H23.30	2023-1Fh	Data of process segment 7	-2147483648–2147483647	0	-	Real-time	"H23_en.30" on page 594
H23.32	2023-21h	Definition of process segment 8	0–4294967295	0	-	Real-time	"H23_en.32" on page 595
H23.34	2023-23h	Data of process segment 8	-2147483648–2147483647	0	-	Real-time	"H23_en.34" on page 595
H23.36	2023-25h	Definition of process segment 9	0–4294967295	0	-	Real-time	"H23_en.36" on page 595
H23.38	2023-27h	Data of process segment 9	-2147483648–2147483647	0	-	Real-time	"H23_en.38" on page 595

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H23.40	2023-29h	Definition of process segment 10	0–4294967295	0	-	Real-time	" H23_en.40" on page 596
H23.42	2023-2Bh	Data of process segment 10	-2147483648–2147483647	0	-	Real-time	" H23_en.42" on page 596
H23.44	2023-2Dh	Definition of process segment 11	0–4294967295	0	-	Real-time	" H23_en.44" on page 596
H23.46	2023-2Fh	Data of process segment 11	-2147483648–2147483647	0	-	Real-time	" H23_en.46" on page 596
H23.48	2023-31h	Definition of process segment 12	0–4294967295	0	-	Real-time	" H23_en.48" on page 597
H23.50	2023-33h	Data of process segment 12	-2147483648–2147483647	0	-	Real-time	" H23_en.50" on page 597
H23.52	2023-35h	Definition of process segment 13	0–4294967295	0	-	Real-time	" H23_en.52" on page 597
H23.54	2023-37h	Data of process segment 13	-2147483648–2147483647	0	-	Real-time	" H23_en.54" on page 598
H23.56	2023-39h	Definition of process segment 14	0–4294967295	0	-	Real-time	" H23_en.56" on page 598
H23.58	2023-3Bh	Data of process segment 14	-2147483648–2147483647	0	-	Real-time	" H23_en.58" on page 598
H23.60	2023-3Dh	Definition of process segment 15	0–4294967295	0	-	Real-time	" H23_en.60" on page 598
H23.62	2023-3Fh	Data of process segment 15	-2147483648–2147483647	0	-	Real-time	" H23_en.62" on page 599

1.28 H30 Related Variables Read through Communication

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H30.00	2030-01h	Servo state read via communication	0-65535	0	-	Unchangeable	"H30_en.00" on page 599
H30.01	2030-02h	DO function status 1 read through communication	0-65535	0	-	Unchangeable	"H30_en.01" on page 599
H30.02	2030-03h	DO function status 2 read through communication	0-65535	0	-	Unchangeable	"H30_en.02" on page 600
H30.03	2030-04h	Input pulse reference sampling value read through communication	0-65535	0	-	Unchangeable	"H30_en.03" on page 600
H30.16	2030-11h	1st encoder communication timeout count	0-65535	0	-	Unchangeable	"H30_en.16" on page 600
H30.17	2030-12h	1st encoder communication CRC error count	0-65535	0	-	Unchangeable	"H30_en.17" on page 601
H30.18	2030-13h	1st encoder communication frame stop bit error count	0-65535	0	-	Unchangeable	"H30_en.18" on page 601

1.29 H31 References Set through Communication

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H31.00	2031-01h	VDI virtual level set through communication	0–65535	0	-	Real-time	"H31_en.00" on page 601
H31.01	2031-02h	Frequency-division output frequency set through communication	0 Hz–16000000 Hz	0	Hz	Real-time	"H31_en.01" on page 602
H31.04	2031-05h	DO status set through communication	0–65535	0	-	Real-time	"H31_en.04" on page 602
H31.05	2031-06h	AO status set through communication	-10000 mV–10000 mV	0	mV	Real-time	"H31_en.05" on page 602
H31.09	2031-0Ah	Speed reference set through communication	-9999.000[mm/s]/[rpm]–9999.000[mm/s]/[rpm]	0.000	[mm/s]/[rpm]	Real-time	"H31_en.09" on page 602
H31.11	2031-0Ch	Torque reference set through communication	-100.000% to 100.000%	0.000	%	Real-time	"H31_en.11" on page 603

1.30 H32 Direct Drive Parameters

Parameter	Hex	Name	Value	Default	Unit	Change Mode	Page
H32.00	2032-01h	Encoder interpolator mismatch alarm (E124)	0: Disabled 1: Enabled	1	-	At stop	"H32_en.00" on page 603
H32.01	2032-02h	Encoder interface switchover switch	0: Default encoder interface 1: Switching encoder interface	0	-	At stop	"H32_en.01" on page 603
H32.02	2032-03h	Angle auto-tuning upon power-on	0: Disabled 1: Enabled	0	-	At stop	"H32_en.02" on page 604
H32.03	2032-04h	Angle auto-tuning switch controlled by control word	0: Disabled 1: Control word 6 2: Control word 7	0	-	At stop	"H32_en.03" on page 604

Parameter	Hex	Name	Value	Default	Unit	Change Mode	Page
H32.04	2032-05h	Angle auto-tuning state	bit0: bit7 of 6041 bit1: E602.9	0	-	At stop	"H32_en.04" on page 605
H32.05	2032-06h	Pre-positioning retract selection	0: Disabled 1: Enabled	0	-	At stop	"H32_en.05" on page 605
H32.06	2032-07h	Position feedback	0: Disabled 1: Enabled	0	-	At stop	"H32_en.06" on page 605
H32.07	2032-08h	Incremental homing method	0: Z Signal short circuit 1: Only first short circuit	1	-	At stop	"H32_en.07" on page 606
H32.08	2032-09h	Homing signal width	100–65535	800	-	At stop	"H32_en.08" on page 606
H32.10	2032-0Bh	Max. reference current in angle auto-tuning through inching	10.0% to 300.0%	100.0	%	At stop	"H32_en.10" on page 606
H32.13	2032-0Eh	Motor operation threshold (ROT/DDR) in angle auto-tuning through inching	0.001deg to 20.000deg	0.200	deg	At stop	"H32_en.13" on page 607
H32.14	2032-0Fh	Motor standstill threshold (ROT/DDR) in angle auto-tuning through inching	0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]	1.0	[mm/s]/[rpm]	At stop	"H32_en.14" on page 607
H32.15	2032-10h	Motor operation threshold (DDL) in angle auto-tuning through inching	0.001 millimeters–20.000 millimeters	0.200	mm	At stop	"H32_en.15" on page 607
H32.16	2032-11h	Motor standstill threshold (DDL) in angle auto-tuning through inching	0.1 mm/s–100.0 mm/s	1.0	mm/s	At stop	"H32_en.16" on page 608
H32.18	2032-13h	Motor standstill threshold for inching angle auto-tuning	0.1s to 10.0s	0.5	s	At stop	"H32_en.18" on page 608

Parameter	Hex	Name	Value	Default	Unit	Change Mode	Page
H32.20	2032-15h	Max. reference current in angle auto-tuning through pre-positioning (closed-loop)	10.0% to 300.0%	100.0	%	At stop	" H32_en.20" on page 608
H32.22	2032-17h	Electrical angle reference in angle auto-tuning through pre-positioning (closed-loop)	0.0deg to 360.0deg	0.0	deg	At stop	" H32_en.22" on page 608
H32.23	2032-18h	Electrical angle reference change range in angle auto-tuning through pre-positioning (closed-loop)	10.0deg to 170.0deg	90.0	deg	At stop	" H32_en.23" on page 609
H32.24	2032-19h	Motor stop threshold (ROT/DDR) in angle auto-tuning through pre-positioning (closed-loop)	0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]	1.0	[mm/s]/[rpm]	At stop	" H32_en.24" on page 609
H32.25	2032-1Ah	Motor stop threshold (DDL) in angle auto-tuning through pre-positioning (closed-loop)	0.1 mm/s–100.0 mm/s	1.0	mm/s	At stop	" H32_en.25" on page 609
H32.26	2032-1Bh	Damping in angle auto-tuning through pre-positioning (closed-loop)	0.00[N/(m/s)]/[N·m/rpm]–655.35[N/(m/s)]/[N·m/rpm]	0.00	[N/(m/s)]/[N·m/rpm]	At stop	" H32_en.26" on page 610
H32.29	2032-1Eh	Motor standstill threshold for close-loop pre-positioning angle auto-tuning	0.1s to 10.0s	0.5	s	At stop	" H32_en.29" on page 610

Parameter	Hex	Name	Value	Default	Unit	Change Mode	Page
H32.30	2032-1Fh	Max. reference current in angle auto-tuning through position lock	10.0% to 300.0%	100.0	%	At stop	" H32_en.30" on page 610
H32.33	2032-22h	Motor operation threshold (ROT/DDR) in angle auto-tuning through position lock	0.001deg to 20.000deg	0.200	deg	At stop	" H32_en.33" on page 611
H32.34	2032-23h	Motor standstill threshold (ROT/DDR) in angle auto-tuning through position lock	0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]	1.0	[mm/s]/[rpm]	At stop	" H32_en.34" on page 611
H32.35	2032-24h	Motor operation threshold (DDL) in angle auto-tuning through position lock	0.001 millimeters–20.000 millimeters	0.200	mm	At stop	" H32_en.35" on page 611
H32.36	2032-25h	Motor standstill threshold (DDL) in angle auto-tuning through position lock	0.1 mm/s–100.0 mm/s	1.0	mm/s	At stop	" H32_en.36" on page 612
H32.37	2032-26h	Angle gain in angle auto-tuning through position lock	0deg/(p/s)–10000deg/(p/s)	1000	deg/(p/s)	At stop	" H32_en.37" on page 612
H32.38	2032-27h	Inertia ratio in angle auto-tuning through position lock	0.00–120.00	0.00	-	At stop	" H32_en.38" on page 612
H32.39	2032-28h	Gain class in angle auto-tuning through position lock	4level to 31level	16	level	At stop	" H32_en.39" on page 613
H32.40	2032-29h	Left/Right limit function	1. Left limit being positive 2. Left limit being negative	0	-	Real-time	" H32_en.40" on page 613
H32.41	2032-2Ah	Angle auto-tuning delay after power-on	0s to 65535s	3	s	Real-time	" H32_en.41" on page 613

Parameter	Hex	Name	Value	Default	Unit	Change Mode	Page
H32.45	2032-2Eh	Black box channel 21 function	0: Real-time target speed (607Ah) 1: Electric angle	0	-	At stop	"H32_en.45" on page 614
H32.50	2032-33h	32-bit range compatibility	0–99	1	-	At stop	"H32_en.50" on page 614
H32.53	2032-36h	Motor standstill threshold for position lock angle auto-tuning	0.1s to 10.0s	0.5	s	At stop	"H32_en.53" on page 614
H32.54	2032-37h	Hall auto-tuning selection	0–65535	0	-	At stop	"H32_en.54" on page 615
H32.55	2032-38h	Hall signal UVW manual adjustment	0–7	0	-	At stop	"H32_en.55" on page 615
H32.56	2032-39h	UVW filter time of Hall signal	0 ms–10 ms	5	ms	Real-time	"H32_en.56" on page 615
H32.57	2032-3Ah	Hall closed-loop locked-rotor speed	0[mm/s]/[rpm]–65535[mm/s]/[rpm]	2	[mm/s]/[rpm]	At stop	"H32_en.57" on page 615
H32.58	2032-3Bh	Hall closed-loop locked-rotor current	0.0% to 300.0%	120.0	%	At stop	"H32_en.58" on page 616
H32.59	2032-3Ch	Hall closed-loop locked-rotor window time	0 ms–2000 ms	10	ms	At stop	"H32_en.59" on page 616
H32.60	2032-3Dh	Hall closed-loop inertia ratio	0.00–120.00	0.00	-	At stop	"H32_en.60" on page 616
H32.61	2032-3Eh	Hall closed-loop rigidity	4–31	16	-	At stop	"H32_en.61" on page 616
H32.62	2032-3Fh	Electrical angle save flag	0–65535	0	-	Real-time	"H32_en.62" on page 617
H32.63	2032-40h	Hall1 electric angle	0–65535	0	-	At stop	"H32_en.63" on page 617
H32.64	2032-41h	Hall2 electric angle	0–65535	0	-	At stop	"H32_en.64" on page 617
H32.65	2032-42h	Hall3 electric angle	0–65535	0	-	At stop	"H32_en.65" on page 618
H32.66	2032-43h	Hall4 electric angle	0–65535	0	-	At stop	"H32_en.66" on page 618
H32.67	2032-44h	Hall5 electric angle	0–65535	0	-	At stop	"H32_en.67" on page 618

Parameter	Hex	Name	Value	Default	Unit	Change Mode	Page
H32.68	2032-45h	Hall6 electric angle	0–65535	0	-	At stop	" H32_en.68" on page 618
H32.70	2032-47h	Motor overload protection mode	0: Internal motor overload curve 1: External motor overload curve 2: Current limit overload protection 3: Hide motor overload protection	0	-	At stop	" H32_en.70" on page 619
H32.73	2032-4Ah	Thermal threshold current of overload current limit	10.0% to 750.0%	115.0	%	At stop	" H32_en.73" on page 619
H32.74	2032-4Bh	Peak current of overload current limit	100.0% to 750.0%	300.0	%	At stop	" H32_en.74" on page 619
H32.75	2032-4Ch	Max. current duration of overload protection	0.01s to 655.35s	1.00	s	At stop	" H32_en.75" on page 620
H32.76	2032-4Dh	Current limit time constant of overload protection	0.01–655.35	1.00	-	At stop	" H32_en.76" on page 620
H32.77	2032-4Eh	Current limit alarm threshold of overload protection	0.0% to 750.0%	0.0	%	At stop	" H32_en.77" on page 620
H32.78	2032-4Fh	Current limit fault threshold of overload protection	0.0% to 750.0%	0.0	%	At stop	" H32_en.78" on page 621
H32.79	2032-50h	Thermal threshold current of overload	10.0% to 750.0%	115.0	%	At stop	" H32_en.79" on page 621
H32.80	2032-51h	Thermal current interval of overload	0.1% to 204.8%	6.4	%	At stop	" H32_en.80" on page 621
H32.81	2032-52h	Overload heat dissipation current interval	0.1% to 204.8%	6.4	%	At stop	" H32_en.81" on page 621

Parameter	Hex	Name	Value	Default	Unit	Change Mode	Page
H32.82	2032-53h	Length of overload heat dissipation curve	1–200	1	-	At stop	"H32_en.82" on page 622
H32.83	2032-54h	Length of overload heat dissipation curve	1–200	1	-	At stop	"H32_en.83" on page 622

1.31 H33 Compensation Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H33.00	2033-01h	Compensation data BUFFER0	0–65535	0	-	At stop	"H33_en.00" on page 622
H33.01	2033-02h	Compensation data BUFFER1	0–65535	0	-	At stop	"H33_en.01" on page 623
H33.02	2033-03h	Compensation data BUFFER2	0–65535	0	-	At stop	"H33_en.02" on page 623
H33.03	2033-04h	Compensation data BUFFER3	0–65535	0	-	At stop	"H33_en.03" on page 623
H33.04	2033-05h	Compensation data BUFFER4	0–65535	0	-	At stop	"H33_en.04" on page 623
H33.05	2033-06h	Compensation data BUFFER5	0–65535	0	-	At stop	"H33_en.05" on page 624
H33.06	2033-07h	Compensation data BUFFER6	0–65535	0	-	At stop	"H33_en.06" on page 624
H33.07	2033-08h	Compensation data BUFFER7	0–65535	0	-	At stop	"H33_en.07" on page 624
H33.08	2033-09h	Compensation data BUFFER8	0–65535	0	-	At stop	"H33_en.08" on page 625
H33.09	2033-0Ah	Compensation data BUFFER9	0–65535	0	-	At stop	"H33_en.09" on page 625
H33.10	2033-0Bh	Compensation data BUFFER10	0–65535	0	-	At stop	"H33_en.10" on page 625
H33.11	2033-0Ch	Compensation data BUFFER11	0–65535	0	-	At stop	"H33_en.11" on page 625
H33.12	2033-0Dh	Compensation data BUFFER12	0–65535	0	-	At stop	"H33_en.12" on page 626
H33.13	2033-0Eh	Compensation data BUFFER13	0–65535	0	-	At stop	"H33_en.13" on page 626

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H33.14	2033-0Fh	Compensation data BUFFER14	0-65535	0	-	At stop	"H33_en.14" on page 626
H33.15	2033-10h	Compensation data BUFFER15	0-65535	0	-	At stop	"H33_en.15" on page 626
H33.16	2033-11h	Compensation data BUFFER16	0-65535	0	-	At stop	"H33_en.16" on page 627
H33.17	2033-12h	Compensation data BUFFER17	0-65535	0	-	At stop	"H33_en.17" on page 627
H33.18	2033-13h	Compensation data BUFFER18	0-65535	0	-	At stop	"H33_en.18" on page 627
H33.19	2033-14h	Compensation data BUFFER19	0-65535	0	-	At stop	"H33_en.19" on page 628
H33.20	2033-15h	Compensation data BUFFER20	0-65535	0	-	At stop	"H33_en.20" on page 628
H33.21	2033-16h	Compensation data BUFFER21	0-65535	0	-	At stop	"H33_en.21" on page 628
H33.22	2033-17h	Compensation data BUFFER22	0-65535	0	-	At stop	"H33_en.22" on page 628
H33.23	2033-18h	Compensation data BUFFER23	0-65535	0	-	At stop	"H33_en.23" on page 629
H33.24	2033-19h	Compensation data BUFFER24	0-65535	0	-	At stop	"H33_en.24" on page 629
H33.25	2033-1Ah	Compensation data BUFFER25	0-65535	0	-	At stop	"H33_en.25" on page 629
H33.26	2033-1Bh	Compensation data BUFFER26	0-65535	0	-	At stop	"H33_en.26" on page 629
H33.27	2033-1Ch	Compensation data BUFFER27	0-65535	0	-	At stop	"H33_en.27" on page 630
H33.28	2033-1Dh	Compensation data BUFFER28	0-65535	0	-	At stop	"H33_en.28" on page 630
H33.29	2033-1Eh	Compensation data BUFFER29	0-65535	0	-	At stop	"H33_en.29" on page 630
H33.30	2033-1Fh	Compensation data BUFFER30	0-65535	0	-	At stop	"H33_en.30" on page 631
H33.31	2033-20h	Compensation data BUFFER31	0-65535	0	-	At stop	"H33_en.31" on page 631
H33.32	2033-21h	Compensation data BUFFER32	0-65535	0	-	At stop	"H33_en.32" on page 631
H33.33	2033-22h	Compensation data BUFFER33	0-65535	0	-	At stop	"H33_en.33" on page 631
H33.34	2033-23h	Compensation data BUFFER34	0-65535	0	-	At stop	"H33_en.34" on page 632

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H33.35	2033-24h	Compensation data BUFFER35	0-65535	0	-	At stop	"H33_en.35" on page 632
H33.36	2033-25h	Compensation data BUFFER36	0-65535	0	-	At stop	"H33_en.36" on page 632
H33.37	2033-26h	Compensation data BUFFER37	0-65535	0	-	At stop	"H33_en.37" on page 632
H33.38	2033-27h	Compensation data BUFFER38	0-65535	0	-	At stop	"H33_en.38" on page 633
H33.39	2033-28h	Compensation data BUFFER39	0-65535	0	-	At stop	"H33_en.39" on page 633
H33.40	2033-29h	Current Compensation BUFFER group number	0-65535	0	-	At stop	"H33_en.40" on page 633
H33.41	2033-2Ah	Compensation data sum	0-32767	0	-	At stop	"H33_en.41" on page 634
H33.44	2033-2Dh	Data command	0-1	1	-	At stop	"H33_en.44" on page 634
H33.45	2033-2Eh	Data storage position	0: Servo RAM 1: Servo FLASH 2: Encoder FLASH	1	-	At stop	"H33_en.45" on page 634
H33.46	2033-2Fh	Data clear	0-3	0	-	At stop	"H33_en.46" on page 634
H33.47	2033-30h	Software tool write status	0-2	0	-	At stop	"H33_en.47" on page 635
H33.48	2033-31h	Servo read status	0-65535	0	-	Unchangeable	"H33_en.48" on page 635
H33.49	2033-32h	Software tool read status	0-2	0	-	At stop	"H33_en.49" on page 635
H33.50	2033-33h	Servo write status	0-65535	0	-	Unchangeable	"H33_en.50" on page 636
H33.51	2033-34h	Data transmission completed flag	0-1	0	-	At stop	"H33_en.51" on page 636
H33.52	2033-35h	Servo data transfer completed flag	0-65535	0	-	Unchangeable	"H33_en.52" on page 636
H33.60	2033-3Dh	Accuracy compensation function	0-1	0	-	At stop	"H33_en.60" on page 636
H33.61	2033-3Eh	Accuracy compensation sum	0count to 2048count	0	count	At stop	"H33_en.61" on page 637

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H33.62	2033-3Fh	Starting offset address of accuracy compensation	-21474836.48[mm]/[deg]–21474836.47[mm]/[deg]	0.00	[mm]/[deg]	At stop	" H33_en.62" on page 637
H33.64	2033-41h	Accuracy compensation data interval	-327.67[mm]/[deg]–327.67[mm]/[deg]	0.00	[mm]/[deg]	At stop	" H33_en.64" on page 637
H33.65	2033-42h	Accuracy compensation dial phase sequence	0x0 to 0xFFFF	0x0	-	At stop	" H33_en.65" on page 637
H33.66	2033-43h	Accuracy compensation dial reference direction	0–1	0	-	At stop	" H33_en.66" on page 638
H33.67	2033-44h	Servo homing completed	0–65535	0	-	Unchangeable	" H33_en.67" on page 638
H33.68	2033-45h	Current acting index of accuracy compensation	0–65535	0	-	Unchangeable	" H33_en.68" on page 638
H33.69	2033-46h	Forced homing start	0–1	0	-	At stop	" H33_en.69" on page 639
H33.70	2033-47h	Forced homing mode	-32768–32767	-2	-	At stop	" H33_en.70" on page 639
H33.71	2033-48h	Forced homing at low speed	0[mm/s]/[rpm]–1000[mm/s]/[rpm]	10	[mm/s]/[rpm]	At stop	" H33_en.71" on page 639
H33.72	2033-49h	Single-turn absolute position of accuracy compensation home of absolute encoder	0 to 4294967295	0	Encoder unit	At stop	" H33_en.72" on page 639
H33.74	2033-4Bh	Min.pulse width of frequency-division output accuracy compensation	2count to 7count	3	count	At stop	" H33_en.74" on page 640

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H33.75	2033-4Ch	Accuracy compensation data unit	0: [um]/[arcsec] 1: [mm]/[mrad]	0	-	At stop	"H33_en.75" on page 640
H33.81	2033-52h	Motor cogging torque ripple compensation sum	0count to 65535count	2000	count	At stop	"H33_en.81" on page 640

1.32 H34 Servo Motor Parameters 2

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H34.12	2034-0Dh	Error type supported by Endat2.2 encoder	0x0 to 0xFFFF	0x0	-	Unchangeable	"H34_en.12" on page 641
H34.13	2034-0Eh	Alarm types supported by EnDat2.2 encoders	0x0 to 0xFFFF	0x0	-	Unchangeable	"H34_en.13" on page 641
H34.14	2034-0Fh	Error value output by EnDat2.2 encoder	0x0 to 0xFFFF	0x0	-	Unchangeable	"H34_en.14" on page 641
H34.15	2034-10h	Alarm value output by EnDat2.2 encoder	0x0 to 0xFFFF	0x0	-	Unchangeable	"H34_en.15" on page 642

1.33 List of 1000h Object Dictionary

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
1005h	1005h	SYNC message COB-ID	0x80 to 0xFFFFFFFF	0x80	-	Real-time	"1005h" on page 642
1006h	1006h	Synchronization cycle	0μs to 2147483647μs	0	μs	Real-time	"1006h" on page 642
100Ch	100Ch	Node guarding time	0 ms–65535 ms	0	ms	Real-time	"100Ch" on page 643

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
100dh	100dh	Life factor	0–255	0	-	Real-time	"100dh" on page 643
1014h	1014h	Emergency message COB-ID	0x0 to 0xFFFFFFFF	0x80	-	Real-time	"1014h" on page 643
1016.01h	1016-01h	Consumer heartbeat time 1	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1016_en.01h" on page 644
1016.02h	1016-02h	Consumer heartbeat time 2	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1016_en.02h" on page 644
1016.03h	1016-03h	Consumer heartbeat time 3	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1016_en.03h" on page 644
1016.04h	1016-04h	Consumer heartbeat time 4	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1016_en.04h" on page 644
1016.05h	1016-05h	Consumer heartbeat time 5	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1016_en.05h" on page 645
1017h	1017h	Producer heartbeat time	0 ms–65535 ms	0	ms	Real-time	"1017h" on page 645
1400.01h	1400-01h	COB-ID of RPDO1	0x0 to 0xFFFFFFFF	0x200	-	Real-time	"1400_en.01h" on page 645
1400.02h	1400-02h	Transmission type of RPDO1	0–255	255	-	Real-time	"1400_en.02h" on page 646
1401.01h	1401-01h	COB-ID of RPDO2	0x0 to 0xFFFFFFFF	0x300	-	Real-time	"1401_en.01h" on page 646
1401.02h	1401-02h	Transmission type of RPDO2	0–255	255	-	Real-time	"1401_en.02h" on page 646
1402.01h	1402-01h	COB-ID of RPDO3	0x0 to 0xFFFFFFFF	0x80000400	-	Real-time	"1402_en.01h" on page 647
1402.02h	1402-02h	Transmission type of RPDO3	0–255	255	-	Real-time	"1402_en.02h" on page 647
1403.01h	1403-01h	COB-ID of RPDO4	0x0 to 0xFFFFFFFF	0x80000500	-	Real-time	"1403_en.01h" on page 647
1403.02h	1403-02h	Transmission type of RPDO4	0–255	255	-	Real-time	"1403_en.02h" on page 647

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
1600.00h	1600-00h	Number of valid mapped objects in RPDO1	0–4	3	-	Real-time	"1600_en.00h" on page 648
1600.01h	1600-01h	Mapped object 1 in RPDO1	0x0 to 0x7FFFFFFF	0x60400010	-	Real-time	"1600_en.01h" on page 648
1600.02h	1600-02h	Mapped object 2 in RPDO1	0x0 to 0x7FFFFFFF	0x60F0020	-	Real-time	"1600_en.02h" on page 648
1600.03h	1600-03h	Mapped object 3 in RPDO1	0x0 to 0x7FFFFFFF	0x60600008	-	Real-time	"1600_en.03h" on page 649
1600.04h	1600-04h	Mapped object 4 in RPDO1	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1600_en.04h" on page 649
1601.00h	1601-00h	Number of valid mapped objects in RPDO2	0–4	2	-	Real-time	"1601_en.00h" on page 649
1601.01h	1601-01h	Mapped object 1 in RPDO2	0x0 to 0x7FFFFFFF	0x607A0020	-	Real-time	"1601_en.01h" on page 649
1601.02h	1601-02h	Mapped object 2 in RPDO2	0x0 to 0x7FFFFFFF	0x60810020	-	Real-time	"1601_en.02h" on page 650
1601.03h	1601-03h	Mapped object 3 in RPDO2	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1601_en.03h" on page 650
1601.04h	1601-04h	Mapped object 4 in RPDO2	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1601_en.04h" on page 650
1602.00h	1602-00h	Number of valid mapped objects in RPDO3	0–4	0	-	Real-time	"1602_en.00h" on page 651
1602.01h	1602-01h	Mapped object 1 in RPDO3	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1602_en.01h" on page 651
1602.02h	1602-02h	Mapped object 2 in RPDO3	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1602_en.02h" on page 651

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
1602.03h	1602-03h	Mapped object 3 in RPDO3	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1602_en.03h" on page 652
1602.04h	1602-04h	Mapped object 4 in RPDO3	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1602_en.04h" on page 652
1603.00h	1603-00h	Number of valid mapped objects in RPDO4	0–4	0	-	Real-time	"1603_en.00h" on page 652
1603.01h	1603-01h	Mapped object 1 in RPDO4	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1603_en.01h" on page 653
1603.02h	1603-02h	Mapped object 2 in RPDO4	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1603_en.02h" on page 653
1603.03h	1603-03h	Mapped object 3 in RPDO4	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1603_en.03h" on page 653
1603.04h	1603-04h	Mapped object 4 in RPDO4	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1603_en.04h" on page 654
1800.01h	1800-01h	COB-ID of TPDO1	0x0 to 0xFFFFFFFF	0x40000180	-	Real-time	"1800_en.01h" on page 654
1800.02h	1800-02h	Transmission type of TPDO1	0–255	255	-	Real-time	"1800_en.02h" on page 654
1800.03h	1800-03h	Inhibit time of TPDO1	0μs to 65535μs	500	100μs	Real-time	"1800_en.03h" on page 655
1800.05h	1800-05h	Event counter of TPDO1	0 ms–65535 ms	0	ms	Real-time	"1800_en.05h" on page 655
1801.01h	1801-01h	COB-ID of TPDO2	0x0 to 0xFFFFFFFF	0x40000280	-	Real-time	"1801_en.01h" on page 655
1801.02h	1801-02h	Transmission type of TPDO2	0–255	255	-	Real-time	"1801_en.02h" on page 656
1801.03h	1801-03h	Inhibit time of TPDO2	0μs to 65535μs	500	100μs	Real-time	"1801_en.03h" on page 656
1801.05h	1801-05h	Event counter of TPDO2	0 ms–65535 ms	0	ms	Real-time	"1801_en.05h" on page 656
1802.01h	1802-01h	COB-ID of TPDO3	0x0 to 0xFFFFFFFF	0xC0000380	-	Real-time	"1802_en.01h" on page 656

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
1802.02h	1802-02h	Transmission type of TPDO3	0–255	255	-	Real-time	"1802_en.02h" on page 657
1802.03h	1802-03h	Inhibit time of TPDO3	0μs to 65535μs	500	100μs	Real-time	"1802_en.03h" on page 657
1802.05h	1802-05h	Event counter of TPDO3	0 ms–65535 ms	0	ms	Real-time	"1802_en.05h" on page 657
1803.01h	1803-01h	COB-ID of TPDO4	0x0 to 0xFFFFFFFF	0xC0000480	-	Real-time	"1803_en.01h" on page 657
1803.02h	1803-02h	Transmission type of TPDO4	0–255	255	-	Real-time	"1803_en.02h" on page 658
1803.03h	1803-03h	Inhibit time of TPDO4	0μs to 65535μs	500	100μs	Real-time	"1803_en.03h" on page 658
1803.05h	1803-05h	Event counter of TPDO4	0 ms–65535 ms	0	ms	Real-time	"1803_en.05h" on page 658
1A00.00h	1A00-00h	Number of valid mapped objects in TPDO1	0–4	3	-	Real-time	"1A00_en.00h" on page 658
1A00.01h	1A00-01h	Mapped object 1 in TPDO1	0x0 to 0x7FFFFFFF	0x60410010	-	Real-time	"1A00_en.01h" on page 659
1A00.02h	1A00-02h	Mapped object 2 in TPDO1	0x0 to 0x7FFFFFFF	0x60FD0020	-	Real-time	"1A00_en.02h" on page 659
1A00.03h	1A00-03h	Mapped object 3 in TPDO1	0x0 to 0x7FFFFFFF	0x60610008	-	Real-time	"1A00_en.03h" on page 659
1A00.04h	1A00-04h	Mapped object 4 in TPDO1	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A00_en.04h" on page 660
1A01.00h	1A01-00h	Number of valid mapped objects in TPDO2	0–4	2	-	Real-time	"1A01_en.00h" on page 660
1A01.01h	1A01-01h	Mapped object 1 in TPDO2	0x0 to 0x7FFFFFFF	0x60640020	-	Real-time	"1A01_en.01h" on page 660

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
1A01.02h	1A01-02h	Mapped object 2 in TPDO2	0x0 to 0x7FFFFFFF	0x606C0020	-	Real-time	"1A01_en.02h" on page 661
1A01.03h	1A01-03h	Mapped object 3 in TPDO2	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A01_en.03h" on page 661
1A01.04h	1A01-04h	Mapped object 4 in TPDO2	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A01_en.04h" on page 661
1A02.00h	1A02-00h	Number of valid mapped objects in TPDO3	0–4	0	-	Real-time	"1A02_en.00h" on page 662
1A02.01h	1A02-01h	Mapped object 1 in TPDO3	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A02_en.01h" on page 662
1A02.02h	1A02-02h	Mapped object 2 in TPDO3	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A02_en.02h" on page 662
1A02.03h	1A02-03h	Mapped object 3 in TPDO3	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A02_en.03h" on page 663
1A02.04h	1A02-04h	Mapped object 4 in TPDO3	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A02_en.04h" on page 663
1A03.00h	1A03-00h	Number of valid mapped objects in TPDO4	0–4	0	-	Real-time	"1A03_en.00h" on page 663
1A03.01h	1A03-01h	Mapped object 1 in TPDO4	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A03_en.01h" on page 663
1A03.02h	1A03-02h	Mapped object 2 in TPDO4	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A03_en.02h" on page 664
1A03.03h	1A03-03h	Mapped object 3 in TPDO4	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A03_en.03h" on page 664
1A03.04h	1A03-04h	Mapped object 4 in TPDO4	0x0 to 0x7FFFFFFF	0x0	-	Real-time	"1A03_en.04h" on page 664

1.34 List of 6000h Object Dictionary

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
603Fh	603Fh	Error code	0x0 to 0xFFFF	0x0	-	Unchangeable	"603Fh" on page 665
6040h	6040h	Control word	0x0 to 0xFFFF	0x0	-	Real-time	"6040h" on page 665
6041h	6041h	Status word	0x0 to 0xFFFF	0x0	-	Unchangeable	"6041h" on page 665
605Ah	605Ah	Quick stop mode	0: Coast to stop, keeping de-energized state 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state 2: Ramp to stop as defined by 6085h, keeping de-energized state 3: Stop at emergency stop torque, keeping de-energized state 5: Ramp to stop as defined by 6084h/609Ah (HM), keeping position lock state 6: Ramp to stop as defined by 6085h, keeping position lock state 7: Stop at emergency stop torque, keeping position lock state	2	-	Real-time	"605Ah" on page 666
605Ch	605Ch	Stop mode at S-OFF	–4: Ramp to stop as defined by 6085h, keeping dynamic braking state –3: Stop at zero speed, keeping dynamic braking state –2: Ramp to stop as defined by 6084h/ 609Ah, keeping dynamic braking state –1: Dynamic braking stop, keeping dynamic braking state 0: Coast to stop, keeping de-energized state 1: Ramp to stop as defined by 6084h/ 609Ah, keeping de-energized state 2: Dynamic braking stop, keeping de-energized state	0	-	Real-time	"605Ch" on page 666

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
605Dh	605Dh	Halt mode	1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping position lock state 2: Ramp to stop as defined by 6085h, keeping position lock state 3: Stop at emergency stop torque, keeping position lock state	1	-	Real-time	"605Dh" on page 667
605Eh	605Eh	Stop mode at No. 2 fault	–5: Stop at zero speed, keeping dynamic braking state –4: Stop at emergency stop torque, keeping dynamic braking state –3: Ramp to stop as defined by 6085h, keeping dynamic braking state –2: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping dynamic braking state –1: Dynamic braking stop, keeping dynamic braking state 0: Coast to stop, keeping de-energized state 1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping de-energized state 2: Ramp to stop as defined by 6085h, keeping de-energized state 3: Stop at emergency stop torque, keeping de-energized state 4: Dynamic braking stop, keeping de-energized state	2	-	Real-time	"605Eh" on page 668
6060h	6060h	Servo drive mode	1: Profile position mode (pp) 3: Profile velocity mode (pv) 4: Profile torque mode (pt) 6: Homing mode (hm) 7: Interpolation mode (ip)	0	-	Real-time	"6060h" on page 669
6061h	6061h	Operation mode display	1: Profile position mode (pp) 3: Profile velocity mode (pv) 4: Profile torque mode (pt) 6: Homing mode (hm) 7: Interpolation mode (ip)	0	-	Unchangeable	"6061h" on page 669
6062h	6062h	Position reference	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"6062h" on page 670
6063h	6063h	Position actual value	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"6063h" on page 670

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
6064h	6064h	Position actual value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"6064h" on page 670
6065h	6065h	Following error window	0 to 4294967295	219895614	Reference unit	Real-time	"6065h" on page 671
6066h	6066h	Defines the time lapse to trigger excessive position deviation (EB00.0).	0 ms–65535 ms	0	ms	Real-time	"6066h" on page 671
6067h	6067h	Position window	0 to 4294967295	46976	Reference unit	Real-time	"6067h" on page 671
6068h	6068h	Position window time	0 ms–65535 ms	0	ms	Real-time	"6068h" on page 672
606Ch	606Ch	Actual speed	–2147483648 to +2147483647	0	Reference unit/s	Unchangeable	"606Ch" on page 672
606Dh	606Dh	Velocity window	0 RPM to 65535 RPM	10	rpm	Real-time	"606Dh" on page 672
606Eh	606Eh	Velocity window time	0 ms–65535 ms	0	ms	Real-time	"606Eh" on page 673
606Fh	606Fh	Zero speed signal threshold	0 RPM to 65535 RPM	10	rpm	Real-time	"606Fh" on page 673
6070h	6070h	Velocity threshold time	0 ms–65535 ms	0	ms	Real-time	"6070h" on page 674
6071h	6071h	Target torque	-4000.%–4000.%	0	0.10%	Real-time	"6071h" on page 675
6072h	6072h	Max. torque reference	0.%–4000.%	3500	0.10%	Real-time	"6072h" on page 675
6074h	6074h	Torque reference	-4000.%–4000.%	0	0.10%	Unchangeable	"6074h" on page 675
6077h	6077h	Actual torque	-4000.%–4000.%	0	0.10%	Unchangeable	"6077h" on page 675
607Ah	607Ah	Target position	-2147483648 to 2147483647	0	Reference unit	Real-time	"607Ah" on page 676

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
607Ch	607Ch	Home offset	-2147483648 to 2147483647	0	Reference unit	Real-time	"607Ch" on page 676
607D.01h	607D-01h	Min. position limit	-2147483648 to 2147483647	-2147483648	Reference unit	Real-time	"607D_en.01h" on page 677
607D.02h	607D-02h	Max. position limit	-2147483648 to 2147483647	2147483647	Reference unit	Real-time	"607D_en.02h" on page 677
607Eh	607Eh	Reference polarity	0x0 to 0xFF	0x0	-	Real-time	"607Eh" on page 677
607Fh	607Fh	Max. speed	0 to 4294967295	4294967295	Reference unit/s	Real-time	"607Fh" on page 678
6081h	6081h	Profile velocity	0 to 4294967295	111848106	Reference unit/s	Real-time	"6081h" on page 678
6083h	6083h	Profile acceleration	0 to 4294967295	4294967295	Reference unit/s ²	Real-time	"6083h" on page 678
6084h	6084h	Profile deceleration	0 to 4294967295	4294967295	Reference unit/s ²	Real-time	"6084h" on page 679
6085h	6085h	Quick stop deceleration	0 to 4294967295	2147483647	Reference unit/s ²	Real-time	"6085h" on page 679
6087h	6087h	Torque slope	0.%/s–4294967295.%/s	4294967295	0.1%/s	Real-time	"6087h" on page 680
6091.01h	6091-01h	Motor resolution	1–4294967295	1	-	At stop	"6091_en.01h" on page 680
6091.02h	6091-02h	Shaft resolution	1–4294967295	1	-	At stop	"6091_en.02h" on page 681
6098h	6098h	Homing method	-3–35	1	-	Real-time	"6098h" on page 681
6099.01h	6099-01h	Speed during search for switch	0 to 4294967295	111848106	Reference unit/s	At stop	"6099_en.01h" on page 682
6099.02h	6099-02h	Speed during search for zero	0 to 4294967295	11184810	Reference unit/s	At stop	"6099_en.02h" on page 682

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
609Ah	609Ah	Homing acceleration	0 to 4294967295	4294967295	Reference unit/s ²	Real-time	"609Ah" on page 683
60B8h	60B8h	Touch probe function	0x0 to 0xFFFF	0x0	-	Real-time	"60B8h" on page 683
60B9h	60B9h	Touch probe status	0x0 to 0xFFFF	0x0	-	Unchangeable	"60B9h" on page 684
60BAh	60BAh	Touch probe 1 positive edge position value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"60BAh" on page 685
60BBh	60BBh	Touch probe 1 negative edge position value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"60BBh" on page 686
60BCh	60BCh	Touch probe 2 positive edge position value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"60BCh" on page 686
60BDh	60BDh	Touch probe 2 negative edge position value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"60BDh" on page 686
60C1.01h	60C1-01h	Interpolation displacement	-2147483648 to 2147483647	0	Reference unit	Real-time	"60C1-en.01h" on page 687
60C2.01h	60C2-01h	Interpolation time period	1–20	1	-	Real-time	"60C2-en.01h" on page 687
60C2.02h	60C2-02h	Interpolation time units	-3–3	-3	-	Real-time	"60C2-en.02h" on page 687
60C5h	60C5h	Max. acceleration	0 to 4294967295	4294967295	Reference unit/s ²	Real-time	"60C5h" on page 688
60C6h	60C6h	Max. deceleration	0 to 4294967295	4294967295	Reference unit/s ²	Real-time	"60C6h" on page 688

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
60D5h	60D5h	Touch probe 1 positive edge counter	0x0 to 0xFFFF	0x0	-	Unchangeable	"60D5h" on page 688
60D6h	60D6h	Touch probe 1 negative edge counter	0x0 to 0xFFFF	0x0	-	Unchangeable	"60D6h" on page 688
60D7h	60D7h	Touch probe 2 positive edge counter	0x0 to 0xFFFF	0x0	-	Unchangeable	"60D7h" on page 689
60D8h	60D8h	Touch probe 2 negative edge counter	0x0 to 0xFFFF	0x0	-	Unchangeable	"60D8h" on page 689
60E0h	60E0h	Positive torque limit	0%–4000.%	3500	0.10%	Real-time	"60E0h" on page 689
60E1h	60E1h	Negative torque limit	0%–4000.%	3500	0.10%	Real-time	"60E1h" on page 690
60F4h	60F4h	Position deviation	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"60F4h" on page 690
60FCh	60FCh	Position reference	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"60FCh" on page 690
60FDh	60FDh	DI state	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"60FDh" on page 690
60FFh	60FFh	PV target velocity	–2147483648 to +2147483647	0	Reference unit/s	Real-time	"60FFh" on page 691
60FE.01h	60FE-01h	Physical output	0x0 to 0xFFFFFFFF	0x0	-	Real-time	"60FE_01h" on page 691
60FE.02h	60FE-02h	Bitmask	0x0 to 0xFFFFFFFF	0x0	-	Real-time	"60FE_02h" on page 692

2 Description of Parameters [P]

2.1 H00 Servo Motor Parameters

H00.00	Motor SN		
	Address:	2000-01h	Effective mode: Upon the next power-on
	Min.:	0	Unit: -
	Max.:	65535	Data Type: UInt16
	Default:	14102	Change: At stop
	Value Range:		
	20000: linear motor-pulse encoder		
	14203: linear motor-BiSS-C encoder		
	14206: linear motor-SSI encoder		
	14207: linear motor-EnDat2.2 encoder		
	14202: linear motor-Inovance communication 23-bit encoder		
	14205: linear motor-Inovance interpolator 23-bit encoder		
	20001: DDR motor-pulse encoder		
	14210: DDR motor-Inovance interpolator 23-bit encoder		
	14201: DDR motor-Inovance communication 23-bit encoder		
	14211: DDR motor-BiSS-C encoder		
	14212: DDR motor-EnDat2.2 encoder		
	14213: DDR motor-SSI encoder		
	20002: rotary motor-pulse encoder		
	14000: rotary motor-Inovance communication 20-bit encoder		
	14101: rotary motor-Inovance communication 23-bit encoder		
	14102: rotary motor-Inovance communication 26-bit encoder		
	14020: rotary motor-Harmonic 20-bit encoder-2.5M baud rate		
	14021: rotary motor-Harmonic 17-bit encoder-2.5M baud rate		
	14022: rotary motor-Harmonic 17-bit encoder-4M baud rate		
	14120: rotary motor-Nikon 20-bit encoder-2.5M baud rate		
	14121: rotary motor-Nikon 17-bit encoder-2.5M baud rate		
	14122: rotary motor-Nikon 17-bit encoder-4M baud rate		
	14130: rotary motor-TAMAGAWA 17-bit encoder		
	14131: rotary motor-TAMAGAWA 23-bit encoder		
	14140: rotary motor-EnDat2.2 encoder		
	14150: rotary motor-SSI encoder		
	14160: rotary motor-BiSS-C encoder		

Description

20000: linear motor-pulse encoder
 14203: linear motor-BiSS-C encoder
 14206: linear motor-SSI encoder
 14207: linear motor-EnDat2.2 encoder
 14202: linear motor-Inovance communication 23-bit encoder
 14205: linear motor-Inovance interpolator 23-bit encoder
 20001: DDR motor-pulse encoder
 14210: DDR motor-Inovance interpolator 23-bit encoder
 14201: DDR motor-Inovance communication 23-bit encoder
 14211: DDR motor-BiSS-C encoder
 14212: DDR motor-EnDat2.2 encoder
 14213: DDR motor-SSI encoder
 20002: rotary motor-pulse encoder
 14000: rotary motor-Inovance communication 20-bit encoder
 14101: rotary motor-Inovance communication 23-bit encoder
 14102: rotary motor-Inovance communication 26-bit encoder
 14020: rotary motor-Harmonic 20-bit encoder-2.5M baud rate
 14021: rotary motor-Harmonic 17-bit encoder-2.5M baud rate
 14022: rotary motor-Harmonic 17-bit encoder-4M baud rate
 14120: rotary motor-Nikon 20-bit encoder-2.5M baud rate
 14121: rotary motor-Nikon 17-bit encoder-2.5M baud rate
 14122: rotary motor-Nikon 17-bit encoder-4M baud rate
 14130: rotary motor-TAMAGAWA 17-bit encoder
 14131: rotary motor-TAMAGAWA 23-bit encoder
 14140: rotary motor-EnDat2.2 encoder
 14150: rotary motor-SSI encoder
 14160: rotary motor-BiSS-C encoder

H00.02**Customized No.**

Address:	2000-03h	Effective	-
		mode:	
Min.:	0.00	Unit:	-
Max.:	42949672.95	Data Type:	UInt32
Default:	0.00	Change:	Unchangeable

Value Range:

0.00–42949672.95

Description

Differentiates the customized MCU software version, which is not applicable to standard models.

H00.04 Encoder version

Address:	2000-05h	Effective	-
		mode:	
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0–6553.5

Description

Saved in the encoder and used to differentiate the encoder software version.

H00.05 Serial-type motor code

Address:	2000-06h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Displays the code of the serial-type motor, which is determined by the motor model and unchangeable.

H00.06 FPGA customized SN

Address:	2000-07h	Effective	-
		mode:	
Min.:	0.00	Unit:	-
Max.:	655.35	Data Type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00–655.35

Description

Differentiates the customized FPGA software version, which is not applicable to standard models.

H00.07 STO version

Address:	2000-08h	Effective	-
		mode:	
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0–6553.5

Description

Display the software version number of STO function.

H00.08**Bus encoder type**

Address: 2000-09h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

14100: Multi-turn absolute encoder

Others: Single-turn absolute encoder

H00.14**Rated speed**

Address: 2000-0Fh

Effective mode: Upon the next power-on

Min.: 50

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: UInt16

Default: 3000

Change: At stop

Value Range:

50[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Set the motor rated speed.

H00.15**Maximum speed**

Address: 2000-10h

Effective mode: Upon the next power-on

Min.: 50

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: UInt16

Default: 6000

Change: At stop

Value Range:

50[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Set the maximum motor speed.

H00.18**Stator resistance**

Address: 2000-13h

Effective mode: Upon the next power-on

Min.:	0.001	Unit:	Ω
Max.:	65.535	Data Type:	UInt16
Default:	0.500	Change:	At stop

Value Range:0.001 Ω to 65.535 Ω **Description**

Set the motor stator resistance.

H00.19 Stator inductance Lq

Address:	2000-14h	Effective mode:	Upon the next power-on
Min.:	0.01	Unit:	mH
Max.:	655.35	Data Type:	UInt16
Default:	3.27	Change:	At stop

Value Range:

0.01mH to 655.35mH

Description

Set the motor stator inductance Lq.

H00.20 Stator inductance Ld

Address:	2000-15h	Effective mode:	Upon the next power-on
Min.:	0.01	Unit:	mH
Max.:	655.35	Data Type:	UInt16
Default:	3.87	Change:	At stop

Value Range:

0.01mH to 655.35mH

Description

Set the motor stator inductance Ld.

H00.22 Torque coefficient Kt

Address:	2000-17h	Effective mode:	Upon the next power-on
Min.:	0.01	Unit:	[N/Arms]/[N·m/Arms]
Max.:	655.35	Data Type:	UInt16
Default:	0.51	Change:	At stop

Value Range:

0.01[N/Arms]/[N·m/Arms]–655.35[N/Arms]/[N·m/Arms]

Description

Set the motor torque coefficient Kt.

H00.40**Motor control type**

Address:	2000-29h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0: General-purpose rotary motor (ROT)

1: Direct drive rotary motor (DDR)

2: Direct drive linear motor (DDL)

3: Voice coil motor (VOL)

Description

The motor type supported by the drive.

0: General-purpose rotary motor (ROT)

1: Direct drive rotary motor (DDR)

2: Direct drive linear motor (DDL)

3: Voice coil motor (VOL)

H00.41**Master encoder configuration**

Address:	2000-2Ah	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Unchangeable

Value Range:

0: CN2

1: CN7

Description

Set the terminal for the master encoder.

H00.43**Number of BiSS-C/SSI/EnDat2.2 data bits**

Address:	2000-2Ch	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	40	Data Type:	UInt16
Default:	32	Change:	At stop

Value Range:

0–40

Description

Defines the length of the data configured based on BiSS-C/SSI/EnDat2.2 protocol.

H00.44 Number of BiSS-C/SSI fault bits

Address:	2000-2Dh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	31	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0–31

Description

Defines the length of the fault configured based on BiSS-C/SSI protocol.

H00.45 Encoder pitch 1

Address:	2000-2Eh	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	[mm]/[deg]
Max.:	655.35	Data Type:	UInt16
Default:	2.00	Change:	At stop

Value Range:

0.00[mm]/[deg]–655.35[mm]/[deg]

Description

Defines the encoder pitch characteristics, which should be used together with encoder pitch fluctuation suppressor 1 (see details in H08.90).

H00.46 Encoder pitch 2

Address:	2000-2Fh	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	[mm]/[deg]
Max.:	655.35	Data Type:	UInt16
Default:	0.50	Change:	At stop

Value Range:

0.00[mm]/[deg]–655.35[mm]/[deg]

Description

Defines the encoder pitch characteristics, which should be used together with encoder pitch fluctuation suppressor 2 (see details in H08.90).

H00.47 Encoder Type

Address:	2000-30h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Optical scale

1: Magnetic scale

Description

Pulse Encoder type:

0: Optical scale

1: Magnetic scale

H00.48 Linear motor pole pitch (N-S)

Address:	2000-31h	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	mm
Max.:	655.35	Data Type:	UInt16
Default:	16.00	Change:	At stop

Value Range:

0.00 millimeters–655.35 millimeters

Description

Linear motor pole pitch.

H00.49 Direct drive motor encoder resolution

Address:	2000-32h	Effective mode:	Upon the next power-on
Min.:	0.000	Unit:	um/p
Max.:	65.535	Data Type:	UInt16
Default:	1.000	Change:	At stop

Value Range:

0.000um/p–65.535um/p

Description

Direct drive motor encoder resolution.

H00.54 BiSS-C/SSI CRC

Address:	2000-37h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0–1

Description

Defines the CRC polarity of the BiSS-C/SSI protocol.

0: Positive

1: Negative

H00.55 Rated torque (Uint32)

Address:	2000-38h	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	[N]/[N·m]
Max.:	42949672.95	Data Type:	UInt32
Default:	2.00	Change:	At stop

Value Range:

0.00[N]/[N·m]–42949672.95[N]/[N·m]

Description

Set the motor rated torque.

H00.57 Max. torque (Uint32)

Address:	2000-3Ah	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	[N]/[N·m]
Max.:	42949672.95	Data Type:	UInt32
Default:	7.00	Change:	At stop

Value Range:

0.00[N]/[N·m]–42949672.95[N]/[N·m]

Description

Set the maximum motor torque.

H00.59 Encoder counting direction

Address:	2000-3Ch	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Forward

1: Reverse

Description

Motor phase sequence:

0: Forward

1: Reverse

H00.63 Max. current (Uint32)

Address:	2000-40h	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	A
Max.:	42949672.95	Data Type:	UInt32

Default: 3.00

Change: At stop

Value Range:

0.00A–42949672.95A

Description

Set the maximum current.

H00.65 Rated current (Uint32)

Address: 2000-42h

Effective mode: Upon the next power-on

Min.: 0.00

Unit: A

Max.: 42949672.95

Data Type: Uint32

Default: 1.00

Change: At stop

Value Range:

0.00A–42949672.95A

Description

Set the rated current.

H00.67 Moment of inertia (Uint32)

Address: 2000-44h

Effective mode: Upon the next power-on

Min.: 0.00000

Unit: $[g]/[0.00001\text{kg} \cdot \text{cm}^2]$

Max.: 42949.67295

Data Type: Uint32

Default: 0.00001

Change: At stop

Value Range:0.00000 $[g]/[0.00001\text{kg} \cdot \text{cm}^2]$ –42949.67295 $[g]/[0.00001\text{kg} \cdot \text{cm}^2]$ **Description**

Set the moment of inertia.

H00.69 Linear back EMF coefficient (Uint32)

Address: 2000-46h

Effective mode: Upon the next power-on

Min.: 0.00

Unit: $[V/(m/s)]/[100\text{mV/rpm}]$

Max.: 42949672.95

Data Type: Uint32

Default: 33.00

Change: At stop

Value Range:0.00 $[V/(m/s)]/[100\text{mV/rpm}]$ –42949672.95 $[V/(m/s)]/[100\text{mV/rpm}]$ **Description**

Set the Linear back EMF coefficient.

2.2 H01 Servo Drive Parameters

H01.00 MCU software version

Address:	2001-01h	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0–6553.5

Description

Displays the MCU software version.

H01.01 FPGA software version

Address:	2001-02h	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0–6553.5

Description

Display the FPGA software version.

H01.02 Servo drive series No.

Address:	2001-03h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display servo drive series number.

H01.06 Board software version

Address:	2001-07h	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0–6553.5

Description

Display board software version.

H01.10

Drive series No.

Address: 2001-0Bh

Effective Upon the next power-on
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 3

Change: At stop

Value Range:

2: S1R6

3: S2R8

5: S5R5

6: S7R6

7: S012

8: S018

9: S022

10: S027

10001: T3R5

10002: T5R4

10003: T8R4

10004: T012

10005: T017

10006: T021

10007: T026

Description

Display the serial number of the drive.

2: S1R6

3: S2R8

5: S5R5

6: S7R6

7: S012

8: S018

9: S022

10: S027

10001: T3R5

10002: T5R4

10003: T8R4

10004: T012

10005: T017

10006: T021

10007: T026

H01.11 DC-AC voltage class

Address: 2001-0Ch

Effective -

mode:

Min.: 0

Unit: V

Max.: 65535

Data Type: UInt16

Default: 220

Change: Unchangeable

Value Range:

0 V–65535 V

Description

Display DC-AC voltage class.

H01.12 Drive rated power

Address: 2001-0Dh

Effective -

mode:

Min.: 0.00

Unit: kW

Max.: 42949672.95

Data Type: UInt32

Default: 0.40

Change: Unchangeable

Value Range:

0.00 kW–42949672.95kW

Description

Display drive rated power.

H01.14 Max. output power of the drive

Address: 2001-0Fh

Effective -

mode:

Min.:	0.00	Unit:	kW
Max.:	42949672.95	Data Type:	UInt32
Default:	0.40	Change:	Unchangeable

Value Range:

0.00 kW–42949672.95kW

Description

Display the maximum output power of the drive.

H01.16 Rated output current of the drive

Address:	2001-11h	Effective mode:	-
Min.:	0.00	Unit:	A
Max.:	42949672.95	Data Type:	UInt32
Default:	2.80	Change:	Unchangeable

Value Range:

0.00 A–42949672.95 A

Description

Display the rated output current of the drive.

H01.18 Max. output current of the drive

Address:	2001-13h	Effective mode:	-
Min.:	0.00	Unit:	A
Max.:	42949672.95	Data Type:	UInt32
Default:	10.10	Change:	Unchangeable

Value Range:

0.00 A–42949672.95 A

Description

Display the maximum output current of the drive.

H01.40 DC bus overvoltage protection threshold

Address:	2001-29h	Effective mode:	Real time
Min.:	0	Unit:	V
Max.:	2000	Data Type:	UInt16
Default:	420	Change:	Real-time

Value Range:

0 V–2000 V

Description

Display the DC bus overvoltage protection threshold.

H01.75 Current loop amplification factor

Address:	2001-4Ch	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	655.35	Data Type:	UInt16
Default:	1.00	Change:	Real-time

Value Range:

0.00–655.35

Description

Display current loop amplification factor.

H01.88 Junction temperature parameter version 1

Address:	2001-59h	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0–6553.5

Description

Displays version 1 of the junction temperature parameter.

H01.89 Junction temperature parameter version 2

Address:	2001-5Ah	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Displays version 2 of the junction temperature parameter.

H01.90 Motor property mask

Address:	2001-5Bh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The setpoint 1 indicates the bit function of H0060 is being masked.

2.3 H02 Basic Control Parameters

H02.00 Control mode

Address:	2002-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	8	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

- 0: Speed control mode
- 1: Position control mode
- 2: Torque control mode
- 3: Torque/Speed control mode
- 4: Speed/Position control mode
- 5: Torque/Position control mode
- 6: Torque/Speed/Position compound mode
- 7: Process segment
- 8: CANopen mode

Description

Select the servo control mode.

- 0: Speed control mode
- 1: Position control mode
- 2: Torque control mode
- 3: Torque/Speed control mode
- 4: Speed/Position control mode
- 5: Torque/Position control mode
- 6: Torque/Speed/Position compound mode
- 7: Process segment
- 8: CANopen mode

H02.01 Absolute system selection

Address:	2002-02h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: Incremental mode
- 1: Absolute position linear mode
- 2: Absolute position rotation mode
- 3: Absolute position linear mode (without encoder overflow alarm)
- 4: Absolute position single-turn mode

Description

Absolute system mode selection

- 0: Incremental mode
- 1: Absolute position linear mode
- 2: Absolute position rotation mode
- 3: Absolute position linear mode (without encoder overflow alarm)
- 4: Absolute position single-turn mode

H02.02 Rotation direction selection

Address:	2002-03h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

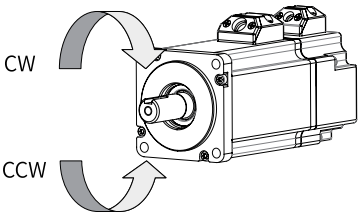
Value Range:

- 0: Counterclockwise (CCW) as forward direction
- 1: Clockwise (CW) as forward direction

Description

Defines the forward direction of the motor when viewed from the motor shaft side.

Value	Rotating direction	Remarks
0	Counterclockwise (CCW) as forward direction	Defines the CCW direction as the forward direction when a forward run command is received, indicating the motor rotates in the CCW direction when viewed from the motor shaft side.
1	Counterclockwise (CW) as forward direction	When a forward command is input, the motor rotates in CW direction viewed from the motor shaft side, that is, the motor rotates clockwise.



H02.03 Output pulse phase

Address:	2002-04h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

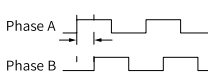
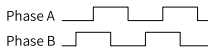
Value Range:

0: Phase A leads phase B

1: Phase A lags behind phase B

Description

Defines the relationship between phase A and phase B on the condition that the motor direction of rotation remains unchanged when pulse output is enabled.

Value	Output pulse phase	Remarks
0	Phase A leads phase B.	Phase A leads phase B by 90° in encoder frequency-division output pulses. 
1	Phase A lags phase B.	Phase A lags phase B by 90° in encoder frequency-division output pulses. 

H02.05 Stop mode at S-ON OFF

Address:	2002-06h	Effective mode:	At stop
Min.:	-4	Unit:	-
Max.:	2	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-4: Stop based on ramp 2, keeping dynamic braking state

-3: Stop at zero speed, keeping dynamic braking state

-2: Stop based on ramp 1, keeping dynamic braking state

-1: Dynamic braking stop, keeping dynamic braking state

0: Coast to stop, keeping de-energized state

1: Stop based on ramp 1, keeping de-energized state

2: Dynamic braking stop, keeping de-energized state

Description

Defines the deceleration mode of the motor for stopping rotating upon S-ON OFF and the motor status after stop.

- 4: Stop based on ramp 2, keeping dynamic braking state
 - 3: Stop at zero speed, keeping dynamic braking state
 - 2: Stop based on ramp 1, keeping dynamic braking state
 - 1: Dynamic braking stop, keeping dynamic braking state
 - 0: Coast to stop, keeping de-energized state
 - 1: Stop based on ramp 1, keeping de-energized status
 - 2: Dynamic braking stop, keeping de-energized state
- Note: After the brake is enabled, H02.05 is forced to "4: Stop based on ramp 2, keeping dynamic braking state".

H02.06 Stop mode at No. 2 fault

Address:	2002-07h	Effective mode:	At stop
Min.:	-5	Unit:	-
Max.:	4	Data Type:	Int16
Default:	2	Change:	Real-time

Value Range:

- 5: Stop at zero speed, keeping dynamic braking state
- 4: Stop at emergency stop torque, keeping dynamic braking state
- 3: Stop based on ramp 2, keeping dynamic braking state
- 2: Stop based on ramp 1, keeping dynamic braking state
- 1: Dynamic braking stop, keeping dynamic braking state
- 0: Coast to stop, keeping de-energized state
- 1: Stop based on ramp 1, keeping de-energized state
- 2: Stop based on ramp 2, keeping de-energized state
- 3: Stop at emergency stop torque, keeping de-energized state
- 4: Dynamic braking stop, keeping de-energized state

Description

Defines the deceleration mode of the servo motor for stopping rotating and the servo motor status when a No. 2 fault occurs.

- 5: Stop at zero speed, keeping dynamic braking state
 - 4: Stop at emergency stop torque, keeping dynamic braking state
 - 3: Stop based on ramp 2, keeping dynamic braking state
 - 2: Stop based on ramp 1, keeping dynamic braking state
 - 1: Dynamic braking stop, keeping dynamic braking state
 - 0: Coast to stop, keeping de-energized state
 - 1: Stop based on ramp 1, keeping de-energized state
 - 2: Stop based on ramp 2, keeping de-energized state
 - 3: Stop at emergency stop torque, keeping de-energized state
 - 4: Dynamic braking stop, keeping de-energized state
- Note: If the brake is enabled, H02.06 is forced to "3: Stop based on ramp 2, keeping dynamic braking state".

H02.07 Stop mode at overtravel

Address:	2002-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

- 0: Coast to stop, keeping de-energized state
- 1: Stop at zero speed, keeping position lock state
- 2: Stop at zero speed, keeping de-energized state
- 3: Stop based on ramp 2, keeping de-energized state
- 4: Stop based on ramp 2, keeping position lock state
- 5: Dynamic braking stop, keeping de-energized state
- 6: Dynamic braking stop, keeping dynamic braking state
- 7: Not responding to overtravel

Description

Defines the deceleration mode of the servo motor for stopping rotating and the servo motor status when overtravel occurs.

- 0: Coast to stop, keeping de-energized state
- 1: Stop at zero speed, keeping position lock state
- 2: Stop at zero speed, keeping de-energized state
- 3: Stop based on ramp 2, keeping de-energized state
- 4: Stop based on ramp 2, keeping position lock state
- 5: Dynamic braking stop, keeping de-energized state
- 6: Dynamic braking stop, keeping dynamic braking state
- 7: Not responding to overtravel

When H02.07 is set to 7 (Not responding to overtravel), some PLC may stop sending position references to stop the drive.

Note: After the brake function is enabled, H02.07 will be forcibly set to "4: Ramp to stop as defined by 6085h, keeping position lock state".

H02.08 Stop mode at No.1 fault

Address:	2002-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

- 0: Coast to stop, keeping de-energized state
- 1: Dynamic braking stop, keeping de-energized state
- 2: Dynamic braking stop, keeping dynamic braking state

Description

Defines the deceleration mode of the servo motor for stopping rotating and the servo motor status when a No. 1 fault occurs.

0: Coast to stop, keeping de-energized state

1: Dynamic braking stop, keeping de-energized status

2: Dynamic braking stop, keeping de-energized state

Note: After the brake is enabled, H02.08 is forced to "2: Dynamic braking stop, keeping dynamic braking state".

H02.09 Delay from brake output ON to command received

Address:	2002-0Ah	Effective mode:	At stop
Min.:	0	Unit:	ms
Max.:	500	Data Type:	UInt16
Default:	250	Change:	Real-time

Value Range:

0 ms–500 ms

Description

Defines the delay from the moment the brake output signal is ON to the moment the servo drive starts to receive commands after power-on.

H02.10 Delay from brake output OFF to motor de-energized

Address:	2002-0Bh	Effective mode:	Real time
Min.:	50	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	150	Change:	Real-time

Value Range:

50 ms–1000 ms

Description

Defines the delay from the moment brake output is OFF to the moment when the motor at standstill enters the de-energized status.

H02.11 Motor speed threshold at brake output OFF in rotation state

Address:	2002-0Ch	Effective mode:	Real time
Min.:	20	Unit:	[mm/s]/[rpm]
Max.:	3000	Data Type:	UInt16
Default:	30	Change:	Real-time

Value Range:

20[mm/s]/[rpm]–3000[mm/s]/[rpm]

Description

Defines the motor speed threshold when brake (BK) output is OFF in the rotating state.

H02.12 Delay from S-ON OFF to brake output OFF in rotation state

Address:	2002-0Dh	Effective mode:	Real time
Min.:	1	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	500	Change:	Real-time

Value Range:

1 ms–65535 ms

Description

Sets the delay time from BK OFF to S-ON OFF when the motor is in rotating state.

H02.15 LED Alarm Display

Address:	2002-10h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Output alarm information immediately

1: Not output alarm information

Description

Defines whether to switch the keypad to the fault display mode when a No. 3 fault occurs.

0: Output alarm information immediately

1: Not output alarm information

H02.16 Brake enable switch

Address:	2002-11h	Effective mode:	At stop
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: OFF

1: ON

Description

Turn on or off the brake function.

0: OFF

1: ON

H02.17 Stop mode upon main circuit power failure

Address:	2002-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0: Keep current action

1: Stop upon fault as defined by H02.06

2: Stop at S-ON OFF as defined by H02.05

3: Stop quickly as defined by H02.18

Description

Defines the stop mode of the motor for stopping rotating upon main circuit power failure.

0: Keep current action

1: Stop upon fault as defined by H02.06

2: Stop at S-ON OFF as defined by H02.05

3: Stop quickly as defined by H02.18

H02.18 Quick stop mode

Address:	2002-13h	Effective mode:	At stop
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0: Coast to stop, keeping de-energized state

1: Stop by ramp 1, keeping de-energized state

2: Stop by ramp 2, keeping de-energized state

3: Stop at emergency stop torque, keeping de-energized state

5: Stop by ramp 1, keeping position lock state

6: Stop by ramp 2, keeping position lock state

7: Stop at emergency stop torque, keeping position lock state

Description

Defines the deceleration mode of the motor for stopping rotating upon quick stop and the motor status after stop.

0: Coast to stop, keeping de-energized state

1: Stop based on ramp 1, keeping de-energized state

2: Ramp based on ramp 2, keeping de-energized state

3: Stop at emergency stop torque, keeping de-energized state

5: Stop based on ramp 1, keeping position lock state

6: Stop based on ramp 2, keeping position lock state

7: Stop at emergency stop torque, keeping position lock state

Note: When the brake function is enabled and the value of H02.18 is lower than 4, the stop mode is forcibly set to "2: Ramp to stop as defined by 6085h, keeping de-energized state".

H02.21 Permissible minimum resistance of braking resistor

Address:	2002-16h	Effective	-
		mode:	
Min.:	1	Unit:	Ω
Max.:	1000	Data Type:	UInt16
Default:	40	Change:	Unchangeable

Value Range:

1 Ω to 1000 Ω

Description

The permissible minimum resistance of the braking resistor is only related to the servo drive model.

H02.22 Power of built-in braking resistor

Address:	2002-17h	Effective	-
		mode:	
Min.:	0	Unit:	W
Max.:	65535	Data Type:	UInt16
Default:	50	Change:	Unchangeable

Value Range:

0W–65535W

Description

The power of the built-in braking resistor is only related to the servo drive model, which is unmodifiable.

H02.23 Resistance of built-in braking resistor

Address:	2002-18h	Effective	-
		mode:	

Min.: 0 Unit: Ω
 Max.: 65535 Data Type: UInt16
 Default: 50 Change: Unchangeable

Value Range:0 Ω to 65535 Ω **Description**

The resistance of the built-in braking resistor is only related to the servo drive model, which is unmodifiable.

Table 2-1 Specifications of the braking resistor

Servo Drive Model	Specifications of Built-in Braking Resistor			Min. Permissible Resistance of External Braking Resistor (Ω) (H02.21)
	Resistance (Ω)	Power (Pr) (W)	Processing Power (Pa) (W)	
SV680*S1R6I-*INT	-	-	-	40
SV680*S2R8I-*INT	-	-	-	
SV680*S5R5I-*INT	50	50	40	
SV680*S7R6I-*INT	25	80	64	20
SV680*S012I-*INT				15
SV680*S018I-*INT	20	100	80	20
SV680*S022I-*INT				
SV680*S027I-*INT				
SV680*T5R4I-*INT	100	80	64	60
SV680*T8R4I-*INT	50			45
SV680*T012I-*INT				40
SV680*T017I-*INT	35	100	80	35
SV680*T021I-*INT				25
SV680*T026I-*INT				

H02.24 Resistor heat dissipation coefficient

Address: 2002-19h Effective mode: Real time
 Unit: %
 Min.: 10 Data Type: UInt16
 Max.: 100 Change: Real-time
 Default: 30

Value Range:

10% to 100%

Description

Defines the heat dissipation coefficient of the braking resistor, which is applicable to both external and built-in braking resistors.

Set this parameter properly according to actual heat dissipation conditions of the resistor.

Recommendations:

Generally, the value of H02.24 cannot exceed 30% for natural cooling.

The value of H02.24 cannot exceed 50% for forced air cooling.

H02.25 Braking resistor type

Address:	2002-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	3	Change:	Real-time

Value Range:

0: Built-in

1: External, natural cooling

2: External, forced air cooling

3: No resistor needed

Description

Defines the resistor type and the mode of absorbing and releasing the braking energy.

0: Built-in

1: External, natural cooling

2: External, forced air cooling

3: No resistor needed

H02.26 Power of external braking resistor

Address:	2002-1Bh	Effective mode:	Real time
Min.:	1	Unit:	W
Max.:	65535	Data Type:	UInt16
Default:	40	Change:	Real-time

Value Range:

1 W–65535W

Description

Defines the power of external braking resistor.

H02.27 Resistance of external braking resistor

Address:	2002-1Ch	Effective mode:	Real time
Min.:	15	Unit:	Ω
Max.:	1000	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

15Ω to 1000Ω

Description

Defines the resistance of the external braking resistor.

H02.28 Parameters Initialization

Address:	2002-1Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Parameters in group H02 and above initialized

1: Parameters in group H00, H02 and above initialized

2: All parameters initialized (default values used for model-related parameters)

Description

Settings of factory restore.

0: Parameters in group H02 and above initialized

1: Parameters in group H00, H02 and above initialized

2: All parameters initialized (default values used for model-related parameters)

H02.30 User password

Address:	2002-1Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

Set the user password.

H02.31 System parameter initialization

Address:	2002-20h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Restore default settings

2: Clear fault records

Description

Used to restore default values or clear fault records.

0: No operation

1: Restore default settings

2: Clear fault records

H02.32 Selection of parameters in group H0b

Address:	2002-21h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

0–99

Description

Sets the offset of H0b parameters to be displayed on the operating panel.

For example, the setpoint 0 indicates the value of H0b.00 (Motor speed actual value) is displayed on the keypad.

The setpoint 1 indicates the value of H0b.01 is displayed on the operating panel.

H02.35 Keypad data update frequency

Address:	2002-24h	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	20	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 Hz–20 Hz

Description

Set the keypad data update frequency.

H02.38 Overload time of external resistor

Address:	2002-27h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	s
Max.:	200	Data Type:	UInt16
Default:	40	Change:	Real-time

Value Range:

0s to 200s

Description

Set the overload time threshold of the external braking resistor.

H02.41 Manufacturer password

Address:	2002-2Ah	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

You need to input this manufacturer password to enable the access to protected manufacturer parameters.

H02.47 Delay time from power cable breakage to brake OFF

Address:	2002-30h	Effective	Real time
		mode:	
Min.:	0	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–1000 ms

Description

Sets the delay time from power cable breakage to brake OFF.

2.4 H03 Terminal Input Parameters**H03.00 DI function allocation 1 (activated upon power-on)**

Address:	2003-01h	Effective	Upon the next power-on
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

- 0: 0x00: Corresponding to null
- 1: 0x01: Corresponding to FunIN.1
- 2: 0x02: Corresponding to FunIN.2
- 4: 0x04: Corresponding to FunIN.3
- 8: 0x08: Corresponding to FunIN.4
- 16: 0x10: Corresponding to FunIN.5
- 32: 0x20: Corresponding to FunIN.6
- 64: 0x40: Corresponding to FunIN.7
- 128: 0x80: Corresponding to FunIN.8
- 256: 0x100: Corresponding to FunIN.9
- 512: 0x200: Corresponding to FunIN.10
- 1024: 0x400: Corresponding to FunIN.11
- 2048: 0x800: Corresponding to FunIN.12
- 4096: 0x1000: Corresponding to FunIN.13
- 8192: 0x2000: Corresponding to FunIN.14
- 16384: 0x4000: Corresponding to FunIN.15
- 32768: 0x8000: Corresponding to FunIN.16

Description

Used to enable a certain DI function (FunIN.1 to FunIN.16) to be activated immediately at next power-on.

H03.01 DI function allocation 2 (activated upon power-on)

Address:	2003-02h	Effective mode:	Upon the next power-on
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0: 0x00: Corresponding to null
 1: 0x01: Corresponding to FunIN.17
 2: 0x02: Corresponding to FunIN.18
 4: 0x04: Corresponding FunIN.19
 8: 0x08: Corresponding FunIN.20
 16: 0x10: Corresponding FunIN.21
 32: 0x20: Corresponding FunIN.22
 64: 0x40: Corresponding FunIN.23
 128: 0x80: Corresponding FunIN.24
 256: 0x100: Corresponding FunIN.25
 512: 0x200: Corresponding FunIN.26
 1024: 0x400: Corresponding FunIN.27
 2048: 0x800: Corresponding FunIN.28
 4096: 0x1000: Corresponding FunIN.29
 16384: 0x4000: Corresponding FunIN.31
 32768: 0x8000: Corresponding FunIN.32

Description

Used to enable a certain DI function (FunIN.17 to FunIN.32) to be activated immediately at next power-on.

H03.02

DI1 function

Address:	2003-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	14	Change:	Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 3: Gain switchover switch
- 4: Switchover of main and auxiliary commands
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 10: Mode switchover M1-SEL
- 11: Mode switchover M2-SEL
- 12: Zero clamp enable signal
- 13: Position command inhibited
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 20: Step enable
- 21: Handwheel override signal 1
- 22: Handwheel override signal 2
- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited

- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 38: Touch probe 1
- 39: Touch probe 2
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 45: Interrupt positioning enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of DI1.

H03.03

DI1 logic selection

Address:	2003-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Used to set the level logic of DI1 when the function assigned to DI is active.

H03.04**DI2 function**

Address: 2003-05h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 15

Change: Real-time

Value Range:

See H03.02.

Description

Defines the function of DI2.

H03.05**DI2 logic selection**

Address: 2003-06h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI2 logic when the DI function allocated to DI2 is enabled.

H03.06**DI3 function**

Address: 2003-07h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 13

Change: Real-time

Value Range:

See H03.02.

Description

Defines the function of DI3.

H03.07**DI3 logic selection**

Address: 2003-08h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI3 logic when the DI function allocated to DI3 is enabled.

H03.08

DI4 function

Address: 2003-09h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 2

Change: Real-time

Value Range:

See H03.02.

Description

Defines the function of DI4.

H03.09

DI4 logic selection

Address: 2003-0Ah

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI4 logic when the DI function allocated to DI4 is enabled.

H03.10

DI5 function

Address: 2003-0Bh

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 1

Change: Real-time

Value Range:

See H03.02.

Description

Defines the function of DI5.

H03.11

DI5 logic selection

Address: 2003-0Ch

Effective mode: Real time

Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI5 logic when the DI function allocated to DI5 is enabled.

H03.12**DI6 function**

Address:	2003-0Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

- 22: Handwheel override signal 2
- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 38: Touch probe 1
- 39: Touch probe 2
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 45: Interrupt positioning enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of DI6.

H03.13 DI6 logic selection

Address:	2003-0Eh	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI6 logic when the DI function allocated to DI6 is enabled.

H03.14 DI7 function

Address:	2003-0Fh	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	45	Change:	Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 3: Gain switchover switch
- 4: Switchover of main and auxiliary commands
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 10: Mode switchover M1-SEL
- 11: Mode switchover M2-SEL
- 12: Zero clamp enable signal
- 13: Position command inhibited
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 20: Step enable
- 21: Handwheel override signal 1
- 22: Handwheel override signal 2
- 23: Handwheel enable signal

- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 38: Touch probe 1
- 39: Touch probe 2
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 45: Interrupt positioning enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of DI7.

H03.15

DI7 logic selection

Address:	2003-10h	Effective mode:	Real time
Min.:	0	Unit:	-

Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI7 logic when the DI function allocated to DI7 is enabled.

H03.16**DI8 function**

Address:	2003-11h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	31	Change:	Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

23: Handwheel enable signal

24: Electronic gear

- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 38: Touch probe 1
- 39: Touch probe 2
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 45: Interrupt positioning enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of DI8.

H03.17 DI8 logic selection

Address:	2003-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0

Change: Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI8 logic when the DI function allocated to DI8 is enabled.

H03.34 DI function allocation 3 (activated upon power-on)

Address:	2003-23h	Effective mode:	Upon the next power-on
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0: 0x00: Corresponding to null

1: 0x01: Corresponding to FunIN.33

2: 0x02: Corresponding to FunIN.34

4: 0x04: Corresponding to FunIN.35

8: 0x08: Corresponding to FunIN.36

16: 0x10: Corresponding to FunIN.37

32: 0x20: Corresponding to FunIN.38

64: 0x40: Corresponding to FunIN.39

128: 0x80: Corresponding to FunIN.40

256: 0x100: Corresponding to FunIN.41

512: 0x200: Corresponding to FunIN.42

1024: 0x400: Corresponding to FunIN.43

2048: 0x800: Corresponding to FunIN.44

4096: 0x1000: Corresponding to FunIN.45

8192: 0x2000: Corresponding to FunIN.46

16384: 0x4000: Corresponding to FunIN.47

32768: 0x8000: Corresponding to FunIN.48

Description

Used to enable a certain DI function (FunIN.33 to FunIN.37) to be activated immediately at next power-on.

H03.35 DI function allocation 4 (activated upon power-on)

Address:	2003-24h	Effective mode:	Upon the next power-on
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0: 0x00: Corresponding to null
 1: 0x01: Corresponding to FunIN.49
 2: 0x02: Corresponding to FunIN.50
 4: 0x04: Corresponding FunIN.51
 8: 0x08: Corresponding FunIN.52
 16: 0x10: Corresponding FunIN.53
 32: 0x20: Corresponding FunIN.54
 64: 0x40: Corresponding FunIN.55
 128: 0x80: Corresponding FunIN.56
 256: 0x100: Corresponding FunIN.57
 512: 0x200: Corresponding FunIN.58
 1024: 0x400: Corresponding FunIN.59
 2048: 0x800: Corresponding FunIN.60
 4096: 0x1000: Corresponding FunIN.61
 8192: 0x2000: Corresponding FunIN.62
 16384: 0x4000: Corresponding FunIN.63

Description

Used to enable a certain DI function (FunIN.49 to FunIN.64) to be activated immediately at next power-on.

H03.50 Voltage-type AI1 offset

Address:	2003-33h	Effective mode:	Real time
Min.:	-5000	Unit:	mV
Max.:	5000	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-5000 mV–5000 mV

Description

Defines the actual AI1 input voltage when the drive sampling voltage is 0 after zero drift correction.

H03.51 Voltage-type AI1 input filter time constant

Address:	2003-34h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	655.35	Data Type:	UInt16
Default:	2.00	Change:	Real-time

Value Range:

0.00 ms–655.35 ms

Description

It sets the filter time constant of voltage signal input from AI1.

Set this parameter properly to avoid motor reference fluctuation caused by unstable analog voltage input and reduce motor misoperation caused by interference signals.

The filter function cannot eliminate or suppress zero drift or dead zone.

H03.53 Voltage-type AI1 dead zone

Address:	2003-36h	Effective mode:	Real time
Min.:	0.0	Unit:	mV
Max.:	1000.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0 mV–1000.0 mV

Description

Defines the AI1 input voltage range when the drive sampling voltage is 0.

H03.54 Voltage-type AI1 zero drift

Address:	2003-37h	Effective mode:	Real time
Min.:	-500.0	Unit:	mV
Max.:	500.0	Data Type:	Int16
Default:	0.0	Change:	Real-time

Value Range:

-500.0 mV–500.0 mV

Description

Zero drift refers to the value of the drive o sampling voltage relative to GND upon zero AI voltage.

Set H0d.10 to 1 (AI1 adjustment) to perform automatic adjustment on AI1 zero drift. The adjusted AI1 zero drift will be saved into H03.54.

H03.55 Voltage-type AI2 offset

Address:	2003-38h	Effective mode:	Real time
Min.:	-5000	Unit:	mV
Max.:	5000	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-5000 mV–5000 mV

Description

Defines the actual AI2 input voltage when the drive sampling voltage is 0 after zero drift correction.

H03.56 Voltage-type AI2 input filter time constant

Address:	2003-39h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	655.35	Data Type:	UInt16
Default:	2.00	Change:	Real-time

Value Range:

0.00 ms–655.35 ms

Description

It sets the filter time constant of voltage signal input from AI2.

Set this parameter properly to avoid motor reference fluctuation caused by unstable analog voltage input and reduce motor misoperation caused by interference signals.

The filter function cannot eliminate or suppress zero drift or dead zone.

H03.58 Voltage-type AI2 dead zone

Address:	2003-3Bh	Effective mode:	Real time
Min.:	0.0	Unit:	mV
Max.:	1000.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0 mV–1000.0 mV

Description

Defines the AI2 input voltage range when the drive sampling voltage is 0.

H03.59 Voltage-type AI2 zero drift

Address:	2003-3Ch	Effective mode:	Real time
Min.:	-500.0	Unit:	mV
Max.:	500.0	Data Type:	Int16
Default:	0.0	Change:	Real-time

Value Range:

-500.0 mV–500.0 mV

Description

Zero drift refers to the value of the drive o sampling voltage relative to GND upon zero AI voltage.

Set H0d.10 to 2 (AI2 adjustment) to perform automatic adjustment on AI2 zero drift. The adjusted AI2 zero drift will be saved into H03.59.

H03.60 DI1 filter time

Address:	2003-3Dh	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	500.00	Data Type:	UInt16
Default:	3.00	Change:	Real-time

Value Range:

0.00 ms–500.00 ms

Description

Defines the filter time of DI1. The DI function is active only after the effective level is kept within the time defined by H03.60.

H03.61 DI2 filter time

Address:	2003-3Eh	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	500.00	Data Type:	UInt16
Default:	3.00	Change:	Real-time

Value Range:

0.00 ms–500.00 ms

Description

Defines the filter time of DI2. The DI function is active only after the effective level is kept within the time defined by H03.61.

H03.62 DI3 filter time

Address:	2003-3Fh	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	500.00	Data Type:	UInt16
Default:	3.00	Change:	Real-time

Value Range:

0.00 ms–500.00 ms

Description

Defines the filter time of DI3. The DI function is active only after the effective level is kept within the time defined by H03.62.

H03.63**DI4 filter time**

Address: 2003-40h

Effective Real time

mode:

Min.: 0.00

Unit: ms

Max.: 500.00

Data Type: UInt16

Default: 3.00

Change: Real-time

Value Range:

0.00 ms–500.00 ms

Description

Defines the filter time of DI4. The DI function is active only after the effective level is kept within the time defined by H03.63.

H03.64**DI5 filter time**

Address: 2003-41h

Effective Real time

mode:

Min.: 0.00

Unit: ms

Max.: 500.00

Data Type: UInt16

Default: 3.00

Change: Real-time

Value Range:

0.00 ms–500.00 ms

Description

Defines the filter time of DI5. The DI function is active only after the effective level is kept within the time defined by H03.64.

H03.65**DI6 filter time**

Address: 2003-42h

Effective Real time

mode:

Min.: 0.00

Unit: ms

Max.: 500.00

Data Type: UInt16

Default: 3.00

Change: Real-time

Value Range:

0.00 ms–500.00 ms

Description

Defines the filter time of DI6. The DI function is active only after the effective level is kept within the time defined by H03.65.

H03.66**DI7 filter time**

Address: 2003-43h

Effective Real time

mode:

Min.: 0.00

Unit: ms

Max.: 500.00

Data Type: UInt16

Default: 0.00

Change: Real-time

Value Range:

0.00 ms–500.00 ms

Description

Defines the filter time of DI7. The DI function is active only after the effective level is kept within the time defined by H03.66.

H03.67**DI8 filter time**

Address: 2003-44h

Effective Real time
mode:

Min.: 0.00

Unit: ms

Max.: 500.00

Data Type: UInt16

Default: 3.00

Change: Real-time

Value Range:

0.00 ms–500.00 ms

Description

Defines the filter time of DI8. The DI function is active only after the effective level is kept within the time defined by H03.67.

H03.80**Speed corresponding to analog 10 V**

Address: 2003-51h

Effective Real time
mode:

Min.: 0

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: UInt16

Default: 3000

Change: At stop

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the corresponding motor speed when the sampling voltage is 10 V.
Speed reference value = Sampling voltage/10 x H03.80

H03.81**Torque corresponding to analog 10 V**

Address: 2003-52h

Effective Real time
mode:

Min.: 0.00

Unit: Multiplier

Max.: 8.00

Data Type: UInt16

Default: 1.00

Change: At stop

Value Range:

0.00 to 8.00

Description

Defines the motor torque corresponding to a sampling voltage of 10 V.
Torque reference value = Sampling voltage/10 × H03.81

2.5 H04 Terminal Output Parameters

H04.00

DO1 function

Address: 2004-01h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 1

Change: Real-time

Value Range:

0: No function

1: Servo ready

2: Motor rotation signal

3: Zero speed signal

4: Speed matching signal

5: Positioning completed

6: Positioning near

7: Torque limited signal

8: Speed limited signal

9: Braking

10: Warning

11: Fault

15: Interrupt positioning completed

16: Homing completed

17: Electrical homing completed

18: Torque reached signal

19: Speed reached signal

21: Enable completed

22: Internal command completed

23: Writing next command allowed

24: Internal motion completed

25: Comparison DO

26: Closed-loop state

27: Left limit

28: Right limit

30: Alarm or fault output

31: Communication-forced DO

32: EDM output

33: Gantry alignment

Description

Defines the function of DO1.

H04.01 DO1 logic selection

Address:	2004-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Defines the level logic of DO1 when the function assigned to DO1 is active.

H04.02 DO2 function

Address:	2004-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	5	Change:	Real-time

Value Range:

- 0: No function
- 1: Servo ready
- 2: Motor rotation signal
- 3: Zero speed signal
- 4: Speed matching signal
- 5: Positioning completed
- 6: Positioning near
- 7: Torque limited signal
- 8: Speed limited signal
- 9: Braking
- 10: Warning
- 11: Fault
- 15: Interrupt positioning completed
- 16: Homing completed
- 17: Electrical homing completed
- 18: Torque reached signal
- 19: Speed reached signal
- 21: Enable completed
- 22: Internal command completed
- 23: Writing next command allowed
- 24: Internal motion completed
- 25: Comparison DO
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 30: Alarm or fault output
- 31: Communication-forced DO
- 32: EDM output
- 33: Gantry alignment

Description

Defines the function of DO2.

H04.03

DO2 logic selection

Address:	2004-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Normally open
- 1: Closed

Description

Defines the level logic of DO2 when the function assigned to DO2 is active.

H04.04**DO3 function**

Address: 2004-05h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No function

1: Servo ready

2: Motor rotation signal

3: Zero speed signal

4: Speed matching signal

5: Positioning completed

6: Positioning near

7: Torque limited signal

8: Speed limited signal

9: Braking

10: Warning

11: Fault

15: Interrupt positioning completed

16: Homing completed

17: Electrical homing completed

18: Torque reached signal

19: Speed reached signal

21: Enable completed

22: Internal command completed

23: Writing next command allowed

24: Internal motion completed

25: Comparison DO

26: Closed-loop state

27: Left limit

28: Right limit

30: Alarm or fault output

31: Communication-forced DO

32: EDM output

33: Gantry alignment

Description

Defines the function of DO3.

H04.05 DO3 logic selection

Address:	2004-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Defines the level logic of DO3 when the function assigned to DO3 is active.

H04.06 DO4 function

Address:	2004-07h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	11	Change:	Real-time

Value Range:

- 0: No function
- 1: Servo ready
- 2: Motor rotation signal
- 3: Zero speed signal
- 4: Speed matching signal
- 5: Positioning completed
- 6: Positioning near
- 7: Torque limited signal
- 8: Speed limited signal
- 9: Braking
- 10: Warning
- 11: Fault
- 15: Interrupt positioning completed
- 16: Homing completed
- 17: Electrical homing completed
- 18: Torque reached signal
- 19: Speed reached signal
- 21: Enable completed
- 22: Internal command completed
- 23: Writing next command allowed
- 24: Internal motion completed
- 25: Comparison DO
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 30: Alarm or fault output
- 31: Communication-forced DO
- 32: EDM output
- 33: Gantry alignment

Description

Defines the function of DO4.

H04.07

DO4 logic selection

Address:	2004-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Normally open
- 1: Closed

Description

Defines the level logic of DO4 when the function assigned to DO4 is active.

H04.08

DO5 function

Address:	2004-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	16	Change:	Real-time

Value Range:

- 0: No function
- 1: Servo ready
- 2: Motor rotation signal
- 3: Zero speed signal
- 4: Speed matching signal
- 5: Positioning completed
- 6: Positioning near
- 7: Torque limited signal
- 8: Speed limited signal
- 9: Braking
- 10: Warning
- 11: Fault
- 15: Interrupt positioning completed
- 16: Homing completed
- 17: Electrical homing completed
- 18: Torque reached signal
- 19: Speed reached signal
- 21: Enable completed
- 22: Internal command completed
- 23: Writing next command allowed
- 24: Internal motion completed
- 25: Comparison DO
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 30: Alarm or fault output
- 31: Communication-forced DO
- 32: EDM output
- 33: Gantry alignment

Description

Defines the function of DO5.

H04.09**DO5 logic selection**

Address: 2004-0Ah

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Normally open

1: Closed

Description

Defines the level logic of DO5 when the function assigned to DO5 is active.

H04.22**DO source selection**

Address: 2004-17h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 31

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

bit0: DO1

0: DO1 function output

1: bit0 of H31.04

bit1: DO2

0: DO2 function output

1: bit1 of H31.04

bit2: DO3

0: DO3 function output

1: bit2 of H31.04

bit3: DO4

0: DO4 function output

1: bit3 of H31.04

bit4: DO5

0: DO5 function output

1: bit4 of H31.04

Description

Defines whether the logic of a physical DO terminal is defined by the actual state of the drive or by communication.

The value of H04.22 is displayed in decimal on the keypad. When the value is converted to a binary equivalent: If bit(n) is 0, it indicates the logic of DO(n+1) is defined by the actual state of the drive. If bit(n) is 1, it indicates the logic of DO (n+1) is defined by communication (H31.04).

Setpoint (decimal)	Setpoint (binary)					DO logic	
	bit4	bit3	bit2	bit1	bit0	Defined by the Drive State	Defined by Communica tion (H31.04)
	DO5	DO4	DO3	DO2	DO1		
0	0	0	0	0	0	DO1–DO5	N/A
1	0	0	0	0	1	DO2–DO5	DO1
...	...	...	...	...	...	...	...
31	1	1	1	1	1	N/A	DO1–DO5

Set H04.22 to a value listed in the preceding table.

H31.04 is not displayed on the keypad and can only be modified through communication. For H31.04, "bit(n) = 1" indicates the logic of DO(n+1) is active. "bit(n) = 0" indicates the logic of DO(n+1) is inactive.

H04.23 Communication-forced DO logic in non-OP status

Address:	2004-18h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	31	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: DO1
 0: Status unchanged
 1: No output
 bit1: DO2
 0: Status unchanged
 1: No output
 bit2: DO3
 0: Status unchanged
 1: No output
 bit3: DO4
 0: Status unchanged
 1: No output
 bit4: DO5
 0: Status unchanged
 1: No output

Description

Sets DO state upon communication failure.

H04.24

DO brake enable

Address:	2004-19h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled
 1: Enabled

Description

0: You can only control the motor brake through the built-in brake terminal even if the DO brake function is available.
 1: The DO brake function must be available.
 Note: This function is not available for functional safety models.

H04.50

AO1 signal selection

Address:	2004-33h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	10	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Motor speed (1 V/1000 [mm/s]/[rpm])
- 1: Speed reference (1 V/1000 [mm/s]/[rpm])
- 2: Torque reference (1 V/100 x rated torque)
- 3: Position deviation (0.5 mV/1 reference unit)
- 4: Position deviation (0.5 mV/1 encoder unit)
- 5: Position reference speed (1 V/1000 [mm/s]/[rpm])
- 6: Positioning completed
- 8: AI1 voltage
- 9: AI2 voltage
- 10: Defined by H31.05

Description

Defines the physical value source of AO1.

- 0: Motor speed (1 V/1000 [mm/s]/[rpm])
- 1: Speed reference (1 V/1000 [mm/s]/[rpm])
- 2: Torque reference (1 V/100 x rated torque)
- 3: Position deviation (0.5 mV/1 reference unit)
- 4: Position deviation (0.5 mV/1 encoder unit)
- 5: Position reference speed (1 V/1000 [mm/s]/[rpm])
- 6: Positioning completed
- 8: AI1 voltage
- 9: AI2 voltage
- 10: Defined by H31.05

H04.51 AO1 offset voltage

Address:	2004-34h	Effective mode:	Real time
Min.:	-10000	Unit:	mV
Max.:	10000	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-10000 mV–10000 mV

Description

Defines the actual AO1 output voltage after offset when the output voltage is 0 V in theory.

H04.52 AO1 ratio

Address:	2004-35h	Effective mode:	Real time
Min.:	-99.99	Unit:	-
Max.:	99.99	Data Type:	Int16
Default:	1.00	Change:	Real-time

Value Range:

-99.99–99.99

Description

Defines the actual AO1 output voltage after amplification when the output voltage is 1V in theory.

2.6 H05 Position Control Parameters

H05.00 Primary position reference source

Address:	2005-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Pulse reference

1: Step reference

2: Multi-position reference

Description

Defines the position reference source in position control mode.

0: Pulse reference

1: Step reference

2: Multi-position reference

H05.01 Position pulse reference input terminal

Address:	2005-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Low speed

1: High speed

Description

Used to select the physical input terminal based on the input pulse frequency when the pulse reference acts as the position reference source in the position control mode.

0: Low speed

1: High speed

H05.02 Pulses per revolution

Address:	2005-03h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	[P/N-N]/[P/Rev]
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	At stop

Value Range:

0–4294967295

Description

Defines the number of pulses required per revolution of the motor.

H05.04 First-order low-pass filter time constant

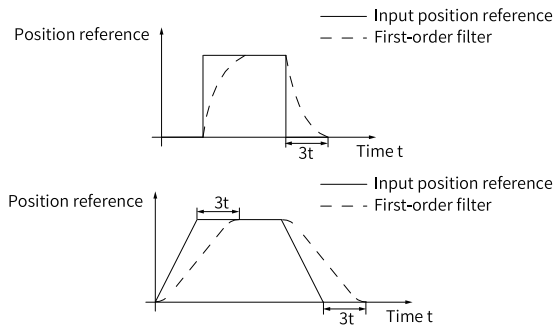
Address:	2005-05h	Effective mode:	Real time
Min.:	0.0	Unit:	ms
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0 ms–6553.5 ms

Description

Defines the first-order low pass filter time constant of position references. If position reference P is rectangular wave or trapezoidal wave, the position reference after first-order low pass filtering is as follows:



This function does not affect the displacement value (position reference sum). An excessively high setpoint delays the responsiveness, so set a proper filter time constant based on actual conditions.

H05.05 Step amount

Address:	2005-06h	Effective mode:	Real time

Min.: -9999
 Max.: 9999
 Default: 50

Unit: Reference unit
 Data Type: Int16
 Change: At stop

Value Range:

-9999 to +9999

Description

Defines the position reference sum when the step reference acts as the main position reference source.

H05.06

Moving average filter time constant 1

Address: 2005-07h

Effective Real time
 mode:

Min.: 0.0
 Max.: 128.0
 Default: 0.0

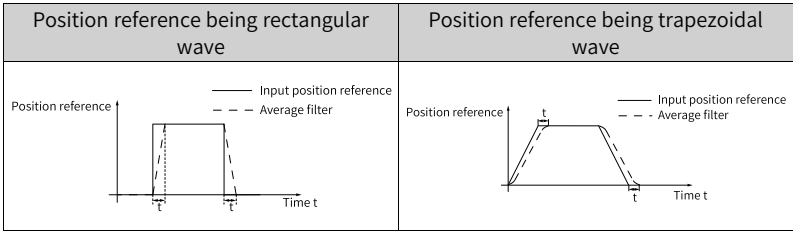
Unit: ms
 Data Type: UInt16
 Change: At stop

Value Range:

0.0 ms–128.0 ms

Description

Defines the moving average filter time constant of position references. If position reference P is rectangular wave or trapezoidal wave, the position reference after moving average filtering is as follows. This function does not affect the displacement value (position reference sum). An excessively high setpoint delays the responsiveness, so set a proper filter time constant based on actual conditions.



H05.07

Electronic gear ratio 1 (numerator)

Address: 2005-08h

Effective Real time
 mode:

Min.: 1
 Max.: 1073741824
 Default: 67108864

Unit: -
 Data Type: UInt32
 Change: Real-time

Value Range:

1–1073741824

Description

Defines the numerator of electronic gear ratio 1.

H05.09 Electronic gear ratio 1 (denominator)

Address:	2005-0Ah	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	1073741824	Data Type:	UInt32
Default:	10000	Change:	Real-time

Value Range:

1–1073741824

Description

Defines the denominator of electronic gear ratio 1.

H05.11 Electronic gear ratio 2 (numerator)

Address:	2005-0Ch	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	1073741824	Data Type:	UInt32
Default:	67108864	Change:	Real-time

Value Range:

1–1073741824

Description

Defines the numerator of electronic gear ratio 2.

H05.13 Electronic gear ratio 2 (denominator)

Address:	2005-0Eh	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	1073741824	Data Type:	UInt32
Default:	10000	Change:	Real-time

Value Range:

1–1073741824

Description

Defines the denominator of electronic gear ratio 2.

H05.15 Pulse reference form

Address:	2005-10h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16

Default: 0

Change: At stop

Value Range:

0: Direction + Pulse, positive logic

1: Direction + Pulse, negative logic

2: Phase A + phase B quadrature pulse, quadrupled frequency

3: CW + CCW

Description

Defines the input pulse form when the pulse reference acts as the main position reference source. See details in ["Table 2-2 " on page 246.](#)

Table 2-2 Descriptions of the pulse form

H02.02	H05.15	Pulse input form	Signal	Diagram of forward pulses	Diagram of reverse pulses
0	0	Pulse + Direction Positive Logic	PULSE SIGN		
	1	Pulse + Direction Negative Logic	PULSE SIGN		
	2	Phase A + Phase B Quadrature pulse Quadrupled frequency	PULSE (phase A) SIGN (phase B)	Phase A leads phase B by 90°.	Phase B leads phase A by 90°.
	3	CW+CCW	PULSE (CW) SIGN (CCW)		
1	0	Pulse + Direction Positive Logic	PULSE SIGN		
	1	Pulse + Direction Negative Logic	PULSE SIGN		
	2	Phase A + Phase B Quadrature pulse Quadrupled frequency	PULSE (phase A) SIGN (phase B)	Phase B leads phase A by 90°.	Phase A leads phase B by 90°.
	3	CW+CCW	PULSE (CW) SIGN (CCW)		

Note

The rising time and falling time of position pulse references must be shorter than 0.1 μ s.

Table 2-3 Specifications of pulse references

Input terminal	Single-channel max. input frequency (pps)	Min. Time Width (us)	
High-speed pulse input terminal	4M	t1	0.125
		t2	0.125
		t3	0.125
		t4	0.0625
		t5	0.125
		t6	0.125
Low-speed pulse input terminal	200k	t1	2.5
		t2	2.5
		t3	2.5
		t4	1.25
		t5	2.5
		t6	2.5

H05.16 Clear action

Address:	2005-11h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: Position deviation cleared upon S-OFF or fault
- 1: Position deviation cleared upon S-OFF or fault
- 2: Position deviation cleared upon non-operational state or active DI function 35

Description

Defines the condition for clearing the position deviation.

- 0: Position deviation cleared upon S-OFF or fault
- 1: Position deviation cleared upon S-OFF or fault
- 2: Position deviation cleared upon non-operational state or active DI function 35

H05.17 Number of encoder frequency-division pulses

Address:	2005-12h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	[P/N-N]/[P/Rev]
Max.:	4194303	Data Type:	UInt32
Default:	2500	Change:	At stop

Value Range:

0–4194303

Description

Defines the number of pulses output by PAO or PBO per revolution.
Pulse output resolution per revolution = (H05.17) x 4

H05.19 Speed feedforward control

Address:	2005-14h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: No speed feedforward
1: Internal speed feedforward
2: H05.72
3: Zero phase

Description

Defines the source of the speed loop feedforward signal.

0: No speed feedforward
1: Internal speed feedforward
2: H05.72

3: Zero phase

Note: If you select external speed feedforward, you must set the feedforward source through H05.72.

H05.20 Condition for positioning completed signal output

Address:	2005-15h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	10	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: When absolute value of position deviation is smaller than the value of H05.21, a positioning completion ON signal is output.

1: When filtered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

2: When unfiltered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

3: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the unfiltered position command and the absolute value of the position deviation.

4: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the filtered position command and the absolute value of the position deviation.

5: When the unfiltered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

6: When the filtered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

7: When the unfiltered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

8: When the filtered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

9: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

10: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

Description

Defines the condition for outputting positioning completed/proximity signal. In the position control mode, if the absolute value of the position deviation during operation is within the setpoint of H05.21, the drive outputs the positioning completed/proximity signal. You can set the condition for outputting the positioning completed/proximity signal in H05.20.

0: When absolute value of position deviation is smaller than the value of H05.21, a positioning completion ON signal is output.

1: When filtered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

2: When unfiltered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

3: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the unfiltered position command and the absolute value of the position deviation.

4: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the filtered position command and the absolute value of the position deviation.

5: When the unfiltered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

6: When the filtered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

7: When the unfiltered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

8: When the filtered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

9: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

10: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

Note: The parameter takes effect when H02.00 is not 9.

H05.21 Threshold of positioning completed

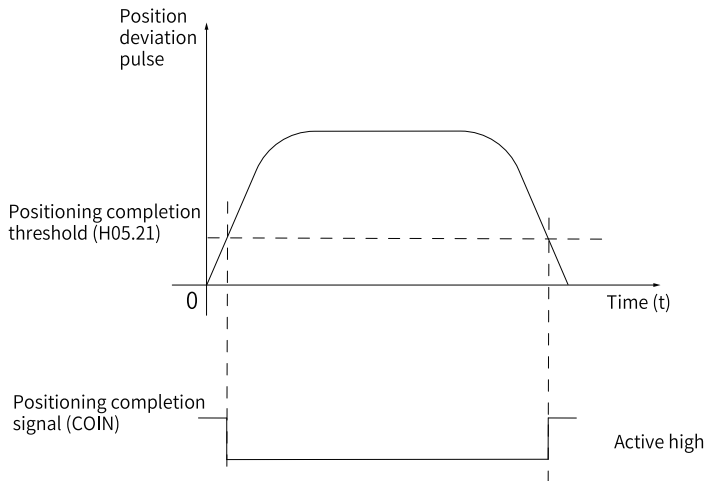
Address:	2005-16h	Effective mode:	Real time
Min.:	1	Unit:	Encoder unit
Max.:	65535	Data Type:	UInt16
Default:	46976	Change:	Real-time

Value Range:

1 to 65535

Description

Defines the threshold of the absolute value of position deviation when the drive outputs the positioning completed signal.
Positioning completed signal: DO function 5 (FunOUT.5: COIN).



Note: The parameter takes effect when H02.00 is not 8.

H05.22 Proximity threshold

Address:	2005-17h	Effective mode:	Real time
Min.:	1	Unit:	Encoder unit
Max.:	65535	Data Type:	UInt16
Default:	65535	Change:	Real-time

Value Range:

1 to 65535

Description

Defines the threshold of the absolute value of position deviation when the drive outputs the proximity signal.

Note: The parameter takes effect when H02.00 is not 8.

H05.24 Interrupt positioning displacement

Address:	2005-19h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

Defines the position reference value during interrupt positioning.

H05.26 Constant operating speed in interrupt positioning

Address:	2005-1Bh	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the maximum speed during interrupt positioning.

H05.27 Acc./Dec. time of interrupt positioning

Address:	2005-1Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the time for the motor to change from 0[mm/s]/[rpm] to 1000[mm/s]/[rpm] at a constant speed during interrupt positioning.

H05.29 Interruption fixed length unlock

Address:	2005-1Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Defines whether to unlock the interrupt positioning signal.

0: Disabled

1: Enabled

H05.30 Homing enable selection

Address:	2005-1Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	8	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Homing enabled through the HomingStart signal input from DI

2: Electrical homing enabled through the HomingStart signal input from DI

3: Homing started immediately upon power-on

4: Homing executed immediately

5: Electrical homing started

6: Current position as home

8: D-triggered position as home

Description

Defines the homing mode and the trigger signal source.

0: Disabled

1: Homing enabled through the HomingStart signal input from DI

2: Electrical homing enabled through the HomingStart signal input from DI

3: Homing started immediately upon power-on

4: Homing executed immediately

5: Electrical homing started

6: Current position as home

8: D-triggered position as home

Note: When H05.30 = 6, position feedback is the setpoint of H05.36 regardless of the value of H05.40.

H05.31 Homing mode

Address:	2005-20h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	16	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Forward, home switch as deceleration point and home
- 1: Reverse, home switch as deceleration point and home
- 2: Forward, Z signal as deceleration point and home
- 3: Reverse, motor Z signal as deceleration point and home
- 4: Forward, home switch as deceleration point and Z signal as home
- 5: Reverse, home switch as deceleration point and Z signal as home
- 6: Forward, positive limit switch as deceleration point and home
- 7: Reverse, negative limit switch as deceleration point and home
- 8: Forward, positive limit switch as deceleration point and Z signal as home
- 9: Reverse, negative limit switch as deceleration point and Z signal as home
- 10: Forward, mechanical limit position as deceleration point and home
- 11: Reverse, mechanical limit position as deceleration point and home
- 12: Forward, mechanical limit position as deceleration point and Z signal as home
- 13: Reverse, mechanical limit position as deceleration point and Z signal as home
- 14: Forward single-turn homing
- 15: Reverse single-turn homing
- 16: Nearby single-turn homing

Description

Defines the default motor direction of rotation, deceleration point, and home during homing.

- 0: Forward, home switch as deceleration point and home
- 1: Reverse, home switch as deceleration point and home
- 2: Forward, Z signal as deceleration point and home
- 3: Reverse, motor Z signal as deceleration point and home
- 4: Forward, home switch as deceleration point and Z signal as home
- 5: Reverse, home switch as deceleration point and Z signal as home
- 6: Forward, positive limit switch as deceleration point and home
- 7: Reverse, negative limit switch as deceleration point and home
- 8: Forward, positive limit switch as deceleration point and Z signal as home
- 9: Reverse, negative limit switch as deceleration point and Z signal as home
- 10: Forward, mechanical limit position as deceleration point and home
- 11: Reverse, mechanical limit position as deceleration point and home
- 12: Forward, mechanical limit position as deceleration point and Z signal as home
- 13: Reverse, mechanical limit position as deceleration point and Z signal as home
- 14: Forward single-turn homing
- 15: Reverse single-turn homing
- 16: Nearby single-turn homing

H05.32 Speed of high-speed search for home switch signal

Address:	2005-21h	Effective	Real time
		mode:	
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	3000	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–3000[mm/s]/[rpm]

Description

Defines the motor speed for searching for the deceleration point signal during homing.

H05.33 Speed of low-speed search for home switch signal

Address:	2005-22h	Effective	Real time
		mode:	
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Defines the motor speed for searching for the home signal during homing.

H05.34 Acceleration/Deceleration time during homing

Address:	2005-23h	Effective	Real time
		mode:	
Min.:	0	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	1000	Change:	Real-time

Value Range:

0 ms–1000 ms

Description

Defines the time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed during homing.

H05.35 Home search time limit

Address:	2005-24h	Effective	Real time
		mode:	
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10000	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the maximum homing time.

H05.36 Mechanical home offset

Address:	2005-25h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the absolute position of the motor after homing.

H05.38 Frequency-division output source

Address:	2005-27h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Encoder frequency-division output

1: Pulse reference synchronous output

2: Frequency-division output inhibited

3: Second encoder frequency-division output

4: H31.01 reference frequency output

Description

Defines the output source of the pulse output terminal.

Value	Output Source	Remarks
0	Encoder frequency-division output	The encoder feedback signal is outputted only after being divided by the value of H05.17 during rotation of the motor. Encoder frequency-division output mode is recommended when the host controller is used for closed-loop feedback.
1	Pulse reference synchronous output	The input pulse references are outputted synchronously only when H05.00 is set to 0. When the pulses of multi-axis servo is tracked synchronously, synchronous output of pulse references is recommended.
2	Frequency-division output inhibited	No output is generated from pulse output terminals. In this case, frequency-division output terminals act as the input terminals of fully closed-loop external scale signals.
3	Second encoder frequency-division output	The encoder feedback signal is outputted only after being divided by the value of H05.17 during rotation of the motor.
4	H31.01 Reference frequency output	-

H05.39 Electronic gear ratio switchover condition

Address:	2005-28h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Switchover after position reference is kept 0 for 2.5 ms

1: Switched in real time

Description

Defines the condition for switching the electronic gear ratio. After the fully closed-loop function is enabled and H0F.00 is set to 2, the setpoint is forcibly set to 0.

When its value is 0: when H0F.00 = 2, the switching condition is that the position command is 0 and positioning is completed and lasts for 2.5 ms; when H0F.00 is not 2, the switching condition is that the position command keeps at 0 for 2.5 ms.

H05.40 Mechanical home offset and action upon overtravel

Address:	2005-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: H05.36 as the coordinate after homing, reverse homing applied after homing triggered again on overtravel

1: H05.36 as the relative offset after homing, reverse homing applied after homing triggered again on overtravel

2: H05.36 as the coordinate after homing, reverse homing auto-applied on overtravel

3: H05.36 as the relative offset after homing, reverse homing auto-applied on overtravel

Description

Defines the offset relationship between the mechanical home and mechanical zero point, and the action upon overtravel during homing.

0: H05.36 as the coordinate after homing, reverse homing applied after homing triggered again on overtravel

1: H05.36 as the relative offset after homing, reverse homing applied after homing triggered again on overtravel

2: H05.36 as the coordinate after homing, reverse homing auto-applied on overtravel

3: H05.36 as the relative offset after homing, reverse homing auto-applied on overtravel

H05.41 Z pulse output polarity

Address:	2005-2Ah	Effective mode:	Upon the next power-on
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x1	Change:	At stop

Value Range:

bit0: Frequency-division Z output polarity
0: Positive (high level upon active Z pulse)
1: Negative (low level upon active Z pulse)
bit1: OCZ output polarity
0: Positive (high level upon active Z pulse)
1: Negative (low level upon active Z pulse)
bit2: Inner loop probe Z signal source
0: Motor Z signal
1: Frequency-division output Z signal

Description

Defines the output level when the Z pulse of pulse output terminal is active.

Table 2-4 Pulse diagrams of encoder frequency-division output (H05.38 = 0)

H02.03 (Output pulse phase)	H05.41 (Z pulse output polarity)	Pulse Output Diagram of Forward RUN	Pulse Output Diagram of Reverse RUN
0	0	Phase A leads phase B by 90°.	Phase B leads phase A by 90°.
	1	Phase A leads phase B by 90°.	Phase B leads phase A by 90°.
1	0	Phase B leads phase A by 90°.	Phase A leads phase B by 90°.
	1	Phase B leads phase A by 90°.	Phase A leads phase B by 90°.

It is recommended to use the active edge outputted by Z signal when a high precision frequency-division output of Z signal is required.

Value	Z pulse output polarity
0	Positive (high level upon active Z pulse)
1	Negative (low level upon active Z pulse)

H05.41 = 0: Falling-edge triggered; H05.41 = 1: Rising-edge triggered

H05.43 Position pulse edge

Address:	2005-2Ch	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Rising edge-triggered

1: Falling edge-triggered

Description

The setpoint 0 indicates calculation starts from the falling edge of pulse input.

The setpoint 1 indicates calculation starts from the rising edge of pulse input.

H05.44 Numerator of frequency-division output reduction ratio

Address:	2005-2Dh	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	16383	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–16383

Description

Defines the numerator of frequency-division output reduction ratio.

H05.45 Denominator of frequency-division output reduction ratio

Address:	2005-2Eh	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	8191	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–8191

Description

Defines the denominator of frequency-division output reduction ratio.

H05.46

DI selection of multi-turn frequency-division Z starting point

Address:	2005-2Fh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	8	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No selection

1: DI1

2: DI2

3: DI3

4: DI4

5: DI5

6: DI6

7: DI7

8: DI8

Description

Sets the start point for frequency-division output. It is only effective when the frequency division ratio is greater than 1.

0: No selection

1: DI1

2: DI2

3: DI3

4: DI4

5: DI5

6: DI6

7: DI7

8: DI8

H05.47

Frequency-division Z pulse width

Address:	2005-30h	Effective mode:	Real time
Min.:	0	Unit:	μs
Max.:	400	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0μs to 400μs

Description

Defines the minimum output width (us) of frequency-division output PZ. When the pulse signal is used as master encoder and fully closed-loop encoder, the setpoint 0 indicates the original Z signal will be outputted. Other setpoints indicate the frequency-division Z signal will be output.

H05.48 Frequency-division output dead zone setting threshold

Address:	2005-31h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	255	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–255

Description

Defines the dead zone threshold of frequency-division output to prevent frequency-division output caused by encoder jitter.

Note: After this function is enabled, during uniform low-speed operation, intermittent frequency-division pulse output may occur. Set this parameter with caution.

H05.50 Mechanical gear ratio in absolute position rotation mode (numerator)

Address:	2005-33h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–65535

Description

Set the mechanical gear ratio (numerator) in absolute position rotation mode.

H05.51 Mechanical gear ratio in absolute position rotation mode (denominator)

Address:	2005-34h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–65535

Description

Set the mechanical gear ratio (denominator) in absolute position rotation mode.

H05.52 Pulses per revolution of the load in absolute position rotation mode (low 32 bits)

Address:	2005-35h	Effective mode:	Real time
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	At stop

Value Range:

0 to 4294967295

Description

Defines the number of pulses per revolution of the rotary load in the absolute position rotation mode (low 32 bits).

H05.54 Pulses per revolution of the load in absolute position rotation mode (high 32 bits)

Address:	2005-37h	Effective mode:	Real time
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	At stop

Value Range:

0 to 4294967295

Description

Defines the number of pulses per revolution of the rotary load in the absolute position rotation mode (high 32 bits).

H05.58 Torque threshold in homing upon hit-and-stop

Address:	2005-3Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	100.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Defines the maximum positive/negative torque limit in homing upon hit-and-stop.

H05.59 Positioning window time

Address:	2005-3Ch	Effective	Real time
Min.:	0	mode:	
Max.:	30000	Unit:	ms
Default:	0	Data Type:	UInt16
		Change:	Real-time

Value Range:

0 ms–30000 ms

Description

If the positioning deviation is less than the time threshold of positioning completed, the positioning completed signal is active only if the set time threshold is exceeded.

H05.60 Hold time of positioning completed

Address:	2005-3Dh	Effective	Real time
Min.:	0	mode:	
Max.:	30000	Unit:	ms
Default:	0	Data Type:	UInt16
		Change:	Real-time

Value Range:

0 ms–30000 ms

Description

Defines the hold time of an active positioning completed signal.

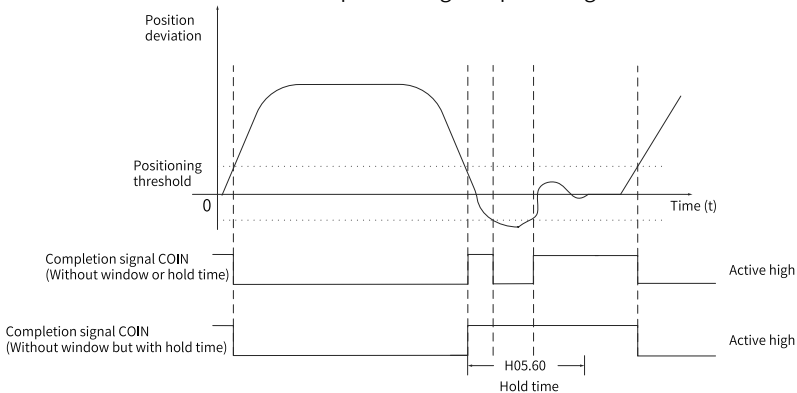


Figure 2-1 Schematic diagram for the window time (H05.59) and hold time (H05.60) of positioning completed signal

When the COIN (positioning completed) signal has a hold time of 0, it remains active until the next position reference is received.

H05.66 Homing time unit

Address:	2005-43h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0: 1 ms

1: 10 ms

2: 100 ms

Description

Select the unit of homing time.

0: 1ms

1: 10ms

2: 100ms

Note: The actual timeout is H05.35xH05.66ms

H05.67 Offset between zero point and single-turn absolute position

Address:	2005-44h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	At stop

Value Range:

-2147483648 to 2147483647

Description

Display or set the offset position relative to the home when the servo system is in absolute single-turn mode (H0201=4).

H05.71 Motor Z signal width

Address:	2005-48h	Effective mode:	Real time
Min.:	1	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	4	Change:	Real-time

Value Range:

1 ms–100 ms

Description

Output pulse width when motor Z signal is active.

H05.72 External speed feedforward source selection

Address:	2005-49h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: 60B1

1: AI1

2: AI2

Description

External speed feedforward source selection

0: 60B1

1: AI1

2: AI2

2.7 H06 Speed Control Parameters**H06.00 Source of main speed reference A**

Address:	2006-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Digital setting (H06.03)

1: AI1

2: AI2

Description

Defines the source of main speed reference A.

0: Digital setting (H06.03)

1: AI1

2: AI2

H06.01 Source of auxiliary speed reference B

Address:	2006-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	5	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

- 0: Digital setting (H06.03)
- 1: AI1
- 2: AI2
- 5: Multi-speed reference

Description

Defines the source of auxiliary speed reference B.

- 0: Digital setting (H06.03)
- 1: AI1
- 2: AI2
- 5: Multi-speed reference

H06.02 Speed reference source

Address:	2006-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: Source of main speed reference A
- 1: Source of auxiliary speed reference B
- 2: A+B
- 3: Switched between A and B
- 4: Communication

Description

Defines the source of speed references.

Value	Control mode	Remarks	
0	Source of main speed reference A	The reference source is defined by H06.00.	
1	Source of auxiliary speed reference B	The reference source is defined by H06.01.	
2	A+B	The reference source is the product of A + B (H06.00 + H06.01).	
3	Switched between A and B	The reference source is switched between A and B as defined by FunIN.4 (Cmd_SEL).	
		State of FunIN.4 (Cmd_SEL)	Reference Source
		Inactive	Source of main speed reference A
		Active	Source of auxiliary speed reference B
4	Communication	The speed reference is defined by operating on H31.09 through communication (unit: 0.001 RPM).	

H06.03 Speed reference set through keypad

Address:	2006-04h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	200	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the speed reference value set through the keypad.

H06.04 DI jog speed reference

Address:	2006-05h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	150	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the DI jog speed reference.

H06.05 Acc. ramp time of speed reference

Address:	2006-06h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Sets acceleration ramp time of speed reference.

H06.05 defines the time for the speed reference to change from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm].

The formulas for calculating the actual acceleration and deceleration time are as follows:

Actual acceleration time $t = \text{Speed reference} \div 1000 \times \text{Acceleration ramp time of speed reference}$

H06.06 Dec. ramp time of speed reference

Address:	2006-07h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Sets deceleration ramp time of speed reference.

H06.06 defines the time for the speed reference to change from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm].

The formulas for calculating the actual acceleration and deceleration time are as follows:

Actual deceleration time $t = \text{Speed reference} \div 1000 \times \text{Deceleration ramp time of speed reference}$

H06.07 Maximum speed limit

Address:	2006-08h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]

Max.:	10000	Data Type:	UInt16
Default:	7000	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the maximum speed limit.

H06.08 Forward speed threshold

Address:	2006-09h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	7000	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the forward speed threshold.

H06.09 Reverse speed threshold

Address:	2006-0Ah	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	7000	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the reverse speed threshold.

H06.10 Deceleration unit in emergency stop

Address:	2006-0Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Multiplied by 1

1: Multiplied by 10

2: Multiplied by 100

Description

Sets the deceleration unit in emergency stop.

0: Multiplied by 1

1: Multiplied by 10

2: Multiplied by 100

H06.11 Torque feedforward control

Address:	2006-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: No torque feedforward

1: Internal torque feedforward

3: STune mode 5

Description

Defines the source for torque feedforward control.

0: No torque feedforward

1: Internal torque feedforward

3: STune mode 5

H06.12 Acc./dec. ramp time of speed jog

Address:	2006-0Dh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Set the acceleration/deceleration ramp time of speed jog.

The time is that for the speed reference to accelerate from 0 to 1000 [mm/s]/[rpm] or to decelerate from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm].

The formulas for calculating the actual acceleration and deceleration time are as follows:

Actual acc./dec. time $t = \text{Speed reference} \div 1000 \times \text{Acceleration ramp time of speed reference}$

H06.13 Speed feedforward smoothing filter

Address:	2006-0Eh	Effective mode:	Real time

Min.:	0	Unit:	μs
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0μs to 65535μs

Description

Defines the speed feedforward smoothing filter time.

H06.15 Zero clamp speed threshold

Address:	2006-10h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the zero clamp speed threshold.

H06.16 Threshold of TGON (motor rotation) signal

Address:	2006-11h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	20	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Sets the threshold of TGON (motor rotation) signal.

H06.17 Threshold of V-Cmp (speed matching) signal

Address:	2006-12h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	100	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–100[mm/s]/[rpm]

Description

Defines the threshold of speed match signal.

H06.18 Threshold of speed reach signal

Address:	2006-13h	Effective mode:	Real time
Min.:	20	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	1000	Change:	Real-time

Value Range:

20[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the threshold of speed reached signal.

H06.19 Threshold of zero speed output signal

Address:	2006-14h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the threshold of zero speed output signal.

H06.40 Ramp 1 deceleration time

Address:	2006-29h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

The time for deceleration from 1000 RPM to 1000 RPM.

H06.41 Ramp 2 deceleration time

Address:	2006-2Ah	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

The time for deceleration from 1000 RPM to 1000 RPM.

H06.50**Speed S-curve enable switch**

Address:	2006-33h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

0: Accelerate/Decelerate at fixed acceleration rate

1: Accelerate/Decelerate based on the S-curve

H06.51**Increasing acceleration 1 of speed S-curve acceleration segment**

Address:	2006-34h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.

Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.52**Decreasing acceleration 1 of speed S-curve acceleration segment**

Address:	2006-35h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.

Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.53 Decreasing deceleration 1 of speed S-curve deceleration segment

Address:	2006-36h	Effective	Real time
		mode:	
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.54 Decreasing acceleration 1 of speed S-curve deceleration segment

Address:	2006-37h	Effective	Real time
		mode:	
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.55 Increasing acceleration 2 of speed S-curve acceleration segment

Address:	2006-38h	Effective	Real time
		mode:	
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.56 Decreasing acceleration 2 of speed S-curve acceleration segment

Address:	2006-39h	Effective	Real time
		mode:	

Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.57 Decreasing deceleration 2 of speed S-curve deceleration segment

Address:	2006-3Ah	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.58 Decreasing acceleration 2 of speed S-curve deceleration segment

Address:	2006-3Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.59 Increasing acceleration 3 of speed S-curve acceleration segment

Address:	2006-3Ch	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16

Default: 50.0

Change: At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.60 Decreasing acceleration 3 of speed S-curve acceleration segment

Address: 2006-3Dh

Effective Real time

mode:

Min.: 0.0

Unit: %

Max.: 100.0

Data Type: UInt16

Default: 50.0

Change: At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.61 Decreasing deceleration 3 of speed S-curve deceleration segment

Address: 2006-3Eh

Effective Real time

mode:

Min.: 0.0

Unit: %

Max.: 100.0

Data Type: UInt16

Default: 50.0

Change: At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.62 Decreasing acceleration 3 of speed S-curve deceleration segment

Address: 2006-3Fh

Effective Real time

mode:

Min.: 0.0

Unit: %

Max.: 100.0

Data Type: UInt16

Default: 50.0

Change: At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
 Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.63 Increasing acceleration 4 of speed S-curve acceleration segment

Address:	2006-40h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
 Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.64 Decreasing acceleration 4 of speed S-curve acceleration segment

Address:	2006-41h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
 Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.65 Decreasing deceleration 4 of speed S-curve deceleration segment

Address:	2006-42h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.66 Decreasing acceleration 4 of speed S-curve deceleration segment

Address:	2006-43h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.67 Increasing acceleration 5 of speed S-curve acceleration segment

Address:	2006-44h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.68 Decreasing acceleration 5 of speed S-curve acceleration segment

Address:	2006-45h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.69 Decreasing deceleration 5 of speed S-curve deceleration segment

Address:	2006-46h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.70 Decreasing acceleration 5 of speed S-curve deceleration segment

Address:	2006-47h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.71 Increasing acceleration 6 of speed S-curve acceleration segment

Address:	2006-48h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.72 Decreasing acceleration 6 of speed S-curve acceleration segment

Address:	2006-49h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.73 Decreasing deceleration 6 of speed S-curve deceleration segment

Address:	2006-4Ah	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.74 Decreasing acceleration 6 of speed S-curve deceleration segment

Address:	2006-4Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.75 Increasing acceleration 7 of speed S-curve acceleration segment

Address:	2006-4Ch	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.76 Decreasing acceleration 7 of speed S-curve acceleration segment

Address:	2006-4Dh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.77 Decreasing deceleration 7 of speed S-curve deceleration segment

Address:	2006-4Eh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.78 Decreasing acceleration 7 of speed S-curve deceleration segment

Address:	2006-4Fh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.79 Increasing acceleration 8 of speed S-curve acceleration segment

Address:	2006-50h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.80 Decreasing acceleration 8 of speed S-curve acceleration segment

Address:	2006-51h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.81 Decreasing deceleration 8 of speed S-curve deceleration segment

Address:	2006-52h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.82 Decreasing acceleration 8 of speed S-curve deceleration segment

Address:	2006-53h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

2.8 H07 Torque Control Parameters

H07.00 Source of main torque reference A

Address:	2007-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Keypad (H07.03)

1: AI1

2: AI2

Description

Defines the source of the main torque reference A.

0: Keypad (H07.03)

1: AI1

2: AI2

H07.01 Source of auxiliary torque reference B

Address:	2007-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Keypad (H07.03)

1: AI1

2: AI2

Description

Defines the source of auxiliary torque references.

0: Keypad (H07.03)

1: AI1

2: AI2

H07.02 Torque reference source

Address:	2007-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Source of main torque reference A

1: Source of auxiliary torque reference B

2: Source of A+B

3: Switched between A and B

4: Communication

Description

Selects torque reference.

Value	Control mode	Remarks	
0	Source of main torque reference A	The reference source is defined by H07.00.	
1	Source of auxiliary torque reference B	The reference source is defined by H07.01.	
2	A+B	The reference source is the product of A+B (H07.00+H07.01).	
3	Switched between A and B	The reference source is switched between A and B as defined by FunIN.4 (Cmd_SEL).	
		State of FunIN.4 (Cmd_SEL)	Reference Source
		Inactive	Source of main torque reference A
		Active	Source of auxiliary torque reference B
4	Communication	The torque reference is defined by operating on H31.11 through communication.	

H07.03 Torque reference set through keypad

Address: 2007-04h Effective mode: Real time
 Min.: -400.0 Unit: %
 Max.: 400.0 Data Type: Int16
 Default: 0.0 Change: Real-time

Value Range:

-400.0% to 400.0%

Description

Set torque reference.

H07.05 Torque reference filter time constant 1

Address: 2007-06h Effective mode: Real time
 Min.: 0.00 Unit: ms
 Max.: 30.00 Data Type: UInt16
 Default: 0.50 Change: Real-time

Value Range:

0.00 ms–30.00 ms

Description

Defines the torque reference filter time constant 1.

H07.06 Torque reference filter time constant 2

Address:	2007-07h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	30.00	Data Type:	UInt16
Default:	0.27	Change:	Real-time

Value Range:

0.00 ms–30.00 ms

Description

Defines the torque reference filter time constant 2.

H07.07 Torque Limit source

Address:	2007-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Positive/Negative internal torque limit

1: Internal or external limit as defined by DI

2: T_LMT

3: T_LMT or external limit as defined by DI (FunIN.16 or FunIN.17)

4: T_LMT or internal limit (FunIN.16 or FunIN.17) as defined by DI

Description

Defines the torque limit source.

0: Positive/Negative internal torque limit

1: Internal or external limit as defined by DI

2: T_LMT

3: T_LMT or external limit as defined by DI (FunIN.16 or FunIN.17)

4: T_LMT or internal limit (FunIN.16 or FunIN.17) as defined by DI

H07.08 T-LMT selection

Address:	2007-09h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1: AI1

2: AI2

Description

Set the AI as the torque limit source.

1: AI1

2: AI2

H07.09 Positive internal torque limit

Address:	2007-0Ah	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	350.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Sets the forward run internal torque limit.

H07.10 Negative internal torque limit

Address:	2007-0Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	350.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Sets the reverse run internal torque limit.

H07.11 Positive external torque limit

Address:	2007-0Ch	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	350.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set the forward external torque limit.

H07.12 Negative external torque limit

Address:	2007-0Dh	Effective mode:	Real time
Min.:	0.0	Unit:	%

Max.:	400.0	Data Type:	UInt16
Default:	350.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set the reverse external torque limit.

H07.15 Emergency-stop torque

Address:	2007-10h	Effective mode:	At stop
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	100.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set the torque for emergency stop.

H07.17 Speed limit source

Address:	2007-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Internal speed limit

1: V-LMT

2: H07.19 or H07.20 as defined by DI

Description

Select the speed limit source

0: Internal speed limit

1: V-LMT

2: H07.19 or H07.20 as defined by DI

Note: This parameter takes effect when H02.00 is not 8.

H07.18 V-LMT selection

Address:	2007-13h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1: AI1

2: AI2

Description

Set the AI as the speed limit source.

1: AI1

2: AI2

H07.19 Positive speed limit/Speed limit 1 in torque control

Address:	2007-14h	Effective	Real time
		mode:	
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	3000	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Set the positive speed limit/Speed limit 1 in torque control.

H07.20 Negative speed limit/Speed limit 2 in torque control

Address:	2007-15h	Effective	Real time
		mode:	
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	3000	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Set the negative speed limit/Speed limit 2 in torque control.

H07.21 Torque reach base value

Address:	2007-16h	Effective	Real time
		mode:	
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set torque reach base value.

H07.22 Torque reach valid value

Address:	2007-17h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	20.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set torque reach valid value.

H07.23 Torque reach invalid value

Address:	2007-18h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set torque reach invalid value.

H07.24 Field weakening depth

Address:	2007-19h	Effective mode:	Real time
Min.:	60	Unit:	%
Max.:	115	Data Type:	UInt16
Default:	115	Change:	Real-time

Value Range:

60% to 115%

Description

Set the flux weakening depth.

H07.25 Max. permissible demagnetizing current

Address:	2007-1Ah	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	300	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0% to 300%

Description

Set the maximum allowable demagnetization current value.

H07.26 Field weakening selection

Address:	2007-1Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Enable/disable field weakening.

0: Disabled

1: Enabled

H07.27 Flux weakening gain

Address:	2007-1Ch	Effective mode:	Real time
Min.:	0.001	Unit:	kHz
Max.:	1.000	Data Type:	UInt16
Default:	0.030	Change:	Real-time

Value Range:

0.001 kHz–1.000 kHz

Description

Set the gain of flux weakening.

H07.28 Speed of flux weakening point

Address:	2007-1Dh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Set the speed of flux weakening point.

H07.35 Torque non-standard feature enable

Address:	2007-24h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

bit0: Motor output correction enable

bit1: Shield compensation data enable

Description

Torque non-standard feature enable switch.

Bit0: motor torque output correction enable

Bit1: Shield compensation data enable

H07.36 Time constant of low-pass filter 2

Address:	2007-25h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	10.00	Data Type:	UInt16
Default:	0.00	Change:	Real-time

Value Range:

0.00 ms–10.00 ms

Description

Set the time constant of low-pass filter 2.

H07.37 Torque reference filter selection

Address:	2007-26h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: First-order filter

1: Biquad filter

Description

Select the torque reference filter.

0: First-order filter1: Biquad filter

When second-order filter is selected, the filter structure is biquad filter for ROT motors, and the filter parameters are set through H07.38. For DDR/DDL motors, the filter structure is biquad low-pass filter, and the filter parameters are set through H07.42.

H07.38 Biquad filter attenuation ratio

Address:	2007-27h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	50	Data Type:	UInt16
Default:	16	Change:	Real-time

Value Range:

0–50

Description

Defines the attenuation ratio of biquad filter.

H07.40 Speed limit threshold in torque control mode

Address:	2007-29h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	300	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–300 ms

Description

Sets speed limit time window in the torque control mode.

H07.42 Biquad low pass filter damping coefficient

Address:	2007-2Bh	Effective mode:	Real time
Min.:	0.001	Unit:	-
Max.:	10.000	Data Type:	UInt16
Default:	1.000	Change:	Real-time

Value Range:

0.001–10.000

Description

Defines the damping coefficient of biquad low-pass filter.

2.9 H08 Gain Parameters

H08.00 Speed loop gain

Address:	2008-01h	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	2000.0	Data Type:	UInt16
Default:	40.0	Change:	Real-time

Value Range:

0.0 Hz–2000.0 Hz

Description

Defines the responsiveness of the speed loop. The higher the setpoint, the faster the speed loop response is. Note that an excessively high setpoint may cause vibration.

In the position control mode, the position loop gain must be increased together with the speed loop gain.

H08.01 Speed loop integral time constant

Address:	2008-02h	Effective mode:	Real time
Min.:	0.15	Unit:	ms
Max.:	512.00	Data Type:	UInt16
Default:	19.89	Change:	Real-time

Value Range:

0.15 ms–512.00 ms

Description

Defines the integral time constant of the speed loop.

The lower the setpoint, the better the integral action, and the quicker will the deviation value be close to 0.

Note:

There is no integral action when H08.01 is set to 512.00.

H08.02 Position loop gain

Address:	2008-03h	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	2000.0	Data Type:	UInt16
Default:	64.0	Change:	Real-time

Value Range:

0.0 Hz–2000.0 Hz

Description

Defines the proportional gain of the position loop.

Defines the responsiveness of the position loop. A high setpoint shortens the positioning time. Note that an excessively high setpoint may cause vibration.

The 1st group of gain parameters include H08.00 (Speed loop gain), H08.01 (Speed loop integral time constant), H08.02, and H07.05 (Filter time constant 1 of torque reference).

H08.03 2nd speed loop gain

Address:	2008-04h	Effective mode:	Real time
Min.:	0.1	Unit:	Hz
Max.:	2000.0	Data Type:	UInt16
Default:	75.0	Change:	Real-time

Value Range:

0.1 Hz–2000.0 Hz

Description

Set 2nd speed loop gain.

H08.04 2nd speed loop integral time constant

Address:	2008-05h	Effective mode:	Real time
Min.:	0.15	Unit:	ms
Max.:	512.00	Data Type:	UInt16
Default:	10.61	Change:	Real-time

Value Range:

0.15 ms–512.00 ms

Description

Set the 2nd speed loop integral time constant.

H08.05 2nd position loop gain

Address:	2008-06h	Effective mode:	Real time
Min.:	0.1	Unit:	Hz
Max.:	2000.0	Data Type:	UInt16
Default:	120.0	Change:	Real-time

Value Range:

0.1 Hz–2000.0 Hz

Description

Defines the second gain set of the position loop and speed loop. The 2nd group of gain parameters include H08.03 (Speed loop gain), H08.04 (Speed loop integral time constant), H08.05, and H07.06 (Torque reference filter time constant 2).

H08.08 2nd gain mode setting

Address:	2008-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 1 Change: Real-time

Value Range:

0: Fixed to the 1st gain, switched between P and PI as defined by bit26 of external 60FEh

1: Switched between the 1st and 2nd gain sets as defined by H08.09

Description

Defines the mode for switching to the 2nd gain set.

0: Fixed to the 1st gain, switched between P and PI as defined by bit26 of external 60FEh

1: Switched between the 1st and 2nd gain sets as defined by H08.09

H08.09 Gain switchover condition

Address: 2008-0Ah Effective mode: Real time

Min.: 0 Unit: -

Max.: 10 Data Type: UInt16

Default: 0 Change: Real-time

Value Range:

0: Fixed to the 1st gain set (PS)

1: Switched as defined by bit26 of 60FEh

2: Torque reference too large (PS)

3: Speed reference too large (PS)

4: Speed reference change rate too large (PS)

5: Speed reference low/high speed threshold (PS)

6: Position deviation too large (P)

7: Position reference available (P)

8: Positioning unfinished (P)

9: Actual speed (P)

10: Position reference + Actual speed (P)

Description

Defines the gain switchover condition.

Value	Gain switchover condition	Remarks
0	Fixed to the 1st gain set	The 1st gain set applies.
1	Switched as defined by bit26 of 60FEh	-

Value	Gain switchover condition	Remarks
2	Torque reference too large	If the torque reference absolute value exceeds (Level + Dead time) [%] in the last 1st gain set, the drive switches to the 2nd gain set. If the absolute value of the torque reference is lower than (level – Dead time) [%] and such status lasts within the delay defined by H08.10 (Gain switchover delay) in the 2nd gain, the drive returns to the 1st gain set.
3	Speed reference too large	If the speed reference absolute value exceeds (Level + Dead time) [rpm] in the last 1st gain set, the drive switches to the 2nd gain set. If the absolute value of the speed reference is lower than (level - Dead time) [rpm] and such status lasts within the delay defined by H08.10 (Gain switchover delay) in the 2nd gain, the drive returns to the 1st gain set.
4	Speed reference change rate too large	Active in the control modes other than speed control If the absolute value of the change rate of the speed reference exceeds (Level + Dead time) [10 rpm/s] in the last 1st gain set, the drive switches to the 2nd gain set. If the absolute value of the speed reference change rate is lower than (level – hysteresis) [10 rpm/s] and such status lasts within the delay defined by H08.10 (Gain switchover delay) in the 2nd gain, the drive returns to the 1st gain set. In the speed control mode, the 1st gain set always applies.
5	Speed reference high/low-speed threshold	If the speed reference absolute value exceeds (Level - Dead time) [rpm] in the last 1st gain set, the drive starts to switch to the 2nd gain set, with gains changed gradually. When the speed reference absolute value reaches (Level + Dead time) [rpm], the 2nd gain set applies. If the speed reference absolute value is lower than (Level + Dead time) [rpm] in the last 2nd gain set, the drive starts to return to the 1st gain set, with gains changed gradually. When the speed reference absolute value reaches (Level - Dead time) [rpm], the 1st gain set applies.
6	Position deviation too large	Active only in position control and full closed-loop control. If the position deviation absolute value exceeds (Level + Dead time) [encoder unit] in the last 1st gain set, the drive switches to the 2nd gain set. When the absolute value of the position deviation is lower than (Level - Dead time) [encoder unit] and such status lasts within the delay defined by H08.10 (Gain switchover delay) in the 2nd gain, the drive returns to the 1st gain set. If the drive is not in position control or full closed-loop control, the 1st gain set always applies.
7	Position reference available	Active only in position control and full closed-loop control. If the position reference is not 0 in the last 1st gain set, the drive switches to the 2nd gain set. When the position reference is 0 and such status lasts within the delay defined by H08.10 (Gain switchover delay) in the 2nd gain, the drive returns to the 1st gain set. If the drive is not in position control or full closed-loop control, the 1st gain set always applies.
8	Positioning uncompleted	Active only in position control and full closed-loop control. If positioning has not been completed in the last 1st gain set, the drive switches to the 2nd gain set. If positioning is not completed and such status lasts within the delay defined by H08.10 (Gain switchover delay) in the 2nd gain set, the servo drive returns to the 1st gain set. If the drive is not in position control or full closed-loop control, the 1st gain set always applies.

Value	Gain switchover condition	Remarks
9	Actual speed too high	Active only in position control and full closed-loop control. If the absolute value of actual speed exceeds (Level + Dead time) [rpm] in the last 1st gain set, the drive switches to the 2nd gain set. If the absolute value of actual speed is lower than (Level - Dead time) [rpm] and such status lasts within the delay defined by H08.10 (Gain switchover delay) in the 2nd gain set, the drive returns to the 1st gain set. If the drive is not in position control or full closed-loop control, the 1st gain set always applies.
10	Position reference + Actual speed	Active only in position control and full closed-loop control. If the position reference is not 0 in the last 1st gain set, the drive switches to the 2nd gain set. If the position reference is 0 and such status lasts within the delay defined by H08.10 (Gain switchover delay) in the 2nd gain set, the 2nd gain set applies. When the position reference is 0 and the delay defined by (H08.10) is reached, if the absolute value of actual speed is lower than (Level) [rpm], the speed loop integral time constant is fixed to the setpoint of H08.04 (2nd speed loop integral time constant), and others return to the 1st gain set; if the absolute value of actual speed does not reach (Level - Dead time) [rpm], the speed integral also returns to the setpoint of H08.01 (Speed loop integral time constant). If the drive is not in position control or full closed-loop control, the 1st gain set always applies.

H08.10 Gain switchover delay

Address:	2008-0Bh	Effective mode:	Real time
Min.:	0.0	Unit:	ms
Max.:	1000.0	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0 ms–1000.0 ms

Description

Defines the delay when the drive switches from the 2nd gain set to the 1st gain set.

H08.11 Gain switchover level

Address:	2008-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20000	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

0–20000

Description

Defines the gain switchover level.

Gain switchover is affected by both the level and the dead time, as defined by H08.09. The unit of gain switchover level varies with the switchover condition.

H08.12 Gain switchover hysteresis

Address:	2008-0Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20000	Data Type:	UInt16
Default:	30	Change:	Real-time

Value Range:

0–20000

Description

Defines the dead time for gain switchover.

Gain switchover is affected by both the level and the dead time, as defined by H08.09. The unit of gain switchover hysteresis varies with the switchover condition.

Note:

The set value of H08.11 (Gain switchover level) must be no less than that of H08.12; otherwise, the H08.11 will be set to a value equal to H08.12 automatically.

H08.13 Position gain switchover time

Address:	2008-0Eh	Effective mode:	Real time
Min.:	0.0	Unit:	ms
Max.:	1000.0	Data Type:	UInt16
Default:	3.0	Change:	Real-time

Value Range:

0.0 ms–1000.0 ms

Description

In position control, if H08.05 (2nd position loop gain) is much higher than H08.02 (Position loop gain), set the time for switching from H08.02 to H08.05.

This parameter can be used to reduce the impact caused by an increase in the position loop gain.

H08.15 Load moment of inertia ratio

Address:	2008-10h	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	120.00	Data Type:	UInt16
Default:	1.00	Change:	Real-time

Value Range:

0.00–120.00

Description

Defines the mechanical load inertia ratio relative to the motor moment of inertia.

When H08.15 is set to 0, it indicates the motor carries no load; if it is set to 1.00, it indicates the mechanical load inertia is the same as the motor moment of inertia.

H08.17 Zero phase delay

Address:	2008-12h	Effective mode:	Real time
Min.:	0.0	Unit:	ms
Max.:	4.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0 ms–4.0 ms

Description

Set zero phase delay.

H08.18 Time constant of speed feedforward filter

Address:	2008-13h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	64.00	Data Type:	UInt16
Default:	0.50	Change:	Real-time

Value Range:

0.00 ms–64.00 ms

Description

Defines the filter time constant of speed feedforward.

H08.19 Speed feedforward gain

Address:	2008-14h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 100.0%

Description

In position control and full closed-loop control, speed feedforward is the product of speed feedforward signal multiplied by H08.19 and is part of the speed reference.

Increasing the setpoint improves the responsiveness to position references and reduces the position deviation during operation at a constant speed.

Set H08.18 to a fixed value first, and then increase the value of H08.19 gradually from 0 to a certain value at which speed feedforward achieves the desired effect.

Adjust H08.18 and H08.19 repeatedly until a balanced performance is achieved.

Note:

For how to enable the speed feedforward function and select the speed feedforward signal, see H05.19 (Speed feedforward control).

H08.20

Torque feedforward filter time constant

Address:	2008-15h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	64.00	Data Type:	UInt16
Default:	0.50	Change:	Real-time

Value Range:

0.00 ms–64.00 ms

Description

Defines the filter time constant of torque feedforward.

H08.21

Torque feedforward gain

Address:	2008-16h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 300.0%

Description

In control modes other than torque control, torque feedforward is the product of torque feedforward signal multiplied by H08.21 and is part of the torque reference.

Increasing the setpoint improves the responsiveness to variable speed references.

Increasing the setpoint improves the responsiveness to position references and reduces the position deviation during operation at a constant speed.

During parameter adjustment, set H08.20 (Torque feedforward filter time constant) to the default value first, and then increase H08.21 gradually to enhance the effect of torque feedforward. When speed overshoot occurs, keep H08.21 unchanged and increase the value of H08.20. Adjust H08.20 and H08.21 repeatedly until a balanced performance is achieved.

Note:

For how to enable the torque feedforward function and select the torque feedforward signal, see H06.11 (Torque feedforward control).

H08.22 Speed feedback filtering option

Address:	2008-17h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Inhibited

1: 2 times

2: 4 times

3: 8 times

4: 16 times

Description

Defines the moving average filtering times for speed feedback.

0: Inhibited

1: 2 times

2: 4 times

3: 8 times

4: 16 times

Note: The larger the parameter value, the smaller the speed feedback ripple, but the larger the feedback delay.

H08.23 Cutoff frequency of speed feedback low-pass filter

Address:	2008-18h	Effective mode:	Real time
Min.:	100	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

100 Hz–8000 Hz

Description

Defines the cutoff frequency for first-order low-pass filtering on the speed feedback.

Note:

The lower the setpoint, the weaker the speed feedback fluctuation, and the longer the feedback delay will be.

Setting this parameter to 8000 Hz negates the filtering effect.

H08.24 PDFF control coefficient

Address:	2008-19h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	200.0	Data Type:	UInt16
Default:	100.0	Change:	Real-time

Value Range:

0.0% to 200.0%

Description

Defines the control mode of the speed loop.

When this parameter is set to 100.0, the speed loop adopts PI control (default) with quick dynamic response.

When this parameter is set to 0.0, speed loop integral action is enhanced, which filters out low-frequency interference but also slows down the dynamic response.

H08.24 can be used to keep a good responsiveness of the speed loop, with the anti-interference capacity in low-frequency bands improved and the speed feedback overshoot unaffected.

H08.25 Speed measurement method

Address:	2008-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: M-method

1: MT-method

Description

Speed measurement method

Activated only when it is set to 1 and a pulse encoder is used.

H08.27 Speed observer cutoff frequency

Address:	2008-1Ch	Effective mode:	Real time
Min.:	50	Unit:	Hz
Max.:	600	Data Type:	UInt16
Default:	170	Change:	Real-time

Value Range:

50 Hz–600 Hz

Description

Defines the cutoff frequency of the speed observer. Note that an excessively high setpoint may incur resonance. Decrease the setpoint properly in case of large speed feedback noise.

H08.28 Speed observer inertia correction coefficient

Address:	2008-1Dh	Effective mode:	Real time
Min.:	1	Unit:	%
Max.:	1600	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

1% to 1600%

Description

Defines the speed observer inertia correction coefficient. If H08.15 is set based on the actual inertia, there is no need to adjust this parameter.

H08.29 Speed observer filter time

Address:	2008-1Eh	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	10.00	Data Type:	UInt16
Default:	0.80	Change:	Real-time

Value Range:

0.00 ms–10.00 ms

Description

Defines the speed observer filter time. It is recommended to set this parameter to a value equal to the sum of H07.05 plus 0.2 ms.

H08.31 Disturbance cutoff frequency

Address:	2008-20h	Effective mode:	Real time
Min.:	1	Unit:	Hz
Max.:	4000	Data Type:	UInt16
Default:	600	Change:	Real-time

Value Range:

1 Hz–4000 Hz

Description

Defines the cutoff frequency of the disturbance observer. Increasing the setpoint improves the responsiveness of the disturbance observer and the compensation effect. Note that an excessively high setpoint may incur resonance.

H08.32 Disturbance compensation gain

Address:	2008-21h	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	100	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0% to 100%

Description

Defines the compensation gain of the disturbance observer. The setpoint 100% indicates full compensation.

H08.33 Disturbance observer inertia correction coefficient

Address:	2008-22h	Effective mode:	Real time
Min.:	1	Unit:	%
Max.:	1600	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

1% to 1600%

Description

Defines the disturbance observer inertia correction coefficient. If H08.15 is set based on the actual inertia, there is no need to adjust this parameter.

H08.37 Phase modulation for medium-frequency jitter suppression 2

Address:	2008-26h	Effective mode:	Real time
Min.:	-90	Unit:	°
Max.:	90	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-90° to 90°

Description

Defines the compensation phase of medium-frequency jitter suppression 2.

H08.38 Medium-frequency suppression 2 frequency

Address:	2008-27h	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	1000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 Hz–1000 Hz

Description

Set this parameter based on actual resonance frequency. The valid suppression frequency range for medium-frequency jitter suppression 2 is 100 Hz to 1000 Hz.

H08.39 Compensation gain of medium-frequency jitter suppression 2

Address:	2008-28h	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	300	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0% to 300%

Description

Defines the compensation gain for medium-frequency jitter suppression 2. Set this parameter to 40%...55% in general cases. Setting this parameter to 0 negates the effect of medium-frequency jitter suppression 2.

H08.40 Speed observer selection

Address:	2008-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Used to set the enable bit for speed observer.

0: Disabled

1: Enabled

H08.42 Model control selection

Address:	2008-2Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled
 1: Enabled
 2: Reserved
 4: Model tracking B

Description

Used to enable model tracking control.

H08.43 Model gain

Address:	2008-2Ch	Effective mode:	Real time
Min.:	0.1	Unit:	-
Max.:	2000.0	Data Type:	UInt16
Default:	40.0	Change:	Real-time

Value Range:

0.1–2000.0

Description

Defines the single inertia model gain. The higher the gain, the faster the position response. Note that an excessively high setpoint may incur excessive overshoot.

H08.46 Feedforward value

Address:	2008-2Fh	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	102.4	Data Type:	UInt16
Default:	95.0	Change:	Real-time

Value Range:

0.0–102.4

Description

Defines the speed feedforward gain for single inertia model control. If overshoot occurs, reduce the setpoint properly.

H08.48 Model torque feedforward forward compensation coefficient

Address:	2008-31h	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	204.8	Data Type:	UInt16
Default:	102.4	Change:	Real-time

Value Range:

0.0–204.8

Description

Defines the speed feedforward gain for single inertia model control. If overshoot occurs, reduce the setpoint properly.

H08.49 Model torque feedforward reverse compensation coefficient

Address:	2008-32h	Effective	Real time
		mode:	
Min.:	0.0	Unit:	-
Max.:	204.8	Data Type:	UInt16
Default:	102.4	Change:	Real-time

Value Range:

0.0–204.8

Description

Defines the speed feedforward gain for single inertia model control. If overshoot occurs, reduce the setpoint properly.

H08.53 Medium- and low-frequency jitter suppression frequency 3

Address:	2008-36h	Effective	Real time
		mode:	
Min.:	0.0	Unit:	Hz
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0 Hz–300.0 Hz

Description

Set this parameter based on actual resonance frequency. The resonance suppression range is 100 Hz to 300 Hz.

H08.54 Medium- and low-frequency jitter suppression compensation 3

Address:	2008-37h	Effective	Real time
		mode:	
Min.:	0	Unit:	%
Max.:	200	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0% to 200%

Description

Defines the compensation gain for medium- and low-frequency suppression compensation 3. The setpoint 200% indicates full compensation.

H08.56 Medium- and low-frequency jitter suppression phase modulation 3

Address:	2008-39h	Effective	Real time
		mode:	
Min.:	0	Unit:	%
Max.:	600	Data Type:	UInt16

Default: 100

Change: Real-time

Value Range:

0% to 600%

Description

Adjust this parameter based on the actual compensation effect.

H08.59 Medium- and low-frequency jitter suppression frequency 4

Address: 2008-3Ch

Effective Real time
mode:

Min.: 0.0

Unit: Hz

Max.: 300.0

Data Type: UInt16

Default: 0.0

Change: Real-time

Value Range:

0.0 Hz–300.0 Hz

Description

Set this parameter based on actual resonance frequency. The resonance suppression range is 100 Hz to 300 Hz.

H08.60 Medium- and low-frequency jitter suppression compensation 4

Address: 2008-3Dh

Effective Real time
mode:

Min.: 0

Unit: %

Max.: 200

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0% to 200%

Description

Defines the compensation gain for medium- and low-frequency suppression compensation 4. The setpoint 200% indicates full compensation.

H08.61 Medium- and low-frequency jitter suppression phase modulation 4

Address: 2008-3Eh

Effective Real time
mode:

Min.: 0

Unit: %

Max.: 600

Data Type: UInt16

Default: 100

Change: Real-time

Value Range:

0% to 600%

Description

Adjust this parameter based on the actual compensation effect.

H08.62 Position loop integral time constant

Address:	2008-3Fh	Effective mode:	Real time
Min.:	0.15	Unit:	-
Max.:	512.00	Data Type:	UInt16
Default:	512.00	Change:	Real-time

Value Range:

0.15–512.00

Description

Defines the position loop integral time constant.

H08.63 2nd position loop integral time constant

Address:	2008-40h	Effective mode:	Real time
Min.:	0.15	Unit:	-
Max.:	512.00	Data Type:	UInt16
Default:	512.00	Change:	Real-time

Value Range:

0.15–512.00

Description

Defines the 2nd position loop integral time constant.

H08.64 Speed observer feedback source

Address:	2008-41h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Observer output speed

1: Observer observed speed

Description

Select the speed observer feedback source.

0: Observer output speed

1: Observer observed speed

H08.65 Zero deviation control selection

Address:	2008-42h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Change: Real-time

0: Disabled

1: Enabled

Used to enable/disable zero deviation control.

1: Enabled

Address:	2008-43h	Effective mode:	Real time
Min.:	0.0	Unit:	ms
Max.:	320.0	Data Type:	UInt16
Default:	5.0	Change:	At stop

Unit: ms

Data Type: UInt16

Change: At stop

0.0 ms–320.0 ms

Defines the average filter time of zero deviation control position. It is recommended to increase the setpoint in case of large noise caused by low command resolution.

Address:	2008-45h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	100.0	Change:	Real-time

Unit: %

Data Type: UInt16

Change: Real-time

0.0% to 100.0%

Defines the speed feedforward of zero deviation control.

Address:	2008-46h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	100.0	Change:	Real-time

Unit: %

Data Type: UInt16

Change: Real-time

0.0% to 100.0%

Description

Defines the torque feedforward of zero deviation control.

H08.90 Encoder scale spacing ripple suppressor enable

Address:	2008-5Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	6	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Disabled
- 1: 1st group activated only-adaptive mode
- 2: 1st group activated only-hysteresis mode
- 3: Two groups activated-adaptive mode
- 4: Two groups activated-hysteresis mode

Description

Sets encoder scale pitch ripple suppression.

- 0: Disabled
- 1: 1st group activated only-adaptive mode. This function is used only to suppress or clear the control loop torque ripple caused by encoder pitch ripple and reduce speed fluctuation and operational noise to some extent.
- 2: 1st group activated only-hysteresis mode. This function is not suitable for applications with frequent speed changes and short travel, but works better for long travel with slow speed changes (for example, digital printing)
- 3: Two groups activated-adaptive mode. This function decides the number of suppressors needed based on the amount of torque ripple caused by encoder pitch ripple.
- 4: Two groups activated-hysteresis mode. Hysteresis mode is only suitable for reciprocating constant speed operation, while adaptive mode is suitable for slow speed change scenarios. Choose the suitable mode as needed.

2.10 H09 Auto-tuning Parameters

H09.00 Auto-adjustment mode

Address:	2009-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	9	Data Type:	UInt16
Default:	4	Change:	Real-time

Value Range:

0: Disabled, manual gain tuning required

1: Enabled, gain parameters generated automatically based on the stiffness level

2: Positioning mode, gain parameters generated automatically based on the stiffness level

3: Interpolation mode+Inertia auto-tuning

4: Normal mode+Inertia auto-tuning

5: Stune mode 5

6: Quick positioning mode+Inertia auto-tuning

9: Model tracking + Inertia auto-tuning + Friction force compensation

Description

Defines different gain tuning modes. Related gain parameters can be set manually or automatically according to the stiffness level.

0: Disabled, manual gain tuning required

1: Enabled, gain parameters generated automatically based on the stiffness level

2: Positioning mode, gain parameters generated automatically based on the stiffness level

3: Interpolation mode+Inertia auto-tuning

4: Normal mode+Inertia auto-tuning

5: Stune mode 5

6: Quick positioning mode+Inertia auto-tuning

9: Model tracking + Inertia auto-tuning + Friction force compensation

H09.01 Stiffness level selection

Address:	2009-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	41	Data Type:	UInt16
Default:	15	Change:	Real-time

Value Range:

0–41

Description

Defines the stiffness level of the servo system. The higher the stiffness level, the stronger the gains and the quicker the response will be. But an excessively high stiffness level will cause vibration.

The setpoint 0 indicates the weakest stiffness and 41 indicates the strongest stiffness.

H09.02 Mode selection of adaptive notch

Address:	2009-03h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Adaptive notch no longer updated
- 1: One adaptive notch activated (3rd notch)
- 2: Two adaptive notches activated (3rd and 4th notches)
- 3: Resonance point tested only (displayed in H09.24)
- 4: Adaptive notch cleared, values of 3rd and 4th notches restored to default

Description

Defines the operation mode of the adaptive notch.

- 0: Adaptive notch no longer updated
- 1: One adaptive notch activated (3rd notch)
- 2: Two adaptive notches activated (3rd and 4th notches)
- 3: Resonance point tested only (displayed in H09.24)
- 4: Adaptive notch cleared, values of 3rd and 4th notches restored to default

H09.03 Online inertia auto-tuning mode

Address:	2009-04h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Disabled
- 1: Enabled, changing slowly
- 2: Enabled, changing normally
- 3: Enabled, changing quickly

Description

Defines whether to enable online inertia auto-tuning and the inertia ratio update speed during online inertia auto-tuning.

- 0: Disabled
- 1: Enabled, changing slowly
- 2: Enabled, changing normally
- 3: Enabled, changing quickly

H09.05 Offline inertia auto-tuning mode

Address:	2009-06h	Effective	Real time
		mode:	

Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Bi-directional

1: Unidirectional

Description

Defines the offline inertia auto-tuning mode. The offline inertia auto-tuning function can be enabled through H0d.02.

0: Bi-directional

1: Unidirectional

H09.06 Max. speed of inertia auto-tuning

Address:	2009-07h	Effective mode:	Real time
Min.:	100	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	500	Change:	At stop

Value Range:

100[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Defines the maximum permissible speed reference in offline inertia auto-tuning mode.

During inertia auto-tuning, the higher the speed, the more accurate the auto-tuned values. Use the default setpoint in general cases.

H09.07 Time constant for accelerating to max. speed during inertia auto-tuning

Address:	2009-08h	Effective mode:	Real time
Min.:	10	Unit:	ms
Max.:	5000	Data Type:	UInt16
Default:	125	Change:	At stop

Value Range:

10 ms–5000 ms

Description

Defines the time for the motor to accelerate from 0 [mm/s]/[rpm] to the maximum speed of inertia auto-tuning (H09.06) during offline inertia auto-tuning.

H09.08 Interval time after an individual inertia auto-tuning

Address:	2009-09h	Effective mode:	Real time

Min.:	50	Unit:	ms
Max.:	10000	Data Type:	UInt16
Default:	800	Change:	At stop

Value Range:

50 ms–10000 ms

Description

Defines the interval time between two consecutive speed references when H09.05 (Offline inertia auto-tuning mode) is set to 1 (Positive/Negative triangular wave mode).

H09.09 Motor rotating distance per inertia auto-tuning

Address:	2009-0Ah	Effective mode:	Real time
Min.:	0.00	Unit:	[mm]/[Rev]
Max.:	100.00	Data Type:	UInt16
Default:	1.00	Change:	Real-time

Value Range:

0.00[mm]/[Rev]–100.00[mm]/[Rev]

Description

Defines the motor revolutions per inertia auto-tuning when H09.05 (Offline inertia auto-tuning mode) is set to 1 (Positive/Negative triangular wave mode).

Note:

When using the offline inertia auto-tuning function, check that the travel distance of the motor at the stop position is larger than the value of H09.09. If not, decrease the value of H09.06 (Maximum speed for inertia auto-tuning) or H09.07 (Time constant of accelerating to max. speed during inertia auto-tuning) properly until the motor travel distance fulfills the requirement.

H09.11 Vibration threshold

Address:	2009-0Ch	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0% to 100.0%

Description

Defines the alarm threshold for current feedback vibration.

H09.12 Frequency of the 1st notch

Address:	2009-0Dh	Effective mode:	Real time

Min.:	50	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

50 Hz–8000 Hz

Description

Defines the center frequency of the notch, which is the mechanical resonance frequency.

In the torque control mode, setting the notch frequency to 8000 Hz deactivates the notch function.

H09.13 Width level of the 1st notch

Address:	2009-0Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0–20

Description

Defines the width level of the notch. Use the default setpoint in general cases. Width level is the ratio of the notch width to the notch center frequency.

H09.14 Depth level of the 1st notch

Address:	2009-0Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–99

Description

Defines the depth level of the notch.

The depth level of the notch is the ratio between the input to the output at the notch center frequency.

The higher the setpoint, the lower the notch depth and the weaker the mechanical resonance suppression will be. Note that an excessively high setpoint may cause system instability.

H09.15 Frequency of the 2nd notch

Address:	2009-10h	Effective mode:	Real time

Min.:	50	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

50 Hz–8000 Hz

Description

Set the frequency of the 2nd notch.

H09.16 Width level of the 2nd notch

Address:	2009-11h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0–20

Description

Set the width level of the 2nd notch.

H09.17 Depth level of the 2nd notch

Address:	2009-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–99

Description

Set the depth level of the 2nd notch.

H09.18 Frequency of the 3rd notch

Address:	2009-13h	Effective mode:	Real time
Min.:	50	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

50 Hz–8000 Hz

Description

Set the frequency of the 3rd notch.

H09.19 Width level of the 3rd notch

Address:	2009-14h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0–20

Description

Set the width level of the 3rd notch.

H09.20 Depth level of the 3rd notch

Address:	2009-15h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–99

Description

Set the depth level of the 3rd notch.

H09.21 Frequency of the 4th notch

Address:	2009-16h	Effective mode:	Real time
Min.:	50	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

50 Hz–8000 Hz

Description

Set the frequency of the 4th notch.

H09.22 Width level of the 4th notch

Address:	2009-17h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0–20

Description

Set the width level of the 4th notch.

H09.23 Depth level of the 4th notch

Address:	2009-18h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–99

Description

Set the depth level of the 4th notch.

H09.24 Auto-tuned resonance frequency

Address:	2009-19h	Effective mode:	-
Min.:	0	Unit:	Hz
Max.:	5000	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 Hz–5000 Hz

Description

When H09.02 (Adaptive notch mode) is set to 3, the current mechanical resonance frequency is displayed.

H09.32 Gravity compensation value

Address:	2009-21h	Effective mode:	Real time
Min.:	-100.0	Unit:	%
Max.:	100.0	Data Type:	Int16
Default:	0.0	Change:	Real-time

Value Range:

-100.0% to 100.0%

Description

Defines the gravity compensation value. Setting this parameter properly in vertical axis applications can reduce the falling amplitude upon start.

H09.33 Positive friction compensation value

Address:	2009-22h	Effective mode:	Real time

Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 100.0%

Description

Defines the forward friction compensation value.

H09.34 Negative friction compensation value

Address:	2009-23h	Effective mode:	Real time
Min.:	-100.0	Unit:	%
Max.:	0.0	Data Type:	Int16
Default:	0.0	Change:	Real-time

Value Range:

-100.0% to 0.0%

Description

Defines the reverse direction friction compensation value.

H09.35 Friction compensation speed

Address:	2009-24h	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	20.0	Data Type:	UInt16
Default:	2.0	Change:	Real-time

Value Range:

0.0–20.0

Description

Defines the friction compensation speed.

H09.36 Friction compensation speed

Address:	2009-25h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x13	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0: Slow mode+Speed reference
 1: Slow mode+Model speed
 2: Slow mode+Speed feedback
 3: Slow mode+Observe speed
 16: Quick mode +Speed reference
 17: Quick mode +Model speed
 18: Quick mode +Speed feedback
 19: Quick mode+Observe speed

Description

Friction compensation speed

0: Slow mode+Speed reference
 1: Slow mode+Model speed
 2: Slow mode+Speed feedback
 3: Slow mode+Observe speed
 16: Quick mode +Speed reference
 17: Quick mode +Model speed
 18: Quick mode +Speed feedback
 19: Quick mode+Observe speed

H09.37 Vibration monitoring time

Address:	2009-26h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	300	Change:	Real-time

Value Range:

0–65535

Description

The resonance detection suppression function is turned off automatically after the time defined by this parameter elapses. To suppress the resonance suppression function, set this parameter to 65536 (in seconds).

H09.38 Frequency of low-frequency resonance suppression 1 at the mechanical end

Address:	2009-27h	Effective mode:	Real time
Min.:	1.0	Unit:	Hz
Max.:	100.0	Data Type:	UInt16
Default:	100.0	Change:	At stop

Value Range:

1.0 Hz–100.0 Hz

Description

Set this parameter based on the actual jitter frequency.

H09.39 Low-frequency resonance suppression 1 at the mechanical end

Address:	2009-28h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0–3

Description

Defines different low-frequency resonance suppression types at the mechanical load. Type 1 features the shortest delay.

H09.44 Frequency of low-frequency resonance suppression 2 at mechanical end

Address:	2009-2Dh	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	200.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0–200.0

Description

Set this parameter based on the actual jitter frequency.

H09.45 Responsiveness of low-frequency resonance suppression 2 at mechanical load end

Address:	2009-2Eh	Effective mode:	Real time
Min.:	0.01	Unit:	-
Max.:	10.00	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.01–10.00

Description

Use the default setpoint in general cases. To increase the setpoint, reduce the delay time.

H09.47 Width of low-frequency resonance suppression 2 at mechanical load end

Address:	2009-30h	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	2.00	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.00–2.00

Description

Use the default setpoint in general cases. To increase the setpoint, increase the delay time.

H09.49 Frequency of low-frequency resonance suppression 3 at mechanical load end

Address:	2009-32h	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	200.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0–200.0

Description

Set the frequency of low-frequency resonance suppression 3 at mechanical load end.

H09.50 Responsiveness of low-frequency resonance suppression 3 at mechanical load end

Address:	2009-33h	Effective mode:	Real time
Min.:	0.01	Unit:	-
Max.:	10.00	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.01–10.00

Description

Set the responsiveness of low-frequency resonance suppression 3 at mechanical load end.

H09.52 Width of low-frequency resonance suppression 3 at mechanical load end

Address:	2009-35h	Effective mode:	Real time
Min.:	0.00	Unit:	-

Max.:	2.00	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.00–2.00

Description

Set the width of low-frequency resonance suppression 3 at mechanical load end.

H09.54 Resonance detection torque threshold

Address:	2009-37h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	50.0	Change:	Real-time

Value Range:

0.0% to 300.0%

Description

If the torque fluctuation exceeds the setpoint, an error will be reported. Setting this parameter to 0 hides the resonance detection function.

H09.56 Max. overshoot allowed by ETune

Address:	2009-39h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	2936	Change:	Real-time

Value Range:

0–65535

Description

Defines the maximum overshoot value allowed during ETune adjustment.

H09.57 STune resonance suppression switchover frequency

Address:	2009-3Ah	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	4000	Data Type:	UInt16
Default:	650	Change:	Real-time

Value Range:

0 Hz–4000 Hz

Description

If the resonance frequency is lower than the setpoint, use medium-frequency resonance suppression 2 to suppress resonance. Otherwise, use the notch to suppress resonance.

H09.58 STune resonance suppression reset selection

Address:	2009-3Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Used to enable STune resonance suppression reset to clear parameters related to resonance suppression, medium-frequency resonance suppression 2 and notches 3 and 4.

0: Disabled

1: Enabled

H09.62 Stune stop delay judgment

Address:	2009-3Fh	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	50.00	Data Type:	UInt16
Default:	1.00	Change:	Real-time

Value Range:

0.00 ms–50.00 ms

Description

Set Stune stop delay threshold.

H09.63 STune quick convergence speed

Address:	2009-40h	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	50.00	Data Type:	UInt16
Default:	1.00	Change:	Real-time

Value Range:

0.00–50.00

Description

Set STune quick convergence speed.

H09.71 Starting frequency

Address:	2009-48h	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	15	Change:	Real-time

Value Range:

0 Hz–8000 Hz

Description

Set the starting frequency for high-performance auto-tuning sweep frequency.

H09.72 End frequency

Address:	2009-49h	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

0 Hz–8000 Hz

Description

Set the end frequency for high-performance auto-tuning sweep frequency.

H09.73 Frequency subdivision

Address:	2009-4Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	500	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

0–500

Description

Set the frequency resolution for high-performance auto-tuning low frequency band (start frequency–start frequency 2). The larger the setting, the smaller the resolution.

H09.74 Excitation amplitude

Address:	2009-4Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	15.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set the excitation amplitude for high-performance auto-tuning sweep frequency.

H09.75 Starting frequency 2

Address:	2009-4Ch	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	500	Change:	Real-time

Value Range:

0 Hz–8000 Hz

Description

Set the starting frequency for medium and high frequency in high-performance auto-tuning.

H09.76 Frequency subdivision 2

Address:	2009-4Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1000	Data Type:	UInt16
Default:	500	Change:	Real-time

Value Range:

0–1000

Description

Set the frequency resolution for high-performance auto-tuning low frequency band (start frequency 2–end frequency). The larger the setting, the smaller the resolution.

H09.77 Biquad filter mode

Address:	2009-4Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	6	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Disabled
- 1: First-order low-pass
- 2: Second-order low-pass
- 3: Notch
- 4: Lead-lag
- 5: User-defined

Description

Used to select biquad filter mode.

- 0: Disabled
- 1: First-order low-pass
- 2: Second-order low-pass
- 3: Notch
- 4: Lead-lag
- 5: User-defined

H09.78 Biquad filter numerator frequency

Address:	2009-4Fh	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	16000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

0 Hz–16000 Hz

Description

Set the biquad filter numerator frequency.

H09.79 Biquad filter numerator damping coefficient

Address:	2009-50h	Effective mode:	Real time
Min.:	0.001	Unit:	-
Max.:	10.000	Data Type:	UInt16
Default:	1.000	Change:	Real-time

Value Range:

0.001–10.000

Description

Set the biquad filter numerator damping coefficient.

H09.80 Biquad filter denominator frequency

Address:	2009-51h	Effective mode:	Real time
Min.:	0	Unit:	Hz

Max.:	16000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:
0 Hz–16000 Hz

Description
Set the biquad filter denominator frequency.

H09.81 Biquad filter denominator damping coefficient

Address:	2009-52h	Effective mode:	Real time
Min.:	0.001	Unit:	-
Max.:	10.000	Data Type:	UInt16
Default:	1.000	Change:	Real-time

Value Range:
0.001–10.000

Description
Set the biquad filter denominator damping coefficient.

H09.82 Vibration frequency 1

Address:	2009-53h	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:
0.0 Hz–300.0 Hz

Description
Set vibration frequency 1.

H09.83 Resonance frequency 1

Address:	2009-54h	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:
0.0 Hz–300.0 Hz

Description
Set resonance frequency 1.

H09.84 Vibration damping 1

Address: 2009-55h

Effective Real time

mode:

Min.: 0.00

Unit: -

Max.: 0.50

Data Type: UInt16

Default: 0.05

Change: Real-time

Value Range:

0.00–0.50

Description

Set vibration damping 1.

H09.85 Resonance damping 1

Address: 2009-56h

Effective Real time

mode:

Min.: 0.00

Unit: -

Max.: 0.50

Data Type: UInt16

Default: 0.05

Change: Real-time

Value Range:

0.00–0.50

Description

Set resonance damping 1.

H09.86 Vibration frequency 2

Address: 2009-57h

Effective Real time

mode:

Min.: 0.0

Unit: Hz

Max.: 300.0

Data Type: UInt16

Default: 0.0

Change: Real-time

Value Range:

0.0 Hz–300.0 Hz

Description

Set vibration frequency 2.

H09.87 Resonance frequency 2

Address: 2009-58h

Effective Real time

mode:

Min.: 0.0

Unit: Hz

Max.: 300.0

Data Type: UInt16

Default: 0.0

Change: Real-time

Value Range:

0.0 Hz–300.0 Hz

Description

Set resonance frequency 2.

H09.88 Vibration damping 2

Address:	2009-59h	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	0.50	Data Type:	UInt16
Default:	0.05	Change:	Real-time

Value Range:

0.00–0.50

Description

Set vibration damping 2.

H09.89 Resonance damping 2

Address:	2009-5Ah	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	0.50	Data Type:	UInt16
Default:	0.05	Change:	Real-time

Value Range:

0.00–0.50

Description

Set resonance damping 2.

H09.92 Model friction force compensation enable

Address:	2009-5Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Disable/enable model friction force compensation.

H09.93 Model friction force compensation coefficient

Address:	2009-5Eh	Effective mode:	Real time
Min.:	0.00	Unit:	%/1000 rpm

Max.:	50.00	Data Type:	UInt16
Default:	0.00	Change:	Real-time

Value Range:

0.00%/1000 rpm–50.00%/1000 rpm

Description

Set the model friction compensation coefficient.

H09.98 Vibration suppression auto-tuning

Address:	2009-63h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Fast auto-tuning

2: Slow auto-tuning

Description

0: Disabled

1: Fast auto-tuning

2: Slow auto-tuning

2.11 H0A Fault and Protection Parameters**H0A.00 Power input phase loss and failure protection**

Address:	200A-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Enable

1: Disable

Description

The drive supports single-phase/three-phase 220 V and three-phase 380 V power supplies. When voltage fluctuation or phase loss occurs on the power supply, the drive triggers power input phase loss protection based on H0A.00.

0: Enable

1: Disable

H0A.01 Absolute position limit

Address:	200A-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Disabled
- 1: Enabled
- 2: Enabled after homing

Description

Used to set the activation condition for enabling the software position limit function and the software limit.

- 0: Disabled
- 1: Enabled
- 2: Enabled after homing

H0A.04 Motor overload protection gain

Address:	200A-05h	Effective mode:	Real time
Min.:	50	Unit:	-
Max.:	300	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

50–300

Description

Determines the motor overload duration before E620.0 (Motor overload) is reported.

You can change the setpoint to advance or delay the time when overload protection is triggered based on the motor temperature. The setpoint 50% indicates the time is cut by half; 150% indicates the time is increased by 50%. Set this parameter based on the actual temperature of the motor.

H0A.08 Overspeed threshold

Address:	200A-09h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	20000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–20000[mm/s]/[rpm]

Description

Defines the overspeed threshold of the motor.

Value	Threshold	Condition for Reporting E500.0
0	Maximum motor speed x 1.2	If the speed feedback exceeds the overspeed threshold several times, the drive reports E500.0 (Motor overspeed).
1–20000	If $H0A-08 \geq (\text{Maximum motor speed} \times 1.2)$: Overspeed threshold = Maximum motor speed x 1.2	
	If $H0A-08 < (\text{Maximum motor speed} \times 1.2)$: Overspeed threshold = $H0A.08$	

H0A.09**Max. pulse input frequency in position control**

Address: 200A-0Ah Effective mode: Real time
 Min.: 100 Unit: kHz
 Max.: 16000 Data Type: UInt16
 Default: 16000 Change: At stop

Value Range:

100 kHz–16000 kHz

Description

Defines the maximum frequency of input pulses when the position reference source is pulse reference ($H05.00 = 0$) in the position control mode.

When the actual pulse input frequency exceeds the value of $H0A.09$, the drive reports EB01.0 (Position reference input error).

H0A.10**Threshold of excessive local position deviation**

Address: 200A-0Bh Effective mode: Real time
 Min.: 0 Unit: Encoder unit
 Max.: 4294967295 Data Type: UInt32
 Default: 219895614 Change: Real-time

Value Range:

0 to 4294967295

Description

Defines the threshold for excessive position deviation in the position control mode.

When the position deviation exceeds this threshold, the drive reports EB00.0 (Position deviation too large).

H0A.12 Runaway protection enable

Address:	200A-0Dh	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Disabled

1: Runaway protection scheme 1

2: Runaway protection scheme 2

Description

Defines whether to enable runaway protection.

0: Disables E234 detection when the motor drives a vertical axis or is driven by the load

1: Enables runaway protection scheme 1

2: Enable runaway protection scheme 2

2.11.1H0A.13**H0A.17 Reference pulse selection**

Address:	200A-12h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Pulse unit

1: Reference unit

Description

Used to set the threshold unit for large position deviation, positioning completion, and positioning proximity.

0: Pulse unit

1: Reference unit

H0A.18 IGBT over-temperature threshold

Address:	200A-13h	Effective	Real time
		mode:	
Min.:	120	Unit:	°C
Max.:	175	Data Type:	UInt16
Default:	140	Change:	Real-time

Value Range:

120°C–175°C

Description

Defines the threshold for reporting E640.0 (IGBT overtemperature) and E640.1 (Flywheel diode overtemperature).

H0A.19 Filter time constant of touch probe 1

Address:	200A-14h	Effective mode:	Real time
Min.:	0.00	Unit:	μs
Max.:	6.30	Data Type:	UInt16
Default:	2.00	Change:	Real-time

Value Range:

0.00μs to 6.30μs

Description

Set the filter time constant of touch probe 1.

H0A.20 Filter time constant of touch probe 2

Address:	200A-15h	Effective mode:	Real time
Min.:	0.00	Unit:	μs
Max.:	6.30	Data Type:	UInt16
Default:	2.00	Change:	Real-time

Value Range:

0.00μs to 6.30μs

Description

Set the filter time constant of touch probe 2.

H0A.21 STO function display selection

Address:	200A-16h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–7

Description

Defines whether to display the STO status or report E150.0 after the STO function is triggered.

0: Displays the STO status. The keypad displays "sto_" after the STO function is triggered. In this case, no fault is reported and no output is generated from the fault DO.

1: Displays the STO fault. The keypad displays "E150.0" after the STO function is triggered. In this case, the drive reports the fault and the faulty DO outputs.

H0A.23 TZ signal filter time

Address:	200A-18h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	25ns
Max.:	31	Data Type:	UInt16
Default:	15	Change:	At stop

Value Range:

0 ns–31 ns

Description

Set TZ signal filter time.

H0A.24 Filter time constant of low-speed pulse input terminal

Address:	200A-19h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	25ns
Max.:	255	Data Type:	UInt16
Default:	30	Change:	At stop

Value Range:

0 ns–255 ns

Description

Defines the filter time constant of low-speed pulse input terminal which is enabled (H05.01 = 0) when the position reference source is pulse input (H05.00 = 0) in the position control mode.

When peak interference exists in the low-speed pulse input terminal, set this parameter to suppress peak interference and prevent motor malfunction due to interference signal inputted to the servo drive.

H0A.25 Speed display DO low-pass filter time

Address:	200A-1Ah	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	5000	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–5000 ms

Description

Defines the low-pass filter time constant of the speed information for speed feedback and position references.

H0A.26 Motor overload detection

Address:	200A-1Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Show motor overload alarm (E909.0) and fault (E620.0)

1: Hide motor overload alarm (E909.0) and fault (E620.0)

Description

Defines whether to enable motor overload detection.

0: Show motor overload alarm (E909.0) and fault (E620.0)

1: Hide motor overload alarm (E909.0) and fault (E620.0)

H0A.27 Average filter time for speed display DO

Address:	200A-1Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	50	Change:	At stop

Value Range:

0 ms–100 ms

Description

Defines the average filter time constant of the speed information for speed feedback and position references.

H0A.28 Quadrature encoder filter time

Address:	200A-1Dh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	25ns
Max.:	255	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0 ns–255 ns

Description

Defines the quadrature encoder feedback filter time.

H0A.29 Fully closed-loop encoder (ABZ) filter time

Address:	200A-1Eh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	25ns
Max.:	65535	Data Type:	UInt16
Default:	4111	Change:	At stop

Value Range:

bit0–bit7: Fully closed loop encoder (ABZ) pulse signal filtering time

bit8–bit15: Fully closed loop encoder (ABZ) wire breakage filter time

Description

Bit0–bit7: Fully closed-loop encoder (ABZ) pulse signal filter time

Bit8–bit15: Fully closed-loop encoder (ABZ) wire breakage filter time

H0A.30 Filter time constant of high-speed pulse input terminal

Address:	200A-1Fh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	ns
Max.:	255	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0 ns–255 ns

Description

Set the filter time constant of high-speed pulse input terminal.

H0A.32 Time threshold for locked motor overhear protection

Address:	200A-21h	Effective mode:	Real time
Min.:	10	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

10 ms–65535 ms

Description

Defines the overtemperature duration before E630.0 (Motor stall) is detected by the servo drive.

H0A.32 can be used to adjust the sensitivity of motor stall over-temperature detection.

H0A.33 Locked motor overheat protection

Address:	200A-22h	Effective	Real time
Min.:	0	mode:	
Max.:	1	Unit:	-
Default:	1	Data Type:	UInt16
		Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Enables or disables the detection for E630.0 (Motor stall overtemperature protection).

0: Disabled

1: Enabled

H0A.36 Encoder multi-turn overflow fault selection

Address:	200A-25h	Effective	Real time
Min.:	0	mode:	
Max.:	1	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	Real-time

Value Range:

0: Not hide

1: Hide

Description

Defines whether to hide the encoder multi-turn overflow fault in the absolute position linear mode (H02.01 = 1).

0: Not hide

1: Hide

H0A.40 Compensation function selection

Address:	200A-29h	Effective	Real time
Min.:	0x0	mode:	
Max.:	0x1F	Unit:	-
Default:	0x6	Data Type:	UInt16
		Change:	At stop

Value Range:

bit0: Overtravel compensation
0: Enabled
1: Disabled
bit1: Touch probe rising edge compensation
0: Disabled
1: Enabled
bit2: Touch probe falling edge compensation
0: Disabled
1: Enabled
bit3: Touch probe scheme
0: New scheme
1: Old scheme (same as SV660N)
bit4: Probe 2 separate compensation time enable
0: Disabled
1: Enabled

Description

-

H0A.41 Forward position of software position limit

Address:	200A-2Ah	Effective mode:	Real time
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	2147483647	Change:	At stop

Value Range:

-2147483648 to 2147483647

Description

When the absolute position counter (H0b.07) is larger than H0A.41, the servo drive reports E950.0 (Forward limit switch alarm) and executes stop at forward limit.

H0A.43 Reverse position of software position limit

Address:	200A-2Ch	Effective mode:	Real time
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	-2147483648	Change:	At stop

Value Range:

-2147483648 to 2147483647

Description

When the absolute position counter (H0b.07) is smaller than H0A.43, the servo drive reports alarm E952.0 (Reverse limit switch alarm) and executes stop at reverse limit.

H0A.50**Encoder communication fault tolerance threshold**

Address:	200A-33h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	31	Data Type:	UInt16
Default:	31	Change:	Real-time

Value Range:

0–31

Description

When the communication between the encoder and the drive fails continuously for more than H0A.50 times, it is considered as a communication failure with the encoder. When overspeed point mask is enabled, if the number of consecutive overspeed points exceed H0A.50, it is considered as a communication failure with the encoder.

H0A.51**Phase loss detection filter times**

Address:	200A-34h	Effective mode:	Real time
Min.:	3	Unit:	55ms
Max.:	36	Data Type:	UInt16
Default:	20	Change:	Real-time

Value Range:

3 ms–36 ms

Description

Phase loss fault is reported when phase loss keeps active for a period longer than H0A.51.

H0A.52**Encoder temperature protection threshold**

Address:	200A-35h	Effective mode:	Real time
Min.:	0	Unit:	°C
Max.:	175	Data Type:	UInt16
Default:	120	Change:	Real-time

Value Range:

0°C–175°C

Description

Defines the temperature threshold for encoder overtemperature protection.

H0A.53 Probe DI ON compensation time

Address:	200A-36h	Effective mode:	Real time
Min.:	-3000	Unit:	25ns
Max.:	3000	Data Type:	Int16
Default:	200	Change:	Real-time

Value Range:

-3000 ns–3000 ns

Description

Used to compensate for the action time when the touch probe is switched on.

H0A.54 Probe DI OFF compensation time

Address:	200A-37h	Effective mode:	Real time
Min.:	-3000	Unit:	25ns
Max.:	3000	Data Type:	Int16
Default:	1512	Change:	Real-time

Value Range:

-3000 ns–3000 ns

Description

Used to compensate for the action time when the touch probe is switched off.

H0A.55 Runaway current threshold

Address:	200A-38h	Effective mode:	Real time
Min.:	100.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	200.0	Change:	Real-time

Value Range:

100.0% to 400.0%

Description

Defines the current threshold for runaway protection detection.

H0A.56 Fault reset delay

Address:	200A-39h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	60000	Data Type:	UInt16
Default:	10000	Change:	Real-time

Value Range:

0 ms–60000 ms

Description

Set the fault reset delay time.

H0A.57 Runaway speed threshold

Address:	200A-3Ah	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Defines the overspeed threshold for runaway protection detection.

H0A.58 Runaway speed filter time

Address:	200A-3Bh	Effective mode:	Upon the next power-on
Min.:	0.1	Unit:	ms
Max.:	100.0	Data Type:	UInt16
Default:	2.0	Change:	Real-time

Value Range:

0.1 ms–100.0 ms

Description

Defines the speed feedback filter time for runaway protection detection.

H0A.59 Runaway protection detection time

Address:	200A-3Ch	Effective mode:	Real time
Min.:	10	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	30	Change:	Real-time

Value Range:

10 ms–1000 ms

Description

The runaway fault (E234.0) will be reported when runaway keeps active for a period longer than H0A.59.

H0A.60 Black box function mode

Address:	200A-3Dh	Effective mode:	Real time
Min.:	0	Unit:	-

Max.:	3	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Disable
1: Any fault
2: Designated fault
3: Triggered based on designated condition

Description

Defines the condition for triggering black box sampling.

0: Disable
1: Any fault
2: Designated fault
3: Triggered based on designated condition

H0A.61 Designated fault code

Address:	200A-3Eh	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0–6553.5

Description

Defines the fault code for triggering the black box function.

H0A.62 Trigger source

Address:	200A-3Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	25	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–25

Description

Defines the fault code for triggering the black box function through designated channel.

H0A.63 Trigger level

Address:	200A-40h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-

Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

Defines the trigger level for triggering the black box function through designated channel.

H0A.65**Trigger level**

Address:	200A-42h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Rising edge

1: Equal

2: Falling edge

3: Edge-triggered

Description

Defines the trigger mode for triggering the black box function through H0A.63.

0: Rising edge

1: Equal

2: Falling edge

3: Edge-triggered

H0A.66**Trigger position**

Address:	200A-43h	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	100	Data Type:	UInt16
Default:	75	Change:	Real-time

Value Range:

0% to 100%

Description

Defines the pre-trigger position for triggering black box sampling.

H0A.67**Sampling frequency**

Address:	200A-44h	Effective mode:	Real time
Min.:	0	Unit:	-

Max.: 2 Data Type: UInt16
 Default: 0 Change: Real-time

Value Range:

0: Current loop
 1: Position loop
 2: Main cycle

Description

Defines the frequency sampling mode during black box sampling.

0: Current loop
 1: Position loop
 2: Main cycle

H0A.70 Overspeed threshold 2

Address: 200A-47h Effective mode: Real time
 Unit: [mm/s]/[rpm]
 Min.: 0 Data Type: UInt16
 Max.: 20000 Change: Real-time
 Default: 0

Value Range:

0[mm/s]/[rpm]–20000[mm/s]/[rpm]

Description

Defines the speed threshold for reporting E500.2 (Position feedback pulse overspeed).

H0A.71 Internal function switch

Address: 200A-48h Effective mode: Upon the next power-on
 Unit: -
 Min.: 0 Data Type: UInt16
 Max.: 65535 Change: Real-time
 Default: 4098

Value Range:

0–65535

Description

bit	Function	Description
0	MS1 overload curve selection	0: New 1: Old
1	Power failure bleeder switch	0: Enabled 1: Disabled
2	Forced brake motor stop mode	0: Forced stop 1: Non-forced stop

bit	Function	Description
3	New external characteristics switch of multi-speed DI mode	0: Old characteristics 1: New characteristics
4	E120.3 hide switch	0: Disabled 1: Disabled
5	Prohibit software reading parameters	0: Disabled 1: Enabled
6	E108.4 hide switch	0: Disabled 1: Disabled
7	CSV command interpolation	0: Sync interrupt interpolation 1: IRQ interrupt interpolation
8	Data type of motor rated current, inertia and back EMF coefficient	0: 16-bit 1: 32-bit
9	Wire breakage detection	0: Enabled 1: Disabled
10	Torque limit source	0: Auto switch acc. to H02.00 1: H07.09 and H07.10
11	Ultra-accurate speed feedback switch	0: Disable 1: Enabled
12	Power failure retention of homing completion flag	0: Disabled 1: Enabled
13	STO status word fallback switch	0: Switch on disable 1: Fault
14	Encoder adaptive function switch	0: Enabled 1: Disable
15	Interrupt positioning external characteristics	0: Old external characteristics, follows motor operation direction 1: New external characteristics, direction set by parameter

H0A.72 Maximum stop time in ramp-to-stop

Address: 200A-49h Effective mode: Real time
 Min.: 0 Unit: ms
 Max.: 65535 Data Type: UInt16
 Default: 10000 Change: At stop

Value Range:

0 ms–65535 ms

Description

Defines the time for the motor to decelerate from the maximum speed to 0 [mm/s]/[rpm] during ramp-to-stop.

H0A.73 STO 24 V disconnection filter time

Address: 200A-4Ah Effective mode: Real time
 Unit: ms

Min.:	1	Unit:	ms
Max.:	5	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1 ms–5 ms

Description

Defines the delay from the moment when 24V is disconnected to the moment when the STO state applies.

H0A.74 Filter time for two inconsistent STO channels

Address:	200A-4Bh	Effective mode:	Real time
Min.:	1	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

1 ms–1000 ms

Description

Defines the delay from the moment the inconsistent 24V is input to the drive through two channels to the moment when the STO state applies.

H0A.75 Servo OFF delay after STO triggered

Address:	200A-4Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	25	Data Type:	UInt16
Default:	20	Change:	Real-time

Value Range:

0 ms–25 ms

Description

Defines the delay from the moment the STO state is triggered to the moment the S-ON signal is switched off.

H0A.87 Hall state fault filtering count

Address:	200A-58h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1000	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0–1000

Description

Set Hall state fault filtering count.

H0A.88**Alarm enable**

Address:	200A-59h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–3

Description

Bit0: Used to enable original BiSS-C data alarm function, which is only applicable to the encoder that adopts BiSS-C protocol.

bit1: Used to mask the undervoltage alarm for voltage drop protection (971.0)

H0A.89**Correct state of DDL BiSS-C data**

Address:	200A-5Ah	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	31	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0–31

Description

Defines the fault bit state during normal operation of BiSS-C.

H0A.90**Speed display low-pass filter time**

Address:	200A-5Bh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–100 ms

Description

Defines the low-pass filter time constant for displayed speed values.

H0A.91**Moving average filter time for torque display values**

Address:	200A-5Ch	Effective mode:	Real time

Min.:	0	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–100 ms

Description

Defines the moving average filter time constant for torque display values.

H0A.92 Moving average filter time for position display values

Address:	200A-5Dh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–100 ms

Description

Defines the moving average filter time constant for position display values.

H0A.93 Low-pass filter time for voltage display values

Address:	200A-5Eh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	250	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–250 ms

Description

Defines the low-pass filter time constant for voltage display values.

H0A.94 Low-pass filter time for thermal display values

Address:	200A-5Fh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	250	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–250 ms

Description

Defines the filter time constant for thermal display values.

2.12 H0B Monitoring Parameters

H0b.00 Motor speed actual value

Address:	200b-01h	Effective	-
		mode:	
Min.:	-32767	Unit:	[mm/s]/[rpm]
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]

Description

Indicates the actual motor speed after round-off, which is accurate to 1 [mm/s]/[rpm].

You can set the filter time constant for H0b.00 through H0A.25 (speed display DO low-pass filter time).

H0b.01 Speed reference

Address:	200b-02h	Effective	-
		mode:	
Min.:	-32767	Unit:	[mm/s]/[rpm]
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]

Description

Indicates the present speed reference (accurate to 1 [mm/s]/[rpm]) of the drive in the position and speed control modes.

H0b.02 Internal torque reference

Address:	200b-03h	Effective	-
		mode:	
Min.:	-3276.7	Unit:	%
Max.:	3276.7	Data Type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

-3276.7% to 3276.7%

Description

Displays present torque reference (accurate to 0.1%). The value 100.0% corresponds to the rated torque of the motor.

H0b.03 Input (DI) signal monitoring

Address:	200b-04h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Displays the level status of eight DI terminals without filtering.

Upper LED segments ON: high level (indicated by "1") Lower LED segments ON: low level (indicated by "0")

H0b.05 Output (DO) signal monitoring

Address:	200b-06h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Displays the level status of 5 DO terminals without filtering.

Upper LED segments ON: high level (indicated by "1") Lower LED segments ON: low level (indicated by "0")

H0b.07 Absolute position counter

Address:	200b-08h	Effective	-
		mode:	
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Displays current absolute position of the motor (reference unit).

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

H0b.09 Mechanical angle

Address:	200b-0Ah	Effective	-
		mode:	

Min.:	0.0	Unit:	°
Max.:	360.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0° to 360.0°

Description

Displays present mechanical angle (encoder unit) of the motor. The setpoint 0 indicates the mechanical angle is 0°.

Actual mechanical angle = $360^\circ \times \text{H0b.09} / (\text{Maximum value of H0b.09} + 1)$

Maximum value of H0b.09 for an absolute encoder is 65535.

H0b.10 Electrical angle

Address:	200b-0Bh	Effective mode:	-
Min.:	0.0	Unit:	°
Max.:	360.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0° to 360.0°

Description

Indicates the present electrical angle of the motor, which is accurate to 0.1°.

The electrical angle variation range is $\pm 360.0^\circ$ during rotation. If the motor has four pairs of poles, each revolution generates four rounds of angle change from 0° to 359°. Similarly, if the motor has five pairs of poles, each revolution generates five rounds of angle change from 0° to 359°.

H0b.12 Average load ratio

Address:	200b-0Dh	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	800.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0% to 800.0%

Description

Displays the percentage of the average load torque to the rated torque of the motor, which is accurate to 0.1%. The value 100.0% corresponds to the rated torque of the motor.

H0b.13 Input reference counter

Address:	200b-0Eh	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count and display the number of position references not divided or multiplied by the electronic gear ratio during operation.

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

H0b.15 Position following error (encoder unit)

Address:	200b-10h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count and display the position deviation value after being divided or multiplied by the electronic gear ratio in the position control mode.

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

Note:

H0b.15 can be clear when the condition defined in H05.16 (Clear action) is met.

H0b.17 Feedback pulse counter

Address:	200b-12h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count the position pulses fed back by the encoder in any control mode.

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

H0b.19 Total power-on time

Address:	200b-14h	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	429496729.5	Data Type:	UInt32
Default:	0.0	Change:	Unchangeable

Value Range:

0.0s–429496729.5s

Description

Used to record the total operating time of the servo drive.

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

Note:

If the servo drive is switched on and off repeatedly within a short period of time, a deviation within 1h may be present in the total power-on time record.

H0b.21 Displayed AI1 voltage

Address:	200b-16h	Effective mode:	-
Min.:	-327.67	Unit:	V
Max.:	327.67	Data Type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

-327.67 V–327.67 V

Description

Displays the actual sampling voltage of AI1.

H0b.22 Displayed AI2 voltage

Address:	200b-17h	Effective mode:	-
Min.:	-327.67	Unit:	V
Max.:	327.67	Data Type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

-327.67 V–327.67 V

Description

Displays the actual sampling voltage of AI2.

H0b.24 Phase current RMS value

Address:	200b-19h	Effective mode:	-

Min.:	0.0	Unit:	A
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 A–6553.5 A

Description

Displays the RMS value of the phase current of the motor, accurate to 0.1 A.

H0b.25 Angle obtained upon voltage injection auto-tuning

Address:	200b-1Ah	Effective mode:	-
Min.:	0.0	Unit:	°
Max.:	360.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0° to 360.0°

Description

Display the angle obtained upon voltage injection auto-tuning.

H0b.26 Bus voltage

Address:	200b-1Bh	Effective mode:	-
Min.:	0.0	Unit:	V
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 V–6553.5 V

Description

Displays the DC bus voltage of the main circuit input voltage after rectification, which is accurate to 0.1 V.

H0b.27 Module temperature

Address:	200b-1Ch	Effective mode:	-
Min.:	-20	Unit:	°C
Max.:	200	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-20°C–200°C

Description

Indicates the temperature of the module inside the servo drive, which can be used as a reference for estimating the actual temperature of the drive.

H0b.28 Absolute encoder fault information given by FPGA

Address:	200b-1Dh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the absolute encoder fault information given by FPGA.

H0b.29 Axis status information given by FPGA

Address:	200b-1Eh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display axis status information given by FPGA.

H0b.30 Axis fault information given by FPGA

Address:	200b-1Fh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display axis fault information given by FPGA.

H0b.31 Encoder fault information

Address:	200b-20h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display encoder internal fault information.

H0b.33

Fault log

Address:	200b-22h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	19	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Present fault
- 1: Last fault
- 2: 2nd to last fault
- 3: 3rd to last fault
- 4: 4th to last fault
- 5: 5th to last fault 6: 6th to last fault
- 7: 7th to last fault
- 8: 8th to last fault
- 9: 9th to last fault
- 10: 10th to last fault
- 11: 11th to last fault
- 12: 12th to last fault
- 13: 13th to last fault
- 14: 14th to last fault
- 15: 15th to last fault
- 16: 16th to last fault
- 17: 17th to last fault
- 18: 18th to last fault
- 19: 19th to last fault

Description

Used to view the latest 20 faults of the drive.

0: Present fault

1: Last fault

2: 2nd to last fault

3: 3rd to last fault

4: 4th to last fault

5: 5th to last fault 6: 6th to last fault

7: 7th to last fault

8: 8th to last fault

9: 9th to last fault

10: 10th to last fault

11: 11th to last fault

12: 12th to last fault

13: 13th to last fault

14: 14th to last fault

15: 15th to last fault

16: 16th to last fault

17: 17th to last fault

18: 18th to last fault

19: 19th to last fault

H0b.34 Fault code of the selected fault

Address:	200b-23h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the fault code of the selected fault.

H0b.35 Timestamp of the selected fault

Address:	200b-24h	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	429496729.5	Data Type:	UInt32
Default:	0.0	Change:	Unchangeable

Value Range:

0.0s–429496729.5s

Description

Display timestamp of the selected fault.

H0b.37 Motor speed upon occurrence of the selected fault

Address:	200b-26h	Effective	-
		mode:	
Min.:	-32767	Unit:	[mm/s]/[rpm]
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]

Description

Display motor speed upon occurrence of the selected fault.

H0b.38 Motor phase U current upon occurrence of the selected fault

Address:	200b-27h	Effective	-
		mode:	
Min.:	-3276.7	Unit:	A
Max.:	3276.7	Data Type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

-3276.7 A–3276.7 A

Description

Display the motor phase U current upon occurrence of the selected fault.

H0b.39 Motor phase V current upon occurrence of the selected fault

Address:	200b-28h	Effective	-
		mode:	
Min.:	-3276.7	Unit:	A
Max.:	3276.7	Data Type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

-3276.7 A–3276.7 A

Description

Display the motor phase V current upon occurrence of the selected fault.

H0b.40 Bus voltage upon occurrence of the selected fault

Address:	200b-29h	Effective	-
		mode:	
Min.:	0.0	Unit:	V
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 V–6553.5 V

Description

Display the bus voltage upon occurrence of the selected fault.

H0b.41 Input terminal state on selected fault

Address:	200b-2Ah	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display input terminal state on selected fault.

H0b.43 Output terminal status upon occurrence of the selected fault

Address:	200b-2Ch	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display output terminal status upon occurrence of the selected fault.

H0b.45 Internal fault code

Address:	200b-2Eh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the internal fault code.

H0b.46 Absolute encoder fault information given by FPGA upon occurrence of the selected fault

Address:	200b-2Fh	Effective	-
		mode:	
Min.:	0x0	Unit:	-

Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the absolute encoder fault information given by FPGA upon occurrence of the selected fault.

H0b.47 System status information given by FPGA upon occurrence of the selected fault

Address:	200b-30h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the system status information given by FPGA upon occurrence of the selected fault.

H0b.48 System fault information given by FPGA upon occurrence of the selected fault

Address:	200b-31h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the system fault information given by FPGA upon occurrence of the selected fault.

H0b.49 Encoder fault information upon occurrence of the selected fault

Address:	200b-32h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the encoder fault information upon occurrence of the selected fault.

H0b.51 Internal fault code upon occurrence of the selected fault

Address:	200b-34h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display internal fault code upon occurrence of the selected fault.

H0b.52 FPGA timeout fault standard bit upon occurrence of the selected fault

Address:	200b-35h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the FPGA timeout fault standard bit upon occurrence of the selected fault.

H0b.53 Position following error (reference unit)

Address:	200b-36h	Effective	-
		mode:	
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position deviation value which has not been divided or multiplied by the electronic gear ratio in the position control mode.

Position deviation (reference unit) is the value obtained after encoder position deviation calculation. The precision is compromised during division.

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

H0b.55 Actual motor speed 2

Address:	200b-38h	Effective mode:	-
Min.:	-214748364.8	Unit:	[mm/s]/[rpm]
Max.:	214748364.7	Data Type:	Int32
Default:	0.0	Change:	Unchangeable

Value Range:

-214748364.8[mm/s]/[rpm]–214748364.7[mm/s]/[rpm]

Description

Displays the actual motor speed, accurate to 0.1 [mm/s]/[rpm].

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

H0A.25 (Filter time constant of speed feedback display) can be used to set the filter time constant of the speed feedback.

H0b.57 Control circuit bus voltage

Address:	200b-3Ah	Effective mode:	-
Min.:	0.0	Unit:	V
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 V–6553.5 V

Description

Displays the bus voltage of the control circuit.

H0b.58 Mechanical absolute position (low 32 bits)

Address:	200b-3Bh	Effective mode:	-
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0 to 4294967295

Description

Displays the low 32-bit value (encoder unit) of the mechanical position feedback when the absolute encoder is used.

H0b.60 Mechanical absolute position (high 32 bits)

Address:	200b-3Dh	Effective mode:	-

Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Displays the high 32-bit value (encoder unit) of the mechanical position feedback when the absolute encoder is used.

H0b.63**NotRdy state**

Address:	200b-40h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	9	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0: Normal

1: Control circuit error

2: Main circuit power input error

3: Bus undervoltage

4: Soft start failed

5: Encoder initialization undone

6: Short circuit to ground failed

7: Others

9: Fully closed-loop encoder initialization not completed

Description

Displays the reason for the NRD state.

0: Normal

1: Control circuit error

2: Main circuit power input error

3: Bus undervoltage

4: Soft start failed

5: Encoder initialization undone

6: Short circuit to ground failed

7: Others

9: Fully closed-loop encoder initialization not completed

H0b.64**Real-time input position reference counter**

Address:	200b-41h	Effective mode:	-

Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Displays the value of the pulse reference counter before being divided or multiplied by the electronic gear ratio. This value is independent of the servo drive status and the control mode.

H0b.66 Encoder temperature

Address:	200b-43h	Effective mode:	-
Min.:	-32768	Unit:	°C
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32768°C–32767°C

Description

Indicates the encoder temperature value.

H0b.67 Load rate of braking resistor

Address:	200b-44h	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	200.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0% to 200.0%

Description

Display load rate of the braking resistor.

H0b.70 Number of absolute encoder revolutions

Address:	200b-47h	Effective mode:	-
Min.:	-32768	Unit:	Rev
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32768Rev to 32767Rev

Description

Indicates the number of revolutions of the absolute encoder.

H0b.71 Single-turn position fed back by the absolute encoder

Address:	200b-48h	Effective	-
		mode:	
Min.:	0	Unit:	Encoder unit
Max.:	2147483647	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0 to 2147483647

Description

Displays the position feedback of the absolute encoder within one turn.

H0b.74 System fault information given by FPGA

Address:	200b-4Bh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display system fault information given by FPGA.

H0b.77 Encoder position (low 32 bits)

Address:	200b-4Eh	Effective	-
		mode:	
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0 to 4294967295

Description

Displays the low 32-bit value of the position feedback of the absolute encoder.

H0b.79 Encoder position (high 32 bits)

Address:	200b-50h	Effective	-
		mode:	
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Displays the high 32-bit value of the position feedback of the absolute encoder.

H0b.81 Single-turn position of the rotary load (low 32 bits)

Address:	200b-52h	Effective	-
		mode:	
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0 to 4294967295

Description

Displays the low 32-bit value of the position feedback of the rotary load when the absolute system works in the rotation mode.

H0b.83 Single-turn position of the rotary load (high 32 bits)

Address:	200b-54h	Effective	-
		mode:	
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Displays the high 32-bit value of the position feedback of the rotary load when the absolute system works the rotation mode.

H0b.85 Single-turn position of the rotary load (reference unit)

Address:	200b-56h	Effective	-
		mode:	
Min.:	0	Unit:	Reference unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0 to 4294967295

Description

Displays the high 32-bit value of the position feedback of the rotary load when the absolute system works the rotation mode.

H0b.87 IGBT junction temperature

Address:	200b-58h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	200	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–200

Description

Display IGBT junction temperature.

H0b.90 Group No. of the abnormal parameter

Address:	200b-5Bh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Set the group number of the abnormal parameter.

H0b.91 Offset within the group of the abnormal parameter

Address:	200b-5Ch	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display offset within the group of the abnormal parameter.

H0b.92 Hall state

Address:	200b-5Dh	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display Hall state.

H0b.93

Closed loop state

Address:	200b-5Eh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0: Half closed loop

1: Fully closed loop

Description

Displays the closed loop state in position control mode.

0: Half closed loop

1: Fully closed loop

H0b.94

Individual power-on time

Address:	200b-5Fh	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	429496729.5	Data Type:	UInt32
Default:	0.0	Change:	Unchangeable

Value Range:

0.0s–429496729.5s

Description

Display the individual power-on time of the drive.

H0b.96

Individual power-on time upon occurrence of the selected fault

Address:	200b-61h	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	429496729.5	Data Type:	UInt32
Default:	0.0	Change:	Unchangeable

Value Range:

0.0s–429496729.5s

Description

Display the individual power-on time upon occurrence of the selected fault.

H0b.98 Dynamic braking resistor load rate

Address:	200b-63h	Effective	-
Min.:	0.0	mode:	
Max.:	200.0	Unit:	%
Default:	0.0	Data Type:	UInt16
		Change:	Unchangeable

Value Range:

0.0% to 200.0%

Description

Display dynamic braking resistor load rate.

2.13 H0C Fault and Protection Parameters 2**H0C.53 Probe DI ON compensation time 2**

Address:	200C-36h	Effective	Real time
Min.:	-3000	mode:	
Max.:	3000	Unit:	25ns
Default:	200	Data Type:	Int16
		Change:	Real-time

Value Range:

-3000 ns–3000 ns

Description

Used to compensate for the action time when touch probe 2 is switched on.
(Effective when H0A_40 bit4 = 1)

H0C.54 Probe DI OFF compensation time 2

Address:	200C-37h	Effective	Real time
Min.:	-3000	mode:	
Max.:	3000	Unit:	25ns
Default:	1512	Data Type:	Int16
		Change:	Real-time

Value Range:

-3000 ns–3000 ns

Description

Used to compensate for the action time when touch probe 2 is switched off.
(Effective when H0A_40 bit4 = 1)

H0C.71 Internal function switch 2

Address:	200C-48h	Effective	Upon the next power-on
Min.:	0	mode:	
		Unit:	-

Max.:65535

Default:512

Value Range:
0–65535

Description
bit9: FPGA encoder feedback overspeed point hide switch

Data Type: UInt16

Change: Real-time

2.14 H0D Auxiliary Parameters

H0d.00	Software Reset		
	Address:	200d-01h	
			Effective mode: Real time
	Min.:	0	Unit: -
	Max.:	1	Data Type: UInt16
	Default:	0	Change: At stop
	Value Range:		
	0: No operation		
	1: Enable		
	Description		
H0d.01	0: No operation		
	1: Enabled		
	Programs in the drive are reset automatically (similar to the program reset upon power-on) after the software reset function is enabled, without the need for a power cycle.		
H0d.01	Fault Reset		
	Address:	200d-02h	
			Effective mode: Real time
	Min.:	0	Unit: -
	Max.:	1	Data Type: UInt16
	Default:	0	Change: At stop
	Value Range:		
	0: No operation		
	1: Enable		
	Description		

0: No operation

1: Enable

Resettable faults of Level 1 and level 2 can be reset only when the servo drive is not in running state after the fault causes are eliminated. Then, the servo drive do not display the faults and enters the "rdy" state.

When a No. 3 alarm occurs, you can enable the fault reset function directly, regardless of the servo drive status.

H0d.02 Inertia auto-tuning enable

Address:	200d-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65

Description

Used to enable offline inertia auto-tuning through the keypad. In the parameter display mode, switch to H0d.02 and press the SET key to enable offline inertia auto-tuning.

H0d.04 Read/write in encoder ROM

Address:	200d-05h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Write ROM

2: Read ROM

3: ROM failure

Description

For Inovance encoders, the USB and control circuit need to be disconnected after writing in ROM to activate parameters. Also ensure that the drive is powered on during parameter writing.

0: No operation

1: Write ROM

2: Read ROM

3: ROM failure

H0d.05 Emergency stop

Address:	200d-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No operation

1: Emergency stop

Description

Trigger emergency stop.

The emergency stop mode corresponding to H0D.05 is defined by H02.05 or 605C.

H0d.06 Current loop auto-tuning test

Address:	200d-07h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	6	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Enable current loop auto-tuning

2: Enable current loop step test (static)

3: Enable current loop step test

Description

0: No operation

1: Enable current loop auto-tuning

2: Enable current loop step test (static)

3: Enable current loop step test

H0d.10 Analog channel auto adjusting

Address:	200d-0Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Adjusted through AI1

2: Adjusted through AI2

Description

When automatic adjustment of the analog channel is enabled, the drive automatically corrects the zero drift voltage of the analog channel to improve signal detection accuracy.

0: No operation

1: Adjusted through AI1

2: Adjusted through AI2

H0d.12 Phase U/V current balance correction enable

Address:	200d-0Dh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Enable/disable phase U/V current balance correction.

0: Disabled

1: Enabled

H0d.17 Forced DI/DO enable switch

Address:	200d-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Forced DI enable switch

0: Disabled

1: Enabled

bit1: Forced DO enable switch

0: Disabled

1: Enabled

Description

Forced DI/DO selection.

Bit0: Forced DI enable switch

0: Disabled

1: Enabled

Bit1: Forced DO enable switch

0: Disabled

1: Enabled

H0d.18**Forced DI value**

Address:	200d-13h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFF	Data Type:	UInt16
Default:	0xFF	Change:	Real-time

Value Range:

0x0 to 0xFF

Description

Defines whether the DI functions set in group H03 is active when forced DI is activated (H0d.17 = 1 or 3).

The value of H0d.18 is displayed as a hexadecimal on the keypad. When it is converted to a binary value, "bit(n) = 1" indicates the level logic of DI function is high level; "bit(n) = 0" indicates the level logic of the DI function is low level.

H0d.19**Forced DO value**

Address:	200d-14h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x1F	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x1F

Description

Defines whether the DO functions assigned in group H04 are active when forced DO is active (H0d.17 = 2 or 3).

The value of H0d.19 is displayed as a hexadecimal on the keypad. When it is converted to a binary value, "bit(n) = 1" indicates the DO function is active; "bit(n) = 0" indicates the DO function is inactive.

H0d.20**Absolute encoder reset**

Address:	200d-15h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Reset fault

2: Reset fault and multi-turn data

3: Reset Inovance 2nd encoder fault

4: Reset Inovance 2nd encoder fault and multi-turn data

Description

You can reset the encoder error or the multi-turn data fed back by the encoder by setting H0d.20.

0: No operation

1: Reset fault

2: Reset fault and multi-turn data

3: Reset Inovance 2nd encoder fault

4: Reset Inovance 2nd encoder fault and multi-turn data

H0d.21 Read error status bit of Nikon and EnDat2.2 encoders

Address:	200d-16h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Reading error status bit

Description

Used to read the error status bit of Nikon encoder and EnDat2.2 encoder.

0: No operation

1: Reading error status bit

H0d.29 Motor parameter auto-tuning

Address:	200d-1Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Enabled

Description

Resistor inductance auto-tuning.

0: No operation

1: Enabled

2.15 H0E Communication Function Parameters

H0E.00 Node address

Address:	200E-01h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	127	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–127

Description

CAN Indicates the slave node address. Ensure this parameter is consistent with the configuration of the host controller.

H0E.01 Save objects written through communication to EEPROM

Address:	200E-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	255	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Not save

1: Save parameters

2: Save object dictionaries

3: Save parameters and object dictionaries

4: Save object dictionaries written before communication (OP)

255: Determine through H0E03 and H0E04

Description

You can use this parameter to select a data saving operation when parameters and object dictionaries are written through a serial port or SDO.

0: Not save

1: Save parameters

2: Save object dictionaries

3: Save parameters and object dictionaries

4: Save object dictionaries written before communication (OP)

255: Determine through H0E03 and H0E04

H0E.03 Save objects written through software (commissioning protocol) to EEPROM

Address:	200E-04h	Effective mode:	Real time
Min.:	0	Unit:	-

Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Do not save

1: Save

Description

Saves objects written through software (commissioning protocol) to EEPROM, including the parameter and object dictionary.

0: Do not save

1: Save

H0E.04 **Save objects written through communication to EEPROM (excluding commissioning protocol)**

Address:	200E-05h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Do not save

1: Save

Description

You can use this parameter to determine whether to save communication written data in EEPROM (excluding commissioning protocol) (CANopen, CANLink, Ethernet COE, ModBus485). The data include the function code and object dictionary

0: Do not save

1: Save

H0E.07 **Object dictionary unit selection**

Address:	200E-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:0: Reference unit system (p/s, p/s²)

1: User unit system (0.01 [mm/s]/[rpm], ms)

Description

Servo unit system switching:

0: Use reference unit system. The speed type dictionary unit is p/s, and the acceleration type object dictionary is p/s².

1: User unit system, 0.01 [mm/s]/[rpm] for speed type object dictionaries and ms (time taken for changing from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm]) for acceleration type object dictionaries.

H0E.10

CAN selection

Address:	200E-0Bh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Pulse/Axis control command

1: Enhanced axis control command

2: CANopen

Description

CAN function selection

0: Pulse/Axis control command

1: Enhanced axis control command

2: CANopen

H0E.11

CAN baud rate

Address:	200E-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	5	Change:	At stop

Value Range:

0: 20 kbps

1: 50 kbps

2: 100 kbps

3: 125 kbps

4: 250 kbps

5: 500 kbps

6: 1 Mbps

7: 1 Mbps - non-standard

Description

It sets the CAN (CANlink or CANopen) communication rate between the servo drive and the host controller.

- 0: 20kbps
- 1: 50kbps
- 2: 100kbps
- 3: 125kbps
- 4: 250kbps
- 5: 500kbps
- 6: 1Mbps
- 7: 1Mbps - customized

Note: To ensure normal communication, the communication speed of the servo drive must match that of the host controller. If H0E.11 is set to 6, the baud rate is 1 Mbps. 80% sampling points are used to match most PLCs with a 1M standard baud rate.

If H0E.11 is set to 7, the baud rate is 1 Mbps. 70% sampling points are used to match most PLCs with a 1M non-standard (deviated) baud rate. Reducing sampling points can also reduce error frames.

H0E.12 Excessive IP position command increment count

Address:	200E-0Dh	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	30	Data Type:	UInt16
Default:	20	Change:	Real-time

Value Range:

1–30

Description

Set the excessive IP position command increment count for triggering EB01.2.

H0E.13 CANopen sync period error limit

Address:	200E-0Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	5	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: 1/4

1: 1/2

2: 3/4

3: 1

4: 2

5: Disabled

Description

Set CANOpen sync period error limit

0: 1/4

1: 1/2

2: 3/4

3: 1

4: 2

5: Disabled

H0E.14 CANOpen communication state

Address:	200E-0Fh	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	9	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–9

Description

Display the CANOpen communication state.

H0E.17 Get the count of received NMT frames with incorrect length

Address:	200E-12h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display the count of received NMT frames with incorrect length.

H0E.18 Get the count of received NMT frames with incorrect command

Address:	200E-13h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display the count of received NMT frames with incorrect command.

H0E.19 Get received heartbeat frames of wrong length

Address:	200E-14h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Get received heartbeat frames of wrong length.

H0E.80 Modbus baud rate

Address:	200E-51h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	9	Data Type:	UInt16
Default:	9	Change:	Real-time

Value Range:

0: 300 bps

1: 600 bps

2: 1200 bps

3: 2400 bps

4: 4800 bps

5: 9600 bps

6: 19200 bps

7: 38400 bps

8: 57600 bps

9: 115200 bps

Description

Defines the communication rate between the servo drive and the host controller. The baud rate set in the servo drive must be the same as that in the host controller. Otherwise, communication will fail.

0: 300 bps

1: 600 bps

2: 1200 bps

3: 2400 bps

4: 4800 bps

5: 9600 bps

6: 19200 bps

7: 38400 bps

8: 57600 bps

9: 115200 bps

H0E.81 Modbus data format

Address:	200E-52h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	3	Change:	Real-time

Value Range:

- 0: No parity, 2 stop bits (N-2)
- 1: Even parity, 1 stop bit (E-1)
- 2: Odd parity, 1 stop bit (O-1)
- 3: No parity, 1 stop bit (N-1)

Description

Defines the data check mode between the servo drive and the host controller during communication.

- 0: No parity, 2 stop bits
- 1: Even parity, 1 stop bit
- 2: Odd parity, 1 stop bit
- 3: No parity, 1 stop bit

The data format of the servo drive must be the same as that of the host controller. Otherwise, communication will fail.

H0E.82 Modbus response delay

Address:	200E-53h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	20	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–20 ms

Description

Defines the delay from the moment when the slave receives a command from the host controller to the moment when the slave returns a response.

H0E.83 Modbus communication timeout

Address:	200E-54h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	600	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–600 ms

Description

Set the Modbus communication timeout.

H0E.84**Sequence of Modbus communication data bits**

Address:	200E-55h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: High bits before low bits

1: Low bits before high bits

Description

Defines the 32-bit data transmission format of Modbus communication.

0: High 16 bits before low 16 bits

1: Low 16 bits before high 16 bits

H0E.90**Communication version**

Address:	200E-5Bh	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	655.35	Data Type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00–655.35

Description

Display the communication version.

H0E.97**Communication monitoring parameter 1**

Address:	200E-62h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

Set communication monitoring parameter 1.

H0E.98 Communication monitoring parameter 2

Address:	200E-63h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

Set communication monitoring parameter 2.

2.16 H0F Fully Closed-Loop

H0F.00 Encoder feedback mode

Address:	200F-01h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Internal encoder feedback

1: External encoder feedback

2: Inner/Outer loop switchover

Description

Defines the encoder feedback signal source in fully closed-loop control.

0: Internal encoder feedback. The position feedback signals come from the motor encoder.

1: External encoder feedback The position feedback signals come from the fully closed-loop external encoder and electronic gear ratio 1 is used.

2: Inner/Outer loop switchover: The DI assigned with FunIN.24 (GEAR_SEL, electronic gear ratio switchover) is switch between inner and outer position closed loops. FunIN.24

: Inactive, internal encoder feedback, with electronic gear ratio 1 used

DI valid: external encoder feedback, using the 2nd electronic gear ratio

H0F.01 Fully closed-loop encoder application mode

Address:	200F-02h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-

Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Standard operating direction

1: Reverse operating direction

Description

Defines the feedback pulse counting direction of internal and external encoders when the motor rotates in the fully closed-loop mode.

0: Standard operating direction: The pulse feedback counter of the internal encoder (H0F.18) is in the same direction as that of the external encoder (H0F.20) during rotation of the motor.

1: Reverse operating direction: The pulse feedback counter of the internal encoder (H0F.18) is in the opposite direction as that of the external encoder (H0F.20) during rotation of the motor.

H0F.02 Fully closed-loop encoder absolute value

Address:	200F-03h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Incremental mode

1: Absolute linear mode

Description

Set fully closed-loop encoder absolute value

0: Incremental mode

1: Absolute linear mode

H0F.03 Fully closed-loop encoder feedback type

Address:	200F-04h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Quadrature pulse

1: Inovance

2: BiSS-C

3: EnDat2.2

4: SSI

Description

Set the fully closed-loop encoder feedback type

0: Quadrature pulse

1: Inovance

2: BiSS-C

3: EnDat2.2

4: SSI

H0F.04 Number of fully closed-loop encoder pulses per revolution

Address:	200F-05h	Effective mode:	Upon the next power-on
Min.:	1	Unit:	-
Max.:	2147483647	Data Type:	UInt32
Default:	10000	Change:	At stop

Value Range:

1–2147483647

Description

Defines the pulses fed back by the external encoder per revolution of the motor. It defines the quantity relation between feedback pulses from the external encoder and those from the internal encoder.

Calculate the value of this parameter through analyzing mechanical parameters. When rigid connection is applied between the motor and the external encoder (scale), you can also set this parameter using the following method:

1. Manually rotate the motor and observe H0F.18 (Feedback pulse counter of internal encoder) in the meantime. After ensuring that the motor has rotated for a full turn ($H0F.18 = \text{Motor resolution}$), calculate the change of H0F.20 (Feedback pulse counter of external encoder) and use the absolute value of the change as the value of H0F.04.

2. Assume values of H0F.18 and H0F.20 are X1 and Y1 before the motor rotates and X2 and Y2 after the motor rotates, then the following formula applies:
 $H0F.04 = \text{Motor resolution} \times (Y2 - Y1) / (X2 - X1)$ The calculated result must be positive; if not, perform step 1 again.

For non-rigid connection, an error may exist in the calculation result.

Note:

Ensure H0F.04 is set properly. Otherwise, EB02.0 (Position deviation too large in fully closed loop) may occur after the drive operates.

H0F.06 Fully closed-loop encoder interface

Address:	200F-07h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 1

Change: At stop

Value Range:

0: CN2

1: CN7

Description

Used to set the drive interface used by the fully closed-loop encoder.

0: CN2

1: CN7

H0F.08 Excessive deviation threshold in compound control mode

Address: 200F-09h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 2147483647

Data Type: UInt32

Default: 1000

Change: Real-time

Value Range:

0–2147483647

Description

Defines the position deviation threshold at which the servo drive reports EB02.0 (Position deviation too large in fully closed-loop mode).

When H0F.08 is set to 0, the drive does not detect EB02.0 and always clears the fully closed-loop position deviation.

H0F.10 Clear deviation in compound control mode

Address: 200F-0Bh

Effective mode: Real time

Min.: 0

Unit: Rev

Max.: 100

Data Type: UInt16

Default: 1

Change: Real-time

Value Range:

0 Rev to 100 Rev

Description

Defines the number of revolutions rotated by the motor per a clear of the fully closed-loop position deviation during operation. The number of revolutions is reflected by H0F.18 (Feedback pulse counter of internal encoder). The number of motor revolutions will not be cleared when the drive is not in the operational state.

H0F.13 Compound vibration suppression filter time

Address: 200F-0Eh

Effective mode: Real time

Min.:	0.0	Unit:	ms
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0 ms–6553.5 ms

Description

Defines the time constant for compound vibration suppression in fully closed-loop control when external encoder feedback (H0F.00 = 1 or 2) is used.

Increase the setpoint gradually and check the response change.

When the stiffness of the transmission mechanism between fully closed loop and internal loop is insufficient, set H0F.13 properly to improve system stability, which is to generate the effect of internal loop temporarily and form a fully closed loop again after the system is stabilized. When the stiffness is sufficient, there is no need to adjust this parameter.

H0F.16 Pulse deviation display in compound control mode

Address:	200F-11h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count and display the position deviation absolute value in fully closed loop control.

Pulse deviation in compound control = Absolute position feedback of external encoder - Absolute position feedback conversion value of internal encoder.

The alignment of inner and outer loop feedbacks is performed each time the deviation is cleared.

H0F.18 Internal position pulse feedback display

Address:	200F-13h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count and display the number of feedback pulses of the internal encoder (after being divided or multiplied by electronic gear ratio, in internal encoder unit).

H0F.20 Fully closed-loop encoder position pulse feedback display

Address:	200F-15h	Effective	-
		mode:	
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count and display the number of feedback pulses of the external encoder (after being divided or multiplied by electronic gear ratio, in external encoder unit).

H0F.22 Quadrature pulse phase Z detection invalid in fully closed-loop mode

Address:	200F-17h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Detected

1: Not detected

Description

Quadrature pulse phase Z detection in fully closed-loop mode

0: Detected

1: Not detected

H0F.23 BiSS-C/SSI/EDNAT2.2 fully closed-loop encoder absolute homing offset

Address:	200F-18h	Effective	Real time
		mode:	
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

The homing offset is automatically updated after homing is completed, and is automatically aligned with H05.36. It is only necessary to write this value manually when you replace the drive. When the full closed-loop encoder is in absolute linear mode, the power-on initial position = Encoder position feedback original value + Homing offset – Absolute feedback offset

H0F.25 Set the source of touch probe Z signal in fully closed-loop mode.

Address:	200F-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Motor Z signal

1: External feedback Z signal

Description

Set the source of touch probe Z signal in fully closed-loop mode.

0: Motor Z signal

1: External feedback Z signal

H0F.26 BiSS-C/SSI/EDNAT2.2 fully closed-loop encoder absolute feedback offset

Address:	200F-1Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

When the full closed-loop encoder is in absolute linear mode, the absolute feedback offset is updated after homing is completed. It is only necessary to write this value manually when you replace the drive.

H0F.28 Index value of BiSS-C/SSI communication alarm

Address:	200F-1Dh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Set the index value of BiSS-C/SSI communication alarm.

H0F.29 CRC of BiSS-C/SSI fully closed-loop encoder feedback

Address:	200F-1Eh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Positive

1: Negative

Description

Set the CRC of BiSS-C/SSI fully closed-loop encoder feedback.

0: Positive

1: Negative

H0F.30 BiSS-C/SSI/EDNAT2.2 valid bits of encoder communication position feedback in full closed-loop mode

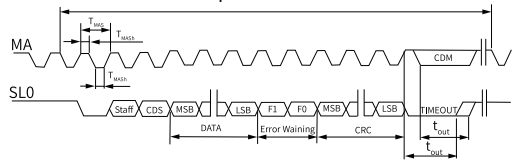
Address:	200F-1Fh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	127	Data Type:	UInt16
Default:	29	Change:	At stop

Value Range:

0–127

Description

Set the BiSS-C/SSI/EDNAT2.2 valid bits of encoder communication position feedback in full closed-loop mode.



- DATA: position data CRC: 6-bit CRC code
 - $100\text{ns} \leq T_{\text{MAS}} \leq 2t_{\text{out}}$ $25\text{ns} \leq T_{\text{MASH}} \leq t_{\text{out}}$ $25\text{ns} \leq T_{\text{MASH}} \leq t_{\text{out}}$
 - $t_{\text{out}} = 1.5\text{MA}$ clock period
 - MA : master clock output; SLO: slave data output transmission speed up to 10 Mbps.
 - CDM: register communication master transmit bit; CDS: register communication slave return bit
 - Error Warning: error and warning bits index (F1 low level indicates an error, F0 low level indicates an alarm)
 - Scale input and output complies with RS-422A. The differential line drive and line receiver are required.
 - CRC generator polynomial: $X^6 + X^1 + 1$, initial value 0, range "DATA", "Error Warning".
- In the figure, $\overline{\text{MA}}$ $\overline{\text{SLO}}$ are not shown.

H0F.30 is the valid bits of position feedback. For details, see the user manual of any third-party BiSS-C encoder.

H0F.31 Valid bit of BiSS-C/SSI encoder communication alarm index in full closed-loop mode

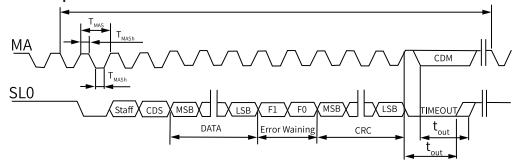
Address:	200F-20h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	31	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0–31

Description

Set the valid bit of BiSS-C/SSI encoder communication alarm index in full closed-loop mode.



- DATA: position data CRC: 6-bit CRC code
 - $100\text{ns} \leq T_{\text{MAS}} \leq 2t_{\text{out}}$ $25\text{ns} \leq T_{\text{MASH}} \leq t_{\text{out}}$ $25\text{ns} \leq T_{\text{MASH}} \leq t_{\text{out}}$
 - $t_{\text{out}} = 1.5\text{MA}$ clock period
 - MA : master clock output; SLO: slave data output transmission speed up to 10 Mbps.
 - CDM: register communication master transmit bit; CDS: register communication slave return bit
 - Error Warning: error and warning bits index (F1 low level indicates an error, F0 low level indicates an alarm)
 - Scale input and output complies with RS-422A. The differential line drive and line receiver are required.
 - CRC generator polynomial: $X^6 + X^1 + 1$, initial value 0, range "DATA", "Error Warning".
- In the figure, $\overline{\text{MA}}$ $\overline{\text{SLO}}$ are not shown.

H0F.31: Error alarm set bit, error and alarm bit index. Its value is the difference between DATA and CRC.

H0F.32 BiSS-C/SSI/ENDAT encoder communication frequency in fully closed-loop mode

Address:	200F-21h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	kHz
Max.:	10000	Data Type:	UInt16
Default:	2000	Change:	Real-time

Value Range:

0 kHz–10000 kHz

Description

Set the BiSS-C/SSI/ENDAT encoder communication frequency in fully closed-loop mode.

H0F.33 SSI/ENDAT encoder recovery time in fully closed-loop mode

Address:	200F-22h	Effective mode:	Upon the next power-on
Min.:	0.000	Unit:	μs
Max.:	40.000	Data Type:	UInt16
Default:	0.500	Change:	Real-time

Value Range:

0.000μs to 40.000μs

Description

Set the SSI/ENDAT encoder recovery time in fully closed-loop mode.

H0F.35 BiSS-C error detection enable in fully closed-loop mode

Address:	200F-24h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Detection on error bits of BiSS-C protocol by FPGA software.

0: Disabled

1: Enabled

H0F.36 BiSS-C error bit polarity in fully closed-loop mode

Address:	200F-25h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-

Max.: 1 Data Type: UInt16
 Default: 0 Change: At stop

Value Range:

0: Positive

1: Negative

Description

BiSS-C error bit polarity

0: Positive

1: Negative

H0F.40 Fully closed-loop communication encoder fault info

Address: 200F-29h Effective -
 mode:
 Min.: 0 Unit: -
 Max.: 65535 Data Type: UInt16
 Default: 0 Change: Unchangeable

Value Range:

0–65535

Description

Display fault information of the fully closed-loop communication encoder.

Table 2–5 Inovance encoder

bit	Name
0	Full closed-loop serial encoder communication timeout (RX side) ^[1]
1	Full closed-loop serial encoder frame stop bit error (RX side)
2	Full closed-loop serial encoder CRC error (RX side) ^[2]
3	Full closed-loop serial encoder data field error (RX side)
4	Full closed-loop serial encoder position count error (TX side) ^[1]
5	Full closed-loop serial encoder frame overspeed (TX side)
6	Full closed-loop serial encoder over-temperature (TX side)
7	Full closed-loop serial encoder single-turn count error (TX side)
8	Full closed-loop serial encoder multi-turn count error (TX side)
9	Full closed-loop serial encoder battery alarm (TX side)
10	Full closed-loop serial encoder battery failure (TX side)
11–12	Undefined
13 ^[3]	Full closed-loop serial encoder count increment error (algorithm) ^[1]
14–15	Undefined
16–23	Full closed-loop serial encoder expansion data 1
24–31	Full closed-loop serial encoder expansion data 2

Table 2-6 EnDat encoder

bit	Name
0	EnDat encoder communication timeout (RX side)
1	EnDat level 1 fault (RX side)
2	EnDat encoder CRC error (RX side) ^[2]
3	EnDat level 2 fault (RX side)
4	EnDat fault information 1 (TX side)
5	EnDat fault information 2 (TX side)
6-8	Undefined
9	EnDat additional data 1 CRC error
10	EnDat additional data 2 CRC error
11-12	Undefined
13 ^[3]	Full closed-loop serial encoder count increment error (algorithm)
14	EnDat level 3 fault (RX side)
15	EnDat level 3 fault (RX side)
16-23	Full closed-loop serial encoder expansion data 1
24-31	Full closed-loop serial encoder expansion data 2

Table 2-7 BiSS-C and SSI encoders

bit	Name
0	Full closed-loop serial encoder communication timeout (RX side)
1	Undefined
2	Full closed-loop serial encoder CRC error (RX side) ^[2]
3-10	Undefined
7	Full closed-loop serial encoder single-turn count error (TX side)
11-12	Undefined
13 ^[3]	Full closed-loop serial encoder count increment error (algorithm)
14-15	Undefined
16 to 23 ^[4]	Full closed-loop serial encoder expansion data 1
24 to 31 ^[4]	Full closed-loop serial encoder expansion data 2

Note

[1]: In the above table, the RX side refers to the drive and the TX side refers to the motor encoder. The algorithm refers to the type of the indirect error caused by a direct error on the RX or TX side.

[2]: When a BiSS-C encoder is used: 1-CRC error; 0-CRC is normal. When an SSI encoder is used: 1-Parity error; 0-Parity is normal.

[3]: When H0A.50 or more data transmission errors occur continuously, bit13 will be set to 1 and the drive must be stopped. For other error types, you can stop the drive as needed.

[4]: Full closed-loop serial encoder extended data 1/2 (when a BiSS-C encoder is used): This part is the status word of BiSS-C and SSI encoders.

H0F.41 Inovance fully closed-loop encoder version

Address:	200F-2Ah	Effective	-
		mode:	
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0–6553.5

Description

Display the version number of the Inovance fully closed-loop encoder.

H0F.42 Inovance fully closed-loop encoder resolution

Address:	200F-2Bh	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0–4294967295

Description

Display the resolution of the Inovance fully closed-loop encoder.

H0F.45 Positioning completed/Position deviation threshold in fully closed-loop mode

Address:	200F-2Eh	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Change: At stop

Value Range:

0: Threshold scaled to outer loop unit

1: Same threshold used for inner and outer loops

Description

0: Fully closed-loop positioning completed threshold 6067/Excessive position deviation threshold 6065 (scaled to outer loop unit)

1: Same threshold used for inner and outer loops

H0F.51 SSI encoder check bit selection in fully closed-loop mode

Effective mode: Upon the next power-on

Unit: -

Data Type: UInt16

Change: At stop

Value Range:

0: No check

1: Check applied

Description

SSI encoder check bit selection in fully closed-loop mode

0: No check

1: Check applied

H0F.52 SSI encoder code system in full closed-loop mode

Effective mode: Upon the next power-on

Unit: -

Data Type: UInt16

Change: At stop

Value Range:

0: Binary

1: Gray code

Description

SSI encoder code system in full closed-loop mode

0: Binary

1: Gray code

H0F.53 SSI encoder state word code system in fully closed-loop mode

Effective mode: Upon the next power-on

Unit: -

Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Binary

1: Gray code

Description

SSI encoder state word code system in fully closed-loop mode

0: Binary

1: Gray code

H0F.54 SSI encoder parity check in fully closed-loop mode

Address:	200F-37h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

SSI encoder parity check in fully closed-loop mode

0: Disabled

1: Enabled

H0F.55 Fully closed-loop encoder communication timeout error count

Address:	200F-38h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Fully closed-loop encoder communication timeout error count

H0F.56 Encoder CRC error count in fully closed-loop mode

Address:	200F-39h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Encoder CRC error count in fully closed-loop mode

H0F.57 Fully closed-loop encoder communication frame stop bit error count.

Address:	200F-3Ah	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Fully closed-loop encoder communication frame stop bit error count.

2.17 H11 Multi-position

H11.00 Multi-position running mode

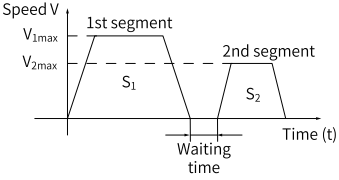
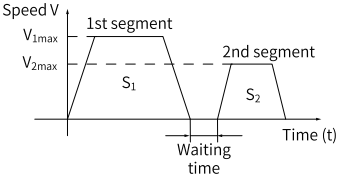
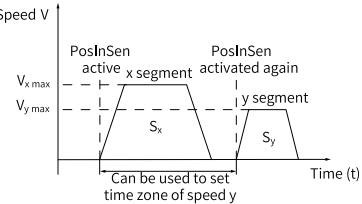
Address:	2011-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	5	Data Type:	UInt16
Default:	1	Change:	At stop

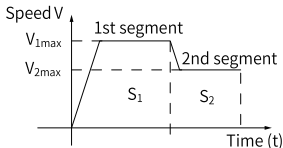
Value Range:

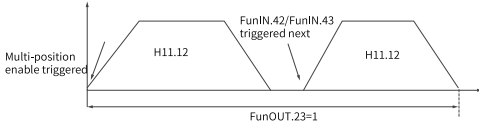
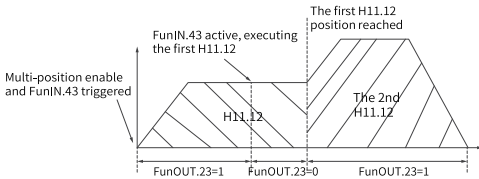
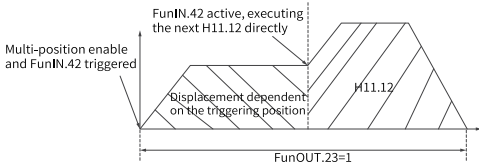
- 0: Single run (number of displacements selected in H11.01)
- 1: Cyclic operation (number of displacement selected in H11.01)
- 2: DI-based operation (selected by DI)
- 3: Sequential operation
- 5: Axis-controlled continuous operation

Description

Defines the multi-position operation mode when the main position reference source is multi-position references (H05.00 = 2) in the position control mode.

Value	Operation Mode	Remarks	Operation Curve
0	Individual operation	The drive stops after one cycle of operation. The drive automatically switches to the next speed. You can set the interval time between displacements. The multi-position reference is level-triggered.	 V_{1max}, V_{2max} : maximum operating speeds in displacement 1 and displacement 2 S_1, S_2 : displacement 1 and displacement 2
1	Cyclic operation	The starting displacement after the first cycle is displacement 1. The drive automatically switches to the next speed. You can set the interval time between displacements. The multi-position reference is level-triggered.	 V_{1max}, V_{2max} : maximum operating speeds in displacement 1 and displacement 2 S_1, S_2 : displacement 1 and displacement 2
2	DI-based operation	The drive continues operating when the displacement No. is updated. The speed No. is determined by the DI logic. The interval time between displacements is determined by the command delay of the host controller. The multi-position reference is edge-triggered.	 V_{xmax}, V_{ymax} : maximum operating speeds in displacement x and displacement y S_x, S_y : displacement x and displacement y

Value	Operation Mode	Remarks	Operation Curve
3	Sequential operation	The drive stops after one cycle of operation. $(H11.05 = 0 \text{ or } H11.05 > H11.01)$. When H11.05 is greater than H11.01, the software will set H11.05 to 0. The starting displacement after the first cycle is defined by H11.05. The drive automatically switches to the next speed. There is no interval time between displacements. The multi-position reference is level-triggered.	 V 1max , V 2max : maximum operating speeds in displacement 1 and displacement 2 S 1 , S 2 : displacement 1 and displacement 2

Value	Operation Mode	Remarks	Operation Curve
5	Axis-controlled continuous operation	The drives executes one displacement only. The individual operation mode, sequential operation mode, and interrupted operation mode are included. The PosInSen (multi-position reference enable) signal is level-triggered.	● Individual operation  The PosInSen (multi-position reference enable) signal is triggered only once (FunIN.43/42 triggered later). The drive stops after executing the distance defined by H11.12. ● Sequential operation  The PosInSen (multi-position reference enable) signal is triggered only once. Write H11.12 again and activate FunIN.43 when the distance defined by the first H11.12 is still in progress. After receiving the new distance (or speed), which is the second H11.12, the drive continues executing the first H11.12 until the distance defined by the first H11.12 is done. Then it starts to execute the second H11.12 directly. The travel distance therefore is the sum of the first H11.12 and the second H11.12. ● Interrupted operation  The PosInSen (Multi-position reference enable) signal is triggered only once. Write H11.12 (such as 1000000) again and activate FunIN.42 when the first H11.12 (such as 9000000) is still in progress. After receiving the new distance (or speed), which is the second H11.12, the drive stops executing the first H11.12 and turns to executing the second H11.12.

To use the multi-position function, assign FunIN.28 (PosInSen, multi-position reference enable) to a DI first. See "Group H03: Terminal input parameters" for the setting mode.

The positioning completed (COIN) signal is activated each time upon completion of a displacement. To determine whether a certain displacement is done executing, use FunOUT.5 (COIN, positioning completed). See "Group H04: Terminal output parameters" for details.

Ensure the S-ON signal is active during operation of each displacement. Otherwise, the drive stops immediately as defined by H02.05 (Stop mode at S-ON OFF) and the positioning completed (COIN) signal is inactive. In modes other than DI-based operation, if the S-ON signal is active but multi-position is disabled during operation of a certain displacement, the drive abandons the unsent displacement reference and stops, with the positioning completed (COIN) signal being active. If the multi-position function is enabled again, the displacement to be executed is defined by H11.02.

H11.01 Number of displacement references in multi-position mode

Address:	2011-02h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	16	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–16

Description

Defines the total number of displacement references in the multi-position mode. You can set different displacements, operating speeds, and acceleration/ deceleration time for each displacement.

H11.00 ≠ 2: Displacements are switched automatically in a sequence from 1, 2... H11.01.

H11.00 is 2: Assign four DIs (Hardware DI or VDI) with DI functions 6 to 9 (FunIN.6: CMD1 to FunIN.9: CMD4) and control the DI logic through the host controller to switch between different speeds. The segment No. is a 4-bit binary value. Bits 0 to 3 correspond to CMD1 to CMD4.

The displacement No. is a 4-bit binary value. The relationship between the displacement numbers and CMD1...CMD4 is shown in the following table.

FunIN.9 CMD4	FunIN.8 CMD3	FunIN.7 CMD2	FunIN.6 CMD1	Segment No.
0	0	0	0	
0	0	0	1	2
...				
1	1	1	1	16

H11.02 Starting displacement No. after pause

Address:	2011-03h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Continue to execute the unexecuted displacements

1: Start from displacement 1

Description

Defines the starting displacement No. when the multi-position operation recovers from a pause.

Pause:

1. The servo drive switches to another control mode or the interrupt positioning function is enabled during multi-position operation.

2. The internal multi-position enable signal (FunIN.28:PosInSen) changes from "active" to "inactive".

0: Continue to execute the unexecuted displacements: For example, if H11.01 is set to 16 and the drive pauses at displacement 2, after the drive recovers from the pause, it will start from displacement 3.

1: Start from displacement 1: For example, if H11.01 is set to 16 and the drive pauses at displacement 2, after the drive recovers from the pause, it will start from displacement 1.

H11.03 Interval time unit

Address:	2011-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: ms

1: s

Description

Defines the unit of acceleration/deceleration time and the interval time during multi-position operation.

Acceleration/Deceleration time: Indicates the time taken for the motor to change from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

Interval time: interval time that starts from the end of the last reference to the beginning of the next reference

H11.04 Displacement reference type

Address:	2011-05h	Effective mode:	Real time
Min.:	0	Unit:	-

Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Relative displacement reference

1: Absolute displacement reference

Description

Relative displacement: position increment of the target position relative to the current motor position

Absolute displacement: position increment of the target position relative to the motor home.

H11.05 Starting displacement No. in sequential operation

Address:	2011-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	16	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–16

Description

Defines whether to perform cyclic operation and the starting displacement No. after the first cycle of operation in the sequential operation mode (H11.00 = 3).

0: The drive executes the displacements defined by H11.01 only once and then stops. The motor is in the locked state.

1 to 16: The drive operates cyclically, with the starting displacement No. defined by H11.05 after the first cycle of operation. The value of H11.05 should be lower than or equal to H11.01.

H11.09 Deceleration upon axis control OFF

Address:	2011-0Ah	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	65535	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Set deceleration upon axis control OFF.

H11.10 Starting speed of displacement 1

Address:	2011-0Bh	Effective mode:	Real time

Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	6000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–6000[mm/s]/[rpm]

Description

Set starting speed of displacement 1.

H11.11 Stop speed of displacement 1

Address:	2011-0Ch	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	6000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–6000[mm/s]/[rpm]

Description

Set stop speed of displacement 1.

H11.12 Displacement 1

Address:	2011-0Dh	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

Defines displacement 1 (reference unit) in multi-position operation.

H11.14 Max. speed of displacement 1

Address:	2011-0Fh	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the maximum speed of displacement 1 in multi-position operation.
The maximum speed is the average operating speed when the motor is not in the acceleration/deceleration process. If H11.12 is set to a too low value, the actual motor speed will be lower than H11.14.

H11.15 Acc/Dec time of displacement 1

Address:	2011-10h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the time for the motor to change from 0 [mm/s]/[rpm] to 1000 rpm[mm/s]/[rpm] at a constant speed during displacement 1.

H11.16 Interval time after displacement 1

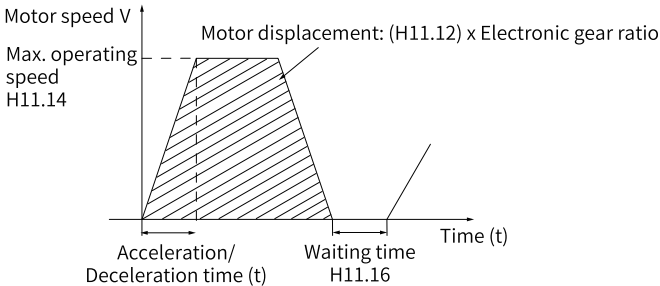
Address:	2011-11h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

Defines the interval time that starts from the end of displacement 1 to the beginning of the next displacement.



H11.17 Displacement 2

Address:	2011-12h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.19 Max. speed of displacement 2

Address:	2011-14h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.20 Acc/Dec time of displacement 2

Address:	2011-15h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.21 Interval time after displacement 2

Address:	2011-16h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.22**Displacement 3**

Address:	2011-17h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.24**Max. speed of displacement 3**

Address:	2011-19h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.25**Acc/Dec time of displacement 3**

Address:	2011-1Ah	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.26**Interval time after displacement 3**

Address:	2011-1Bh	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16

Change: Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.27 Displacement 4

Effective Real time
mode:

Unit: Reference unit

Data Type: Int32

Change: Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.29 **Max. speed of displacement 4**

Effective Real time
mode:

Unit: [mm/s]/[rpm]

Data Type: UInt16

Change: Real-time

Value Range:

$$1[\text{mm/s}]/[\text{rpm}]-10000[\text{mm/s}]/[\text{rpm}]$$

Description

See max. speed of displacement 1.

H11.30 **Acc/Dec time of displacement 4**

Effective Real time
mode:

Unit: ms

Data Type: UInt16

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.31 Interval time after displacement 4

Address:	2011-20h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.32 Displacement 5

Address:	2011-21h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.34 Max. speed of displacement 5

Address:	2011-23h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.35 Acc/Dec time of displacement 5

Address:	2011-24h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.36 Interval time after displacement 5

Address:	2011-25h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.37 Displacement 6

Address:	2011-26h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.39 Max. speed of displacement 6

Address:	2011-28h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.40 Acc/Dec time of displacement 6

Address:	2011-29h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16

Change: Real-time

0 ms–65535 ms

See acc/dec time of displacement 1.

Effective Real time
mode:

Unit: ms (s)

Data Type: UInt16

Change: Real-time

0 ms(s) to 10000 ms(s)

See interval time after displacement 1.

Effective Real time
mode:

Unit: Reference unit

Data Type: Int32

Change: Real-time

-1073741824 to 1073741824

See displacement 1.

Effective Real time
mode:

Unit: [mm/s]/[rpm]

Data Type: UInt16

Change: Real-time

$$1[\text{mm/s}]/[\text{rpm}]-10000[\text{mm/s}]/[\text{rpm}]$$

See max. speed of displacement 1.

H11.45 Acc/Dec time of displacement 7

Address:	2011-2Eh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.46 Interval time after displacement 7

Address:	2011-2Fh	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.47 Displacement 8

Address:	2011-30h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.49 Max. speed of displacement 8

Address:	2011-32h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.50 Acc/Dec time of displacement 8

Address:	2011-33h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.51 Interval time after displacement 8

Address:	2011-34h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.52 Displacement 9

Address:	2011-35h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.54 Max. speed of displacement 9

Address:	2011-37h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16

Change: Real-time

Value Range:

$$1[\text{mm/s}]/[\text{rpm}]-10000[\text{mm/s}]/[\text{rpm}]$$

Description

See max. speed of displacement 1.

H11.55 **Acc/Dec time of displacement 9**

Address: 2011-38h

Effective Real time
mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 10

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.56 Interval time after displacement 9

Address: 2011-39h

Effective Real time
mode:

Min.: 0

Unit: ms (s)

Max.: 10000

Data Type: UInt16

Default: 10

Change: Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.57 Displacement 10

Address: 2011-3Ah

Effective Real time
mode:

Min.: -1073741824

Unit: Reference unit

Max.: 1073741824

Data Type: Int32

Default: 10000

Change: Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.59 Max. speed of displacement 10

Address:	2011-3Ch	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.60 Acc/Dec time of displacement 10

Address:	2011-3Dh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.61 Interval time after displacement 10

Address:	2011-3Eh	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.62 Displacement 11

Address:	2011-3Fh	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.64 Max. speed of displacement 11

Address:	2011-41h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.65 Acc/Dec time of displacement 11

Address:	2011-42h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.66 Interval time after displacement 11

Address:	2011-43h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.67 Displacement 12

Address:	2011-44h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32

Default: 10000 Change: Real-time
Value Range:
 -1073741824 to 1073741824
Description
 See displacement 1.

H11.69 **Max. speed of displacement 12**

Address: 2011-46h Effective Real time
 mode:
 Min.: 1 Unit: [mm/s]/[rpm]
 Max.: 10000 Data Type: UInt16
 Default: 200 Change: Real-time
Value Range:
 1[mm/s]/[rpm]–10000[mm/s]/[rpm]
Description
 See max. speed of displacement 1.

H11.70 **Acc/Dec time of displacement 12**

Address: 2011-47h Effective Real time
 mode:
 Min.: 0 Unit: ms
 Max.: 65535 Data Type: UInt16
 Default: 10 Change: Real-time
Value Range:
 0 ms–65535 ms
Description
 See acc/dec time of displacement 1.

H11.71 **Interval time after displacement 12**

Address: 2011-48h Effective Real time
 mode:
 Min.: 0 Unit: ms (s)
 Max.: 10000 Data Type: UInt16
 Default: 10 Change: Real-time
Value Range:
 0 ms(s) to 10000 ms(s)
Description
 See interval time after displacement 1.

H11.72 Displacement 13

Address:	2011-49h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.74 Max. speed of displacement 13

Address:	2011-4Bh	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.75 Acc/Dec time of displacement 13

Address:	2011-4Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.76 Interval time after displacement 13

Address:	2011-4Dh	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.77**Displacement 14**

Address:	2011-4Eh	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.79**Max. speed of displacement 14**

Address:	2011-50h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.80**Acc/Dec time of displacement 14**

Address:	2011-51h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.81**Interval time after displacement 14**

Address:	2011-52h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16

Address:	2011-53h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time
Value Range:			
-1073741824 to 1073741824			
Description			
See displacement 1.			

Address:	2011-55h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:
1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description
See max. speed of displacement 1.

Address:	2011-56h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time
Value Range:			
0 ms–65535 ms			
Description			
See acc/dec time of displacement 1.			

H11.86 Interval time after displacement 15

Address:	2011-57h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.87 Displacement 16

Address:	2011-58h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.89 Max. speed of displacement 16

Address:	2011-5Ah	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.90 Acc/Dec time of displacement 16

Address:	2011-5Bh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.91 Interval time after displacement 16

Address:	2011-5Ch	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

2.18 H12 Multi-Speed

H12.00 Multi-speed operation mode

Address:	2012-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Individual operation (number of speeds selected in H12.01)

1: Cyclic operation (number of speeds selected in H12.01)

2: DI-based operation

Description

Defines the multi-speed operation mode when the speed reference source is multi-speed reference (H06.01 = 5, H06.02 = 1/2/3) in the speed control mode. The S-ON signal must be active during operation of each speed. Otherwise, the drive stops immediately as defined by H02.05 (Stop mode at S-ON OFF). The speed reach signal (FunOUT.19: V-Arr) is activated each time when a speed reference value is reached.

Value	Operation Mode	Remarks	Operation Curve
0	Individual operation	The drive stops after one cycle of operation. The drive switches to the next displacement automatically.	Speed V V_{1max} V_{2max} 1st segment 2nd segment t_1 t_2 t_3 t_4 t_5 Time (t) V_{1max}, V_{2max} : reference values of speed 1 and speed 2 t_1 : actual acceleration/deceleration time of speed 1 t_3, t_5 : acceleration/deceleration time of speed 2
1	Cyclic operation	The drive starts from speed 1 after each cycle of operation. The drive automatically switches to the next speed. The cyclic operation state remains active as long as the S-ON signal is active.	Speed V V_{1max} V_{2max} 1st segment 2nd segment 1st segment 2nd segment t_1 t_2 t_3 t_4 t_5 t_6 t_7 t_8 t_9 Time (t) V_{1max}, V_{2max} : maximum operating speeds in displacement 1 and displacement 2
2	External DI signal	The drive operates continuously as long as the S-ON signal is active. The speed No. is determined by the DI logic. The operating time of each speed is determined only by the interval time of speed switchover. The speed reference direction can be switched through FunIN.5 (DIR-SEL).	Speed V V_{xmax} V_{zmax} V_{ymax} x sgement y sgement z sgement Set DI Set DI Set DI Time (t) x, y: speed No. (The relationship between the speed No. and the DI logic is described below.) V_x, V_y: speed references for speeds x and y The speed No. determined by DI does not change, which means the speed reference operates continuously regardless of the reference operating time.

H12.01 Number of speed references in multi-speed mode

Address: 2012-02h

Effective Real time

mode:

Min.: 1

Unit: -

Max.: 16

Data Type: UInt16

Default: 16

Change: At stop

Value Range:

1–16

Description

Defines the total number of speed references in the multi-speed mode. Different speed references, operating time, and acceleration/deceleration time (four groups optional) can be set for each speed.

H12.00 ≠ 2: Speeds are switched automatically in a sequence from 1, 2...

H12.01.

H12.00 is 2: Assign four DIs (Hardware DI or VDI) with DI functions 6 to 9 (FunIN.6: CMD1 to FunIN.9: CMD4) and control the DI logic through the host controller to switch between different speeds. The segment No. is a 4-bit binary value. Bits 0 to 3 correspond to CMD1 to CMD4.

FunIN.9	FunIN.8	FunIN.7	FunIN.6	Segment No.
CMD4	CMD3	CMD2	CMD1	
0	0	0	0	1
0	0	0	1	2
...				
1	1	1	1	16

The value of CMD(n) is 1 upon active DI logic and 0 upon inactive DI logic.

H12.02 Operating time unit

Address:	2012-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: s

1: min

Description

Defines the time unit of multi-speed operation.

0: s

1: min

H12.03 Acceleration time 1

Address:	2012-04h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Acceleration time: time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

H12.04 Deceleration time 1

Address:	2012-05h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Deceleration time: time for the motor to decelerate from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm] at a constant speed.

H12.05 Acceleration time 2

Address:	2012-06h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Acceleration time: time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

H12.06 Deceleration time 2

Address:	2012-07h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Deceleration time: time for the motor to decelerate from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm] at a constant speed.

H12.07 Acceleration time 3

Address:	2012-08h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Acceleration time: time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

H12.08 Deceleration time 3

Address:	2012-09h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Deceleration time: time for the motor to decelerate from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm] at a constant speed.

H12.09 Acceleration time 4

Address:	2012-0Ah	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	150	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Acceleration time: time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

H12.10 Deceleration time 4

Address:	2012-0Bh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	150	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Deceleration time: time for the motor to decelerate from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm] at a constant speed.

H12.20 1st speed reference

Address:	2012-15h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Set the first speed reference.

H12.21 Operating time of speed 1

Address:	2012-16h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

Defines the operating time of speed 1.

The operating time is the sum of the speed variation time from previous speed reference to present speed reference plus the average operating time of present speed reference.

If the operating time is set to 0, the drive skips this speed reference automatically.

As long as H12.00 (Multi-speed operation mode) is set to 2 (DI-based operation) and the speed No. determined by the external DI does not change, the drive continues operating at the speed defined by this speed reference, without being affected by the reference operating time.

H12.22 1st speed rise/drop and curve smoothing parameter time

Address:	2012-17h	Effective	Real time
Min.:	0	mode:	
Max.:	65535	Unit:	-
Default:	256	Data Type:	UInt16
		Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

Bit0-bit7: Acc./dec. time of speed 6

Defines the acceleration/deceleration time of speed 1.

0: Zero acc./dec. time Acceleration time: 0

Deceleration time: 0

1: Acc./dec. Time 1 Acceleration time: H12.03

Deceleration time: H12.04

2: Acc./dec. Time 2 Acceleration time: H12.05

Deceleration time: H12.06

3: Acc./dec. Time 3 Acceleration time: H12.07

Deceleration time: H12.08

4: Acc./dec. Time 4 Acceleration time: H12.09

Deceleration time: H12.10

Bit8–bit15: S curve smoothing parameter

1. Smoothing parameter 1 increasing acceleration time of acceleration segment: H06.51

Decreasing acceleration time of acceleration segment: H06.52

Decreasing deceleration time of deceleration segment: H06.53

Decreasing acceleration time of acceleration segment: H06.54

2. Smoothing parameter 2 increasing acceleration time of acceleration segment: H06.55

Decreasing acceleration time of acceleration segment: H06.56

Decreasing deceleration time of deceleration segment: H06.57

Decreasing acceleration time of acceleration segment: H06.58

3. Smoothing parameter 3 increasing acceleration time of acceleration segment: H06.59

Decreasing acceleration time of acceleration segment: H06.60

Decreasing deceleration time of deceleration segment: H06.61

Decreasing acceleration time of acceleration segment: H06.62

4. Smoothing parameter 4 increasing acceleration time of acceleration segment: H06.63

Decreasing acceleration time of acceleration segment: H06.64

Decreasing deceleration time of deceleration segment: H06.65

Decreasing acceleration time of acceleration segment: H06.66

5. Smoothing parameter 5 increasing acceleration time of acceleration segment: H06.67

Decreasing acceleration time of acceleration segment: H06.68

Decreasing deceleration time of deceleration segment: H06.69

Decreasing acceleration time of acceleration segment: H06.70

6. Smoothing parameter 6 increasing acceleration time of acceleration segment: H06.71

Decreasing acceleration time of acceleration segment: H06.72

Decreasing deceleration time of deceleration segment: H06.73

Decreasing acceleration time of acceleration segment: H06.74

7. Smoothing parameter 7 increasing acceleration time of acceleration segment: H06.75

Decreasing acceleration time of acceleration segment: H06.76

Decreasing deceleration time of deceleration segment: H06.77

Decreasing acceleration time of acceleration segment: H06.78

8. Smoothing parameter 8 increasing acceleration time of acceleration segment: H06.79

Decreasing acceleration time of acceleration segment: H06.80

Decreasing deceleration time of deceleration segment: H06.81

Decreasing acceleration time of acceleration segment: H06.82

H12.23 Reference 2

Address:	2012-18h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	100	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.24 Operating time of speed 2

Address:	2012-19h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.25 2nd speed rise/drop time and curve smoothing parameter time

Address:	2012-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.26 Reference 3

Address:	2012-1Bh	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	300	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.27 Operating time of speed 3

Address:	2012-1Ch	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.28 3rd speed rise/drop time and curve smoothing parameter time

Address:	2012-1Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.29 Reference 4

Address:	2012-1Eh	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	500	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.30 Operating time of speed 4

Address:	2012-1Fh	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16

Default: 5.0 Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.31 4th speed rise/drop time and curve smoothing parameter time

Address: 2012-20h Effective Real time

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.32 Reference 5

Address: 2012-21h Effective Real time

mode:

Min.: -10000

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: Int16

Default: 700

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.33 Operating time of speed 5

Address:	2012-22h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.34 5th speed rise/drop time and curve smoothing parameter time

Address:	2012-23h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.35 Reference 6

Address:	2012-24h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16

Default: 900

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.36 Operating time of speed 6

Address: 2012-25h

Effective mode: Real time

Min.: 0.0

Unit: s (m)

Max.: 6553.5

Data Type: UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.37 6th speed rise/drop time and curve smoothing parameter time

Address: 2012-26h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.38**Reference 7**

Address:	2012-27h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	600	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.39**Operating time of speed 7**

Address:	2012-28h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.40**7th speed rise/drop time and curve smoothing parameter time**

Address:	2012-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time
 0: Zero acc and dec time
 1: Acc and dec time 1
 2: Acc and dec time 2
 3: Acc and dec time 3
 4: Acc and dec time 4
 bit8-bit15: S curve smoothing parameter
 1: Smoothing parameter 1
 2: Smoothing parameter 2
 3: Smoothing parameter 3
 4: Smoothing parameter 4
 5: Smoothing parameter 5
 6: Smoothing parameter 6
 7: Smoothing parameter 7
 8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.41 Reference 8

Address:	2012-2Ah	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	300	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.42 Operating time of speed 8

Address:	2012-2Bh	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.43 8th speed rise/drop time and curve smoothing parameter time

Address:	2012-2Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.44 Reference 9

Address:	2012-2Dh	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	100	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.45 Operating time of speed 9

Address:	2012-2Eh	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16

Default: 5.0 Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.46 9th speed rise/drop time and curve smoothing parameter time

Address: 2012-2Fh Effective Real time

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.47 Reference 10

Address: 2012-30h Effective Real time

mode:

Min.: -10000

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: Int16

Default: -100

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.48 Operating time of speed 10

Address:	2012-31h	Effective	Real time
		mode:	
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.49 10th speed rise/drop time and curve smoothing parameter time

Address:	2012-32h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.50 Reference 11

Address:	2012-33h	Effective	Real time
		mode:	
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16

Default: -300

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.51 Operating time of speed 11

Address: 2012-34h

Effective mode: Real time

Min.: 0.0

Unit: s (m)

Max.: 6553.5

Data Type: UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.52 11th speed rise/drop time and curve smoothing parameter time

Address: 2012-35h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.53**Reference 12**

Address:	2012-36h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	-500	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.54**Operating time of speed 12**

Address:	2012-37h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.55**12th speed rise/drop time and curve smoothing parameter time**

Address:	2012-38h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time
 0: Zero acc and dec time
 1: Acc and dec time 1
 2: Acc and dec time 2
 3: Acc and dec time 3
 4: Acc and dec time 4
 bit8-bit15: S curve smoothing parameter
 1: Smoothing parameter 1
 2: Smoothing parameter 2
 3: Smoothing parameter 3
 4: Smoothing parameter 4
 5: Smoothing parameter 5
 6: Smoothing parameter 6
 7: Smoothing parameter 7
 8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.56**Reference 13**

Address:	2012-39h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	-700	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.57**Operating time of speed 13**

Address:	2012-3Ah	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.58 13th speed rise/drop time and curve smoothing parameter time

Address:	2012-3Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.59 Reference 14

Address:	2012-3Ch	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	-900	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.60 Operating time of speed 14

Address:	2012-3Dh	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.61 14th speed rise/drop time and curve smoothing parameter time

Address: 2012-3Eh

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.62 Reference 15

Address: 2012-3Fh

Effective Real time

mode:

Min.: -10000

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: Int16

Default: -600

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.63 Operating time of speed 15

Address:	2012-40h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.64 15th speed rise/drop time and curve smoothing parameter time

Address:	2012-41h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.65 Reference 16

Address:	2012-42h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16

Default: -300

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.66 Operating time of speed 16

Address: 2012-43h

Effective mode: Real time

Min.: 0.0

Unit: s (m)

Max.: 6553.5

Data Type: UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.67 16th speed rise/drop time and curve smoothing parameter time

Address: 2012-44h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

2.19 H13 Application Safety Parameters

H13.00 Auto-tuned scheme 2 runaway distance threshold

Address:	2013-01h	Effective	-
		mode:	
Min.:	0.00	Unit:	[mm]/[Rev]
Max.:	655.35	Data Type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00[mm]/[Rev]–655.35[mm]/[Rev]

Description

-

H13.01 Scheme 2 runaway distance threshold

Address:	2013-02h	Effective	Real time
		mode:	
Min.:	0.00	Unit:	[mm]/[Rev]
Max.:	15.00	Data Type:	UInt16
Default:	0.50	Change:	At stop

Value Range:

0.00[mm]/[Rev]–15.00[mm]/[Rev]

Description

-

H13.02 Scheme 2 runaway current threshold

Address:	2013-03h	Effective	Real time
		mode:	
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 400.0%

Description

-

H13.03 Runaway speed threshold in scheme 2 speed or position mode

Address:	2013-04h	Effective	Real time
		mode:	
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	6000	Data Type:	UInt16
Default:	50	Change:	At stop

Value Range:

1[mm/s]/[rpm]–6000[mm/s]/[rpm]

Description

-

H13.04 Runaway speed threshold in scheme 2 torque mode

Address:	2013-05h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	6000	Data Type:	UInt16
Default:	500	Change:	At stop

Value Range:

1[mm/s]/[rpm]–6000[mm/s]/[rpm]

Description

-

H13.05 Scheme 2 runaway inspection window time

Address:	2013-06h	Effective mode:	Real time
Min.:	10	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	30	Change:	At stop

Value Range:

10 ms–100 ms

Description

-

2.20 H14 Gantry Synchronization**H14.00 Gantry communication state**

Address:	2014-01h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–1

Description

Used to judge whether both axes have established communication after the gantry function is enabled.

H14.01	Gantry alignment state		
	Address:	2014-02h	Effective -
			mode:
	Min.:	0	Unit: -
	Max.:	1	Data Type: UInt16
	Default:	0	Change: Unchangeable
	Value Range:		
	0–1		
	Description		
	After the gantry alignment is completed, the gantry alignment state will be set to 1 to determine whether the gantry alignment is completed.		
H14.02	Gantry function selection		
	Address:	2014-03h	Effective Upon the next power-on
			mode:
	Min.:	0	Unit: -
	Max.:	1	Data Type: UInt16
	Default:	0	Change: At stop
	Value Range:		
	0: None		
	1: Gantry synchronization		
	Description		
H14.03	Gantry axis attribute (master-slave)		
	Address:	2014-04h	Effective Upon the next power-on
			mode:
	Min.:	0	Unit: -
	Max.:	1	Data Type: UInt16
	Default:	0	Change: At stop
	Value Range:		
	0: Slave axis		
	1: Master axis		
	Description		
	Selects the gantry axis attribute.		
	0: Slave axis		
	1: Master axis		

H14.04 Gantry mechanical attribute

Address:	2014-05h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Rigid gantry scheme 1-Two-axis position control

1: Flexible gantry scheme 1-Two-axis position control

2: Rigid gantry scheme 2-Master axis position control and slave axis torque control

Description

The gantry mechanical attribute is related to the mechanical structure type of the gantry, which can be divided into rigid crossbeam frame connection and flexible crossbeam frame connection.

0: Rigid crossbeam frame, "axis sticking" may occur if both axes deviate too much

1: Flexible crossbeam frame, sync deviation is allowed between both axes

2: Rigid crossbeam frame, suitable for applications do not require high accuracy

H14.05 Current axis position sync direction

Address:	2014-06h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Forward

1: Reverse

Description

The synchronous direction of the two axes is related to the installation direction of the motor and the rotation direction of H02.02.

0: Forward

1: Reverse

H14.07 Gantry sync enable

Address:	2014-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled
1: Enabled
2: DI-enabled

Description

Selects the gantry synchronization enable mode to adjust the gain of gantry slave axis compensation. When it is enabled, H14.08–H14.11 will take effect.

0: Disabled
1: Enabled
2: DI-enabled

H14.08 Gantry sync position loop proportional gain

Address:	2014-09h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 300.0%

Description

It is only effective for the slave axis.

H14.09 Gantry sync position loop integral time constant

Address:	2014-0Ah	Effective mode:	Real time
Min.:	0.5	Unit:	ms
Max.:	1000.0	Data Type:	UInt16
Default:	1000.0	Change:	Real-time

Value Range:

0.5 ms–1000.0 ms

Description

It is only effective for the slave axis.

H14.10 Gantry sync speed loop proportional gain

Address:	2014-0Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 300.0%

Description

It is only effective for the slave axis.

H14.11 Gantry sync speed loop integral time constant

Address:	2014-0Ch	Effective mode:	Real time
Min.:	0.5	Unit:	ms
Max.:	1000.0	Data Type:	UInt16
Default:	1000.0	Change:	Real-time

Value Range:

0.5 ms–1000.0 ms

Description

It is only effective for the slave axis.

H14.12 Gantry sync speed limit

Address:	2014-0Dh	Effective mode:	Real time
Min.:	0.0	Unit:	rpm
Max.:	6000.0	Data Type:	UInt16
Default:	50.0	Change:	Real-time

Value Range:

0.0rpm to 6000.0rpm

Description

Gantry sync speed limit.

H14.13 Gantry alignment speed

Address:	2014-0Eh	Effective mode:	Real time
Min.:	0.0	Unit:	rpm
Max.:	3000.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0rpm to 3000.0rpm

Description

Gantry alignment speed

H14.14 Gantry alignment acc./dec. time

Address:	2014-0Fh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	1000	Data Type:	UInt16

Default: 100

Change: Real-time

Value Range:

0 ms–1000 ms

Description

Gantry alignment acc./dec. time

H14.18 Torque pre-alignment before gantry homing

Address: 2014-13h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0: Disabled

1: Enabled

Description

Enables/disables torque pre-alignment before gantry homing.

0: Disabled

1: Enabled

H14.20 Gantry aligned by default upon power-on

Address: 2014-15h

Effective Upon the next power-on

mode:

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 1

Change: At stop

Value Range:

0: No operation

1: Align at first power-on

Description

Sets whether gantry alignment is performed by default upon power-on.

0: No operation

1: Aligned by default upon initial power-on of two axes

H14.21 Gantry alignment mode

Address: 2014-16h

Effective Upon the next power-on

mode:

Min.: 0

Unit: -

Max.: 4

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

- 0: Gantry homing alignment
- 2: Gantry torque alignment
- 3: Gantry enable alignment
- 4: Gantry DI alignment

Description

- Gantry axis alignment mode
- 0: Gantry homing alignment
 - 2: Gantry torque alignment
 - 3: Gantry enable alignment
 - 4: Gantry DI alignment

H14.25 Flexible gantry homing - Master/slave home deviation auto-tuning

Address:	2014-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Disabled
- 1: Torque alignment auto-tuning
- 2: Position auto-tuning

Description

- Sets whether to perform master/slave home deviation auto-tuning when H14.04 is set to flexible gantry.
- 0: Disabled
 - 1: Torque alignment auto-tuning
 - 2: Position auto-tuning

H14.26 Gantry torque alignment enable

Address:	2014-1Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Disabled
- 1: Enabled
- 2: DI-enabled
- 3: Enabled at power-on

Description

Selects gantry torque alignment enable mode in gantry alignment mode.

0: Disabled

1: Enabled

2: DI-enabled

3: Enabled at power-on

H14.27 Gantry torque alignment torque

Address:	2014-1Ch	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0% to 300.0%

Description

Torque value in gantry torque alignment mode.

H14.28 Gantry torque alignment count

Address:	2014-1Dh	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

1–2

Description

The number of alignments in gantry torque alignment mode.

H14.29 Gantry torque alignment speed

Address:	2014-1Eh	Effective mode:	Real time
Min.:	0.0	Unit:	rpm
Max.:	3000.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0rpm to 3000.0rpm

Description

The speed in gantry torque alignment mode.

H14.30 Gantry torque alignment timeout alarm time

Address:	2014-1Fh	Effective mode:	Real time
Min.:	1	Unit:	s
Max.:	65535	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

1s to 65535s

Description

Gantry torque alignment timeout alarm time

H14.31 Gantry torque alignment acc./dec. time

Address:	2014-20h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0 ms–1000 ms

Description

Gantry torque alignment acc./dec. time

H14.32 Gantry torque alignment zero speed threshold

Address:	2014-21h	Effective mode:	Real time
Min.:	0.0	Unit:	rpm
Max.:	100.0	Data Type:	UInt16
Default:	2.0	Change:	Real-time

Value Range:

0.0rpm to 100.0rpm

Description

The zero speed threshold for gantry torque alignment.

H14.33 Gantry torque alignment mechanical limit evaluation position loop period count

Address:	2014-22h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	5	Change:	Real-time

Value Range:

0–65535

Description

Gantry torque alignment mechanical limit evaluation position loop period count

H14.35 2-axis position deviation (encoder unit)

Address:	2014-24h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

The position deviation (encoder unit) between the active axis and the paired axis in gantry mode. It is related to H0B.17 of the two axes.

H14.37 2-axis speed deviation

Address:	2014-26h	Effective mode:	-
Min.:	-32767	Unit:	rpm
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32767rpm to 32767rpm

Description

It is the speed difference between the active axis and paired axis in gantry mode.

H14.38 Torque reference of active axis

Address:	2014-27h	Effective mode:	-
Min.:	-3276.7	Unit:	%
Max.:	3276.7	Data Type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

-3276.7% to 3276.7%

Description

Torque reference of active axis

H14.39 Torque reference of paired axis

Address:	2014-28h	Effective	-
		mode:	
Min.:	-3276.7	Unit:	%
Max.:	3276.7	Data Type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

-3276.7% to 3276.7%

Description

Torque reference of paired axis

H14.40 Motor speed of active axis

Address:	2014-29h	Effective	-
		mode:	
Min.:	-32767	Unit:	rpm
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32767rpm to 32767rpm

Description

Motor speed of active axis

H14.41 Motor speed of paired axis

Address:	2014-2Ah	Effective	-
		mode:	
Min.:	-32767	Unit:	rpm
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32767rpm to 32767rpm

Description

Motor speed of paired axis

H14.44 Alarm time threshold of large gantry deviation

Address:	2014-2Dh	Effective	Real time
		mode:	
Min.:	0.5	Unit:	ms
Max.:	1000.0	Data Type:	UInt16
Default:	3.0	Change:	Real-time

Value Range:

0.5 ms–1000.0 ms

Description

The alarm time threshold of large gantry deviation.

H14.45 Gantry position alarm threshold

Address:	2014-2Eh	Effective mode:	Real time
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	50000	Change:	At stop

Value Range:

0 to 4294967295

Description

Gantry position alarm threshold.

H14.47 Large gantry position deviation alarm enable

Address:	2014-30h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Large gantry position deviation alarm enable

0: Disabled

1: Enabled

H14.48 Alarm time threshold of large gantry torque deviation

Address:	2014-31h	Effective mode:	Real time
Min.:	0.5	Unit:	ms
Max.:	1000.0	Data Type:	UInt16
Default:	3.0	Change:	Real-time

Value Range:

0.5 ms–1000.0 ms

Description

The alarm time threshold of large gantry torque deviation.

H14.49 Gantry torque deviation alarm threshold

Address:	2014-32h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	800.0	Data Type:	UInt16
Default:	300.0	Change:	At stop

Value Range:

0.0% to 800.0%

Description

The alarm threshold for large gantry torque deviation.

H14.50 Large gantry torque deviation alarm enable

Address:	2014-33h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Enables/disables large gantry torque deviation alarm.

0: Disabled

1: Enabled

H14.52 Gantry mismatch

Address:	2014-35h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1451	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–1451

Description

If the parameters of the two axes of the gantry do not match, they will be displayed.

H14.71 Flexible gantry homing - Enable aligning slave axis homing position to home offset

Address:	2014-48h	Effective mode:	Real time
Min.:	0	Unit:	-

Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No operation

1: Enabled

Description

Flexible gantry homing - Enable aligning slave axis homing position to home offset

0: No operation

1: Enabled

H14.74 Gantry scheme 2 slave axis enable

Address:	2014-4Bh	Effective mode:	Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0: No operation

1: Enabled

Description

0: Slave axis not respond to position references in gantry scheme 2

1: Slave axis respond to position references in gantry scheme 2

2.21 H17 Virtual DI/DO

H17.90 Communication VDI enable

Address:	2017-5Bh	Effective mode:	Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0: Disabled

1: Enabled

Description

To use the VDI function:

1. Set H17.90 to enable VDI.
2. Set the default level after power-on through H17.91.
3. Set the DI function of the VDI terminal through parameters in group H17.
4. Set VDI output through H31.00.

H17.91 VDI default value after power-on

Address:	2017-5Ch	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: VDI1
 bit1: VDI2
 bit2: VDI3
 bit3: VDI4
 bit4: VDI5
 bit5: VDI6
 bit6: VDI7
 bit7: VDI8
 bit8: VDI9
 bit9: VDI10
 bit10: VDI11
 bit11: VDI12
 bit12: VDI13
 bit13: VDI14
 bit14: VDI15
 bit15: VDI16

Description

Configures the initial value of VDI upon power-on.

Bit 0 corresponds to VDI1.

Bit 1 corresponds to VDI2.

...

Bit 15 corresponds to VDI16.

H17.00 VDI1 function

Address:	2017-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 3: Gain switchover switch
- 4: Switchover of main and auxiliary commands
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 10: Mode switchover M1-SEL
- 11: Mode switchover M2-SEL
- 12: Zero clamp enable signal
- 13: Position command inhibited
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 20: Step enable
- 21: Handwheel override signal 1

- 22: Handwheel override signal 2
- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Set the function of VDI1.

H17.01 VDI1 logic level selection

Address:	2017-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI1 active level

H17.02**VDI2 function**

Address: 2017-03h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

23: Handwheel enable signal

- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.03 VDI2 logic level selection

Address:	2017-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.04**VDI3 function**

Address:	2017-05h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.05 VDI3 logic level selection

Address:	2017-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.06**VDI4 function**

Address: 2017-07h

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.07

VDI4 logic level selection

Address:	2017-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.08**VDI5 function**

Address: 2017-09h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.09 VDI5 logic level selection

Address:	2017-0Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.10**VDI6 function**

Address:	2017-0Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

23: Handwheel enable signal

24: Electronic gear

2

- 5: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.11 VDI6 logic level selection

Address:	2017-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.12

VDI7 function

Address:	2017-0Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.13 VDI7 logic level selection

Address:	2017-0Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.14**VDI8 function**

Address:	2017-0Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.15 VDI8 logic level selection

Address:	2017-10h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.16**VDI9 function**

Address: 2017-11h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.17 VDI9 logic level selection

Address:	2017-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.18**VDI10 function**

Address: 2017-13h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

23: Handwheel enable signal

24: Electronic gear

25: Torque reference direction

- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.19

VDI10 logic level selection

Address:	2017-14h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.20**VDI11 function**

Address: 2017-15h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.21 VDI11 logic level selection

Address:	2017-16h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.22**VDI12 function**

Address: 2017-17h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.23 VDI12 logic level selection

Address:	2017-18h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.24**VDI13 function**

Address: 2017-19h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.25 VDI13 logic level selection

Address:	2017-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.26**VDI14 function**

Address: 2017-1Bh

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.27 VDI14 logic level selection

Address:	2017-1Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.28**VDI15 function**

Address:	2017-1Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.29 VDI15 logic level selection

Address:	2017-1Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.30**VDI16 function**

Address: 2017-1Fh

Effective mode: Real time

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No assignment

1: Servo ON

2: Alarm reset signal

3: Gain switchover switch

4: Switchover of main and auxiliary commands

5: Multi-reference direction

6: Multi-reference switchover CMD1

7: Multi-reference switchover CMD2

8: Multi-reference switchover CMD3

9: Multi-reference switchover CMD4

10: Mode switchover M1-SEL

11: Mode switchover M2-SEL

12: Zero clamp enable signal

13: Position command inhibited

14: Positive limit switch

15: Negative limit switch

16: Positive external torque limit

17: Negative external torque limit

18: Forward jog

19: Reverse jog

20: Step enable

21: Handwheel override signal 1

22: Handwheel override signal 2

- 23: Handwheel enable signal
- 24: Electronic gear
- 25: Torque reference direction
- 26: Speed reference direction
- 27: Position reference direction
- 28: Multi-position reference enable
- 29: Interrupt positioning state exit signal
- 31: Home switch
- 32: Homing enable
- 33: Interrupt positioning inhibited
- 34: Emergency stop
- 35: Clear position deviation
- 36: Internal speed limit source
- 37: Pulse reference inhibited
- 40: Multi-speed enable
- 41: Current position as home
- 42: Axis control command executed immediately
- 43: Axis control command not executed immediately
- 44: Positioning and command completed signal clear
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

See H17.00.

H17.31 VDI16 logic level selection

Address:	2017-20h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Active when the written value is 1
1: Active when the written value changes from 0 to 1

Description

See H17.01.

H17.92 Communication VDO enable

Address:	2017-5Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: Disabled
1: Enabled

Description

- To use the VDO function:
1. Set H17.92 to enable VDO.
 2. Set the default level after power-on through H17.93.
 3. Set the DO function of the VDO terminal through parameters in group H17.
 4. Read the output level of the VDO in H17.32.

H17.93 VDO default value after power-on

Address:	2017-5Eh	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	At stop

Value Range:

bit0: VDO1
 bit1: VDO2
 bit2: VDO3
 bit3: VDO4
 bit4: VDO5
 bit5: VDO6
 bit6: VDO7
 bit7: VDO8
 bit8: VDO9
 bit9: VDO10
 bit10: VDO11
 bit11: VDO12
 bit12: VDO13
 bit13: VDO14
 bit14: VDO15
 bit15: VDO16

Description

Configures the initial value of VDO upon power-on.

Bit 0 corresponds to VDO1.

Bit 1 corresponds to VDO2.

...

Bit 15 corresponds to VDO16.

H17.32

VDO virtual level

Address:	2017-21h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the VDO virtual level.

H17.33

VDO1 function

Address:	2017-22h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: No function
- 1: Servo ready
- 2: Motor rotation signal
- 3: Zero speed signal
- 4: Speed matching signal
- 5: Positioning completed
- 6: Positioning near
- 7: Torque limited signal
- 8: Speed limited signal
- 9: Braking
- 10: Warning
- 11: Fault
- 15: Interrupt positioning completed
- 16: Homing completed
- 17: Electrical homing completed
- 18: Torque reached signal
- 19: Speed reached signal
- 21: Enable completed
- 22: Internal command completed
- 23: Writing next command allowed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 30: Warning or fault output
- 32: EDM output
- 33: Gantry alignment

Description

Set the function of VDO1.

H17.34 VDO1 logic level selection

Address:	2017-23h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

Set VDO1 active level.

H17.35**VDO2 function**

Address: 2017-24h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No function

1: Servo ready

2: Motor rotation signal

3: Zero speed signal

4: Speed matching signal

5: Positioning completed

6: Positioning near

7: Torque limited signal

8: Speed limited signal

9: Braking

10: Warning

11: Fault

15: Interrupt positioning completed

16: Homing completed

17: Electrical homing completed

18: Torque reached signal

19: Speed reached signal

21: Enable completed

22: Internal command completed

23: Writing next command allowed

24: Internal motion completed

26: Closed-loop state

27: Left limit

28: Right limit

30: Warning or fault output

32: EDM output

33: Gantry alignment

Description

See H17.33.

H17.36**VDO2 logic level selection**

Address: 2017-25h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default:	0	Change:	Real-time

Value Range:
0: Output 1 upon active logic
1: Output 0 upon active logic

Description
See H17.34.

H17.37

VD03 function

Address:	2017-26h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:
0: No function
1: Servo ready
2: Motor rotation signal
3: Zero speed signal
4: Speed matching signal
5: Positioning completed
6: Positioning near
7: Torque limited signal
8: Speed limited signal
9: Braking
10: Warning
11: Fault
15: Interrupt positioning completed
16: Homing completed
17: Electrical homing completed
18: Torque reached signal
19: Speed reached signal
21: Enable completed
22: Internal command completed
23: Writing next command allowed
24: Internal motion completed
26: Closed-loop state
27: Left limit
28: Right limit
30: Warning or fault output
32: EDM output
33: Gantry alignment

Description

See H17.33.

H17.38 VDO3 logic level selection

Address: 2017-27h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Output 1 upon active logic

1: Output 0 upon active logic

Description

See H17.34.

H17.39 VDO4 function

Address: 2017-28h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No function
- 1: Servo ready
- 2: Motor rotation signal
- 3: Zero speed signal
- 4: Speed matching signal
- 5: Positioning completed
- 6: Positioning near
- 7: Torque limited signal
- 8: Speed limited signal
- 9: Braking
- 10: Warning
- 11: Fault
- 15: Interrupt positioning completed
- 16: Homing completed
- 17: Electrical homing completed
- 18: Torque reached signal
- 19: Speed reached signal
- 21: Enable completed
- 22: Internal command completed
- 23: Writing next command allowed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 30: Warning or fault output
- 32: EDM output
- 33: Gantry alignment

Description

See H17.33.

H17.40 VDO4 logic level selection

Address:	2017-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.41**VD05 function**

Address: 2017-2Ah

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No function

1: Servo ready

2: Motor rotation signal

3: Zero speed signal

4: Speed matching signal

5: Positioning completed

6: Positioning near

7: Torque limited signal

8: Speed limited signal

9: Braking

10: Warning

11: Fault

15: Interrupt positioning completed

16: Homing completed

17: Electrical homing completed

18: Torque reached signal

19: Speed reached signal

21: Enable completed

22: Internal command completed

23: Writing next command allowed

24: Internal motion completed

26: Closed-loop state

27: Left limit

28: Right limit

30: Warning or fault output

32: EDM output

33: Gantry alignment

Description

See H17.33.

H17.42**VD05 logic level selection**

Address: 2017-2Bh

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default:	0	Change:	Real-time

Value Range:
0: Output 1 upon active logic
1: Output 0 upon active logic

Description
See H17.34.

H17.43

VDO6 function

Address:	2017-2Ch	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:
0: No function
1: Servo ready
2: Motor rotation signal
3: Zero speed signal
4: Speed matching signal
5: Positioning completed
6: Positioning near
7: Torque limited signal
8: Speed limited signal
9: Braking
10: Warning
11: Fault
15: Interrupt positioning completed
16: Homing completed
17: Electrical homing completed
18: Torque reached signal
19: Speed reached signal
21: Enable completed
22: Internal command completed
23: Writing next command allowed
24: Internal motion completed
26: Closed-loop state
27: Left limit
28: Right limit
30: Warning or fault output
32: EDM output
33: Gantry alignment

Description

See H17.33.

H17.44 VDO6 logic level selection

Address: 2017-2Dh

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Output 1 upon active logic

1: Output 0 upon active logic

Description

See H17.34.

H17.45 VDO7 function

Address: 2017-2Eh

Effective mode: Real time

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No function
- 1: Servo ready
- 2: Motor rotation signal
- 3: Zero speed signal
- 4: Speed matching signal
- 5: Positioning completed
- 6: Positioning near
- 7: Torque limited signal
- 8: Speed limited signal
- 9: Braking
- 10: Warning
- 11: Fault
- 15: Interrupt positioning completed
- 16: Homing completed
- 17: Electrical homing completed
- 18: Torque reached signal
- 19: Speed reached signal
- 21: Enable completed
- 22: Internal command completed
- 23: Writing next command allowed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 30: Warning or fault output
- 32: EDM output
- 33: Gantry alignment

Description

See H17.33.

H17.46 VDO7 logic level selection

Address:	2017-2Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.47**VDO8 function**

Address: 2017-30h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No function

1: Servo ready

2: Motor rotation signal

3: Zero speed signal

4: Speed matching signal

5: Positioning completed

6: Positioning near

7: Torque limited signal

8: Speed limited signal

9: Braking

10: Warning

11: Fault

15: Interrupt positioning completed

16: Homing completed

17: Electrical homing completed

18: Torque reached signal

19: Speed reached signal

21: Enable completed

22: Internal command completed

23: Writing next command allowed

24: Internal motion completed

26: Closed-loop state

27: Left limit

28: Right limit

30: Warning or fault output

32: EDM output

33: Gantry alignment

Description

See H17.33.

H17.48**VDO8 logic level selection**

Address: 2017-31h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default:	0	Change:	Real-time

Value Range:
0: Output 1 upon active logic
1: Output 0 upon active logic

Description
See H17.34.

H17.49

VDO9 function	

Address:	2017-32h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:
0: No function
1: Servo ready
2: Motor rotation signal
3: Zero speed signal
4: Speed matching signal
5: Positioning completed
6: Positioning near
7: Torque limited signal
8: Speed limited signal
9: Braking
10: Warning
11: Fault
15: Interrupt positioning completed
16: Homing completed
17: Electrical homing completed
18: Torque reached signal
19: Speed reached signal
21: Enable completed
22: Internal command completed
23: Writing next command allowed
24: Internal motion completed
26: Closed-loop state
27: Left limit
28: Right limit
30: Warning or fault output
32: EDM output
33: Gantry alignment

Description

See H17.33.

H17.50 VDO9 logic level selection

Address: 2017-33h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Output 1 upon active logic

1: Output 0 upon active logic

Description

See H17.34.

H17.51 VDO10 function

Address: 2017-34h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No function
- 1: Servo ready
- 2: Motor rotation signal
- 3: Zero speed signal
- 4: Speed matching signal
- 5: Positioning completed
- 6: Positioning near
- 7: Torque limited signal
- 8: Speed limited signal
- 9: Braking
- 10: Warning
- 11: Fault
- 15: Interrupt positioning completed
- 16: Homing completed
- 17: Electrical homing completed
- 18: Torque reached signal
- 19: Speed reached signal
- 21: Enable completed
- 22: Internal command completed
- 23: Writing next command allowed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 30: Warning or fault output
- 32: EDM output
- 33: Gantry alignment

Description

See H17.33.

H17.52 VDO10 logic level selection

Address:	2017-35h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.53**VDO11 function**

Address: 2017-36h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No function

1: Servo ready

2: Motor rotation signal

3: Zero speed signal

4: Speed matching signal

5: Positioning completed

6: Positioning near

7: Torque limited signal

8: Speed limited signal

9: Braking

10: Warning

11: Fault

15: Interrupt positioning completed

16: Homing completed

17: Electrical homing completed

18: Torque reached signal

19: Speed reached signal

21: Enable completed

22: Internal command completed

23: Writing next command allowed

24: Internal motion completed

26: Closed-loop state

27: Left limit

28: Right limit

30: Warning or fault output

32: EDM output

33: Gantry alignment

Description

See H17.33.

H17.54**VDO11 logic level selection**

Address: 2017-37h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default:	0	Change:	Real-time

Value Range:
0: Output 1 upon active logic
1: Output 0 upon active logic

Description
See H17.34.

H17.55

VDO12 function

Address:	2017-38h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:
0: No function
1: Servo ready
2: Motor rotation signal
3: Zero speed signal
4: Speed matching signal
5: Positioning completed
6: Positioning near
7: Torque limited signal
8: Speed limited signal
9: Braking
10: Warning
11: Fault
15: Interrupt positioning completed
16: Homing completed
17: Electrical homing completed
18: Torque reached signal
19: Speed reached signal
21: Enable completed
22: Internal command completed
23: Writing next command allowed
24: Internal motion completed
26: Closed-loop state
27: Left limit
28: Right limit
30: Warning or fault output
32: EDM output
33: Gantry alignment

Description

See H17.33.

H17.56 VDO12 logic level selection

Address: 2017-39h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Output 1 upon active logic

1: Output 0 upon active logic

Description

See H17.34.

H17.57 VDO13 function

Address: 2017-3Ah

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No function
- 1: Servo ready
- 2: Motor rotation signal
- 3: Zero speed signal
- 4: Speed matching signal
- 5: Positioning completed
- 6: Positioning near
- 7: Torque limited signal
- 8: Speed limited signal
- 9: Braking
- 10: Warning
- 11: Fault
- 15: Interrupt positioning completed
- 16: Homing completed
- 17: Electrical homing completed
- 18: Torque reached signal
- 19: Speed reached signal
- 21: Enable completed
- 22: Internal command completed
- 23: Writing next command allowed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 30: Warning or fault output
- 32: EDM output
- 33: Gantry alignment

Description

See H17.33.

H17.58 VDO13 logic level selection

Address:	2017-3Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.59**VDO14 function**

Address: 2017-3Ch

Effective mode: Real time

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: No function

1: Servo ready

2: Motor rotation signal

3: Zero speed signal

4: Speed matching signal

5: Positioning completed

6: Positioning near

7: Torque limited signal

8: Speed limited signal

9: Braking

10: Warning

11: Fault

15: Interrupt positioning completed

16: Homing completed

17: Electrical homing completed

18: Torque reached signal

19: Speed reached signal

21: Enable completed

22: Internal command completed

23: Writing next command allowed

24: Internal motion completed

26: Closed-loop state

27: Left limit

28: Right limit

30: Warning or fault output

32: EDM output

33: Gantry alignment

Description

See H17.33.

H17.60**VDO14 logic level selection**

Address: 2017-3Dh

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default:	0	Change:	Real-time

Value Range:
0: Output 1 upon active logic
1: Output 0 upon active logic

Description
See H17.34.

H17.61

VDO15 function

Address:	2017-3Eh	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:
0: No function
1: Servo ready
2: Motor rotation signal
3: Zero speed signal
4: Speed matching signal
5: Positioning completed
6: Positioning near
7: Torque limited signal
8: Speed limited signal
9: Braking
10: Warning
11: Fault
15: Interrupt positioning completed
16: Homing completed
17: Electrical homing completed
18: Torque reached signal
19: Speed reached signal
21: Enable completed
22: Internal command completed
23: Writing next command allowed
24: Internal motion completed
26: Closed-loop state
27: Left limit
28: Right limit
30: Warning or fault output
32: EDM output
33: Gantry alignment

Description

See H17.33.

H17.62 VDO15 logic level selection

Address: 2017-3Fh

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Output 1 upon active logic

1: Output 0 upon active logic

Description

See H17.34.

H17.63 VDO16 function

Address: 2017-40h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No function
- 1: Servo ready
- 2: Motor rotation signal
- 3: Zero speed signal
- 4: Speed matching signal
- 5: Positioning completed
- 6: Positioning near
- 7: Torque limited signal
- 8: Speed limited signal
- 9: Braking
- 10: Warning
- 11: Fault
- 15: Interrupt positioning completed
- 16: Homing completed
- 17: Electrical homing completed
- 18: Torque reached signal
- 19: Speed reached signal
- 21: Enable completed
- 22: Internal command completed
- 23: Writing next command allowed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 30: Warning or fault output
- 32: EDM output
- 33: Gantry alignment

Description

See H17.33.

H17.64 VDO16 logic level selection

Address:	2017-41h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

2.22 H18 Position Comparison Output

H18.00 Position comparison output selection

Address:	2018-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disable

1: Enable (rising edge-triggered)

Description

0: Disable

1: Enable (rising edge-triggered)

H18.01 Position comparison output feedback source

Address:	2018-02h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Motor encoder feedback

1: Fully closed-loop position feedback

Description

Select position comparison output feedback source.

0: Motor encoder feedback

1: Fully closed-loop position feedback

H18.02 Position comparison resolution

Address:	2018-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: 24-bit
1: 23-bit
2: 22-bit
3: 21-bit
4: 20-bit
5: 19-bit
6: 18-bit
7: 17-bit

Description

Set position comparison resolution

0: 24-bit
1: 23-bit
2: 22-bit
3: 21-bit
4: 20-bit
5: 19-bit
6: 18-bit
7: 17-bit

H18.03 Position comparison mode

Address: 2018-04h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 2

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Individual comparison mode

1: Cyclic comparison mode

2: Fixed cyclic comparison mode

Description

Set position comparison mode

0: Individual comparison mode

1: Cyclic comparison mode

2: Fixed cyclic comparison mode

H18.04 Current position as zero

Address: 2018-05h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Disable

1: Enable (rising edge-triggered)

Description

Current position as zero

H18.05 Position comparison output width

Address:	2018-06h	Effective mode:	Real time
Min.:	0.1	Unit:	ms
Max.:	204.7	Data Type:	UInt16
Default:	0.1	Change:	Real-time

Value Range:

0.1 ms–204.7 ms

Description

Defines the active pulse width of the DO when the comparison point is reached. The value range is 0 to 204.7 (unit: 1 ms).

H18.06 Position comparison output ABZ port polarity

Address:	2018-07h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit 0: OCZ output logic

0: Positive, output high level upon active logic

1: Negative, output low level upon active logic

Bit 1: Z port output logic

0: Positive, output high level upon active logic

1: Negative, output low level upon active logic

bit2: A/B output logic

0: Positive, output high level upon active logic

1: Negative, output low level upon active logic

Description

0: Positive (output high level upon active logic) 1: Negative (output high level upon active logic)

bit0: OCZ output logic

Bit1: Z output logic

Bit2: A/B output logic

H18.07 Position comparison start point

Address:	2018-08h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	40	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1–40

Description

Set position comparison start point.

H18.08 Position comparison end point

Address:	2018-09h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	40	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1–40

Description

Set position comparison end point.

H18.09 Current state of position comparison

Address:	2018-0Ah	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1024	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–1024

Description

Display current state of position comparison.

H18.10 Real-time position of position comparison

Address:	2018-0Bh	Effective mode:	-
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648–2147483647

Description

Display the real-time position of position comparison.

H18.12 Zero offset of position comparison

Address:	2018-0Dh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

Set the zero offset of position comparison.

H18.14 Position comparison output delay compensation

Address:	2018-0Fh	Effective mode:	Upon the next power-on
Min.:	-12.00	Unit:	μs
Max.:	12.00	Data Type:	Int16
Default:	0.00	Change:	Real-time

Value Range:

-12.00μs to 12.00μs

Description

Compensates the delay caused by hardware signal output.

H18.15 Fixed cyclic comparison

Address:	2018-10h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1–65535

Description

Set fixed cyclic comparison.

H18.16 ABZ output function setting

Address:	2018-11h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Default: 0

Change: Real-time

Value Range:

bit0: OCZ output function

0: Frequency-division output

1: Position comparison

bit1: Z port output function

0: Frequency-division output

1: Position comparison

bit2: A/B port output function

0: Frequency-division output

1: Position comparison

Description

Set ABZ output function.

bit0: OCZ (0: Frequency-division output; 1: Position comparison)

bit1: Z (0: Frequency-division output; 1: Position comparison)

bit2: A/B (0: Frequency-division output; 1: Position comparison)

H18.17 Number of fixed mode cycles

Address: 2018-12h

Effective -

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: Unchangeable

Value Range:

0–65535

Description

Set the number of fixed mode cycles.

2.23 H19 Target Position Parameters

H19.00 Target value of position comparison 1

Address: 2019-01h

Effective Real time

mode:

Min.: -2147483648

Unit: -

Max.: 2147483647

Data Type: Int32

Default: 0

Change: Real-time

Value Range:

-2147483648–2147483647

Description

Set the target value of position comparison 1.

H19.02 Attribute value of position comparison 1

Address:	2019-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: Reserved

bit3: Reserved

bit4: Reserved

bit5: Reserved

bit6: Reserved

bit7: DO1 output

bit8: DO2 output

bit9: DO3 output

bit10: DO4 output

bit11: DO5 output

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

Attribute setting of position comparison point 1

Bit0: 1: Current position changes from "less than" to "more than" the comparison point; 0: N/A

Bit0: 1: Current position changes from "more than" to "less than" the comparison point; 0: N/A

Bit2 to bit6: NA

Bit7: 1: DO1 output enabled; 0: N/A

Bit8: 1: DO2 output enabled; 0: N/A

Bit9: 1: DO3 output enabled; 0: N/A

Bit10: 1: DO4 output enabled; 0: N/A

Bit11: 1: DO5 output enabled; 0: N/A

Bit12: 1: Frequency-division A output enabled; 0: N/A

Bit13: 1: Frequency-division B output enabled; 0: N/A

Bit14: 1: Frequency-division C output enabled; 0: N/A

Bit15: 1: Frequency-division OCZ output enabled; 0: N/A

H19.03 Target value of position comparison 2

Address:	2019-04h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.05 Attribute value of position comparison 2

Address:	2019-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: Reserved

bit3: Reserved

bit4: Reserved

bit5: Reserved

bit6: Reserved

bit7: DO1 output

bit8: DO2 output

bit9: DO3 output

bit10: DO4 output

bit11: DO5 output

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.06 Target value of position comparison 3

Address:	2019-07h	Effective mode:	Real time

Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.08 Attribute value of position comparison 3

Address:	2019-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: Reserved

bit3: Reserved

bit4: Reserved

bit5: Reserved

bit6: Reserved

bit7: DO1 output

bit8: DO2 output

bit9: DO3 output

bit10: DO4 output

bit11: DO5 output

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.09 Target value of position comparison 4

Address:	2019-0Ah	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.11 Attribute value of position comparison 4

Address:	2019-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: Reserved

bit3: Reserved

bit4: Reserved

bit5: Reserved

bit6: Reserved

bit7: DO1 output

bit8: DO2 output

bit9: DO3 output

bit10: DO4 output

bit11: DO5 output

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.12 Target value of position comparison 5

Address:	2019-0Dh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.14 Attribute value of position comparison 5

Address:	2019-0Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: Reserved

bit3: Reserved

bit4: Reserved

bit5: Reserved

bit6: Reserved

bit7: DO1 output

bit8: DO2 output

bit9: DO3 output

bit10: DO4 output

bit11: DO5 output

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.15 Target value of position comparison 6

Address:	2019-10h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.17 Attribute value of position comparison 6

Address:	2019-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: Reserved

bit3: Reserved

bit4: Reserved

bit5: Reserved

bit6: Reserved

bit7: DO1 output

bit8: DO2 output

bit9: DO3 output

bit10: DO4 output

bit11: DO5 output

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.18 Target value of position comparison 7

Address:	2019-13h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648~2147483647

Description

See H19.00.

H19.20 Attribute value of position comparison 7

Address:	2019-15h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: Reserved

bit3: Reserved

bit4: Reserved

bit5: Reserved

bit6: Reserved

bit7: DO1 output

bit8: DO2 output

bit9: DO3 output

bit10: DO4 output

bit11: DO5 output

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.21 Target value of position comparison 8

Address:	2019-16h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.23 Attribute value of position comparison 8

Address:	2019-18h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.24 Target value of position comparison 9

Address:	2019-19h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.26 Attribute value of position comparison 9

Address:	2019-1Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.27 Target value of position comparison 10

Address:	2019-1Ch	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.29 Attribute value of position comparison 10

Address:	2019-1Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: Reserved

bit3: Reserved

bit4: Reserved

bit5: Reserved

bit6: Reserved

bit7: DO1 output

bit8: DO2 output

bit9: DO3 output

bit10: DO4 output

bit11: DO5 output

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.30 Target value of position comparison 11

Address:	2019-1Fh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.32 Attribute value of position comparison 11

Address:	2019-21h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.33 Target value of position comparison 12

Address:	2019-22h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.35 Attribute value of position comparison 12

Address:	2019-24h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.36 Target value of position comparison 13

Address:	2019-25h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.38 Attribute value of position comparison 13

Address:	2019-27h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.39 Target value of position comparison 14

Address:	2019-28h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.41 Attribute value of position comparison 14

Address:	2019-2Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.42 Target value of position comparison 15

Address:	2019-2Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.44 Attribute value of position comparison 15

Address:	2019-2Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.45 Target value of position comparison 16

Address:	2019-2Eh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.47 Attribute value of position comparison 16

Address:	2019-30h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.48 Target value of position comparison 17

Address:	2019-31h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.50 Attribute value of position comparison 17

Address:	2019-33h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.51 Target value of position comparison 18

Address:	2019-34h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.53 Attribute value of position comparison 18

Address:	2019-36h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.54 Target value of position comparison 19

Address:	2019-37h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.56 Attribute value of position comparison 19

Address:	2019-39h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.57 Target value of position comparison 20

Address:	2019-3Ah	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.59 Attribute value of position comparison 20

Address:	2019-3Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.60 Target value of position comparison 21

Address:	2019-3Dh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.62 Attribute value of position comparison 21

Address:	2019-3Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.63 Target value of position comparison 22

Address:	2019-40h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.65 Attribute value of position comparison 22

Address:	2019-42h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.66 Target value of position comparison 23

Address:	2019-43h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.68 Attribute value of position comparison 23

Address:	2019-45h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.69 Target value of position comparison 24

Address:	2019-46h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.71 Attribute value of position comparison 24

Address:	2019-48h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.72 Target value of position comparison 25

Address:	2019-49h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.74 Attribute value of position comparison 25

Address:	2019-4Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.75 Target value of position comparison 26

Address:	2019-4Ch	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.77 Attribute value of position comparison 26

Address:	2019-4Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: Reserved
bit3: Reserved
bit4: Reserved
bit5: Reserved
bit6: Reserved
bit7: DO1 output
bit8: DO2 output
bit9: DO3 output
bit10: DO4 output
bit11: DO5 output
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.78 Target value of position comparison 27

Address:	2019-4Fh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.80 Attribute value of position comparison 27

Address:	2019-51h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.81 Target value of position comparison 28

Address:	2019-52h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.83 Attribute value of position comparison 28

Address:	2019-54h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.84 Target value of position comparison 29

Address:	2019-55h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.86 Attribute value of position comparison 29

Address:	2019-57h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.87 Target value of position comparison 30

Address:	2019-58h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.89 Attribute value of position comparison 30

Address:	2019-5Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.90 Target value of position comparison 31

Address:	2019-5Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.92 Attribute value of position comparison 31

Address:	2019-5Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.93

Target value of position comparison 32

Address:	2019-5Eh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.95

Attribute value of position comparison 32

Address:	2019-60h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.96 Target value of position comparison 33

Address:	2019-61h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.98 Attribute value of position comparison 33

Address:	2019-63h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.99 Target value of position comparison 34

Address:	2019-64h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.101 Attribute value of position comparison 34

Address:	2019-66h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: Reserved
bit3: Reserved
bit4: Reserved
bit5: Reserved
bit6: Reserved
bit7: DO1 output
bit8: DO2 output
bit9: DO3 output
bit10: DO4 output
bit11: DO5 output
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.102 Target value of position comparison 35

Address:	2019-67h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.104 Attribute value of position comparison 35

Address:	2019-69h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.105 Target value of position comparison 36

Address:	2019-6Ah	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.107 Attribute value of position comparison 36

Address:	2019-6Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.108 Target value of position comparison 37

Address:	2019-6Dh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.110 Attribute value of position comparison 37

Address:	2019-6Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: Reserved
 bit3: Reserved
 bit4: Reserved
 bit5: Reserved
 bit6: Reserved
 bit7: DO1 output
 bit8: DO2 output
 bit9: DO3 output
 bit10: DO4 output
 bit11: DO5 output
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.111 Target value of position comparison 38

Address:	2019-70h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.113 Attribute value of position comparison 38

Address:	2019-72h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.114 Target value of position comparison 39

Address:	2019-73h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.116 Attribute value of position comparison 39

Address:	2019-75h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.117 Target value of position comparison 40

Address:	2019-76h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.119 Attribute value of position comparison 40

Address:	2019-78h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: Reserved
- bit3: Reserved
- bit4: Reserved
- bit5: Reserved
- bit6: Reserved
- bit7: DO1 output
- bit8: DO2 output
- bit9: DO3 output
- bit10: DO4 output
- bit11: DO5 output
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

2.24 H1F Software Parameters

H1F.90 DI function status 1 read through communication

Address:	201F-5Bh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

- Bit 0 corresponds to DI function 1.
- Bit 1 corresponds to DI function 2.
- Bit 2 corresponds to DI function 3.
- ...
- By analogy

H1F.91 DI function status 2 read through communication

Address:	201F-5Ch	Effective mode:	-

Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DI function 17.

Bit 1 corresponds to DI function 18.

Bit 2 corresponds to DI function 19.

...

By analogy

H1F.92 DI function status 3 read through communication

Address:	201F-5Dh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DI function 33.

Bit 1 corresponds to DI function 34.

Bit 2 corresponds to DI function 35.

...

By analogy

H1F.93 DI function status 4 read through communication

Address:	201F-5Eh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DI function 49.

Bit 1 corresponds to DI function 50.

Bit 2 corresponds to DI function 51.

...

By analogy

H1F.94 DO function status 1 read through communication

Address:	201F-5Fh	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DO function 1.

Bit 1 corresponds to DO function 2.

Bit 2 corresponds to DO function 3.

...

By analogy

H1F.95 DO function status 2 read through communication

Address:	201F-60h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DO function 17.

Bit 1 corresponds to DO function 18.

Bit 2 corresponds to DO function 19.

...

By analogy

2.25 H21 Current Loop Gain Switchover Parameters

H21.00 Current loop gain switchover

Address:	2021-01h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No operation

1: Enabled

Description

Used to enable or disable the current loop gain switchover function.

0: No operation, turned off

1: Enabled, turned on

2.26 H22 Technology Segment Parameters

H22.00 Process segment command trigger

Address:	2022-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–1000

Description

Used to trigger the process segment. The process segment can be triggered through the keypad or communication.

The homing function is triggered when 0 is written to H22.00.

Process segments 1 to 15 are triggered when 1 to 15 are written to H22.00.

The process segment pauses when 1000 is written to H22.00.

E126.0 (Process segment number error) will be reported when 16 to 999 are written to H22.00.

H22.01 Process segment triggered by the event rising edge

Address:	2022-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

DI: ProceEvTri (OFF to ON, rising edge-triggered).

0–3bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri1 rising edge. When its value is 1–15, DI is triggered: Process segment 1–15 is executed during ProceEvTri1 rising edge.

4–7bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri2 rising edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri2 rising edge.

8–11bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri3 rising edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri3 rising edge.

12–15bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri4 rising edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri4 rising edge.

H22.02 Process segment triggered by the event falling edge

Address:	2022-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

DI: ProceEvTri (ON to OFF, falling edge-triggered).

0–3bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri1 falling edge. When its value is 1–15, DI is triggered: Process segment 1–15 is executed during ProceEvTri1 falling edge.

4–7bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri2 falling edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri2 falling edge.

8–11bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri3 falling edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri3 falling edge.

12–15bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri4 falling edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri4 falling edge.

H22.03 Acceleration/Deceleration time upon technology segment pause

Address:	2022-04h	Effective mode:	Real time
Min.:	0	Unit:	-

Max.:	7	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Acceleration/Deceleration time
 1: Acceleration/Deceleration time 1
 2: Acceleration/Deceleration time 2
 3: Acceleration/Deceleration time 3
 4: Acceleration/Deceleration time 4
 5: Acceleration/Deceleration time 5
 6: Acceleration/Deceleration time 6
 7: Acceleration/Deceleration time 7

Description

When the process segment is paused, the motor ramps to stop based on the deceleration time defined by H22.03. Setpoints 0 to 7 correspond to parameters H22.35 to H22.42.

0: Acceleration/Deceleration time
 1: Acceleration/Deceleration time 1
 2: Acceleration/Deceleration time 2
 3: Acceleration/Deceleration time 3
 4: Acceleration/Deceleration time 4
 5: Acceleration/Deceleration time 5
 6: Acceleration/Deceleration time 6
 7: Acceleration/Deceleration time 7

H22.04 Positive software position limit

Address:	2022-05h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	2147483647	Change:	Real-time

Value Range:

-2147483648 to 2147483647

Description

E956.0 can occur when the motor operates forwardly with position reference exceeding the setpoint of H22.04 during positioning in the process segment mode.

H22.06 Negative software position limit

Address:	2022-07h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32

Default: -2147483648 Change: Real-time

Value Range:

-2147483648 to 2147483647

Description

E958.0 can occur when the motor operates reversely with position reference exceeding the setpoint of H22.06 during positioning in the process segment mode.

H22.08 Process segment number

Address:	2022-09h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Indicates the process segment number in progress in the process segment mode.

H22.09 Process segment function switch

Address:	2022-0Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

bit0:

0: Keep interrupt positioning state

1: Exit interrupt positioning state when triggering technology segment

H22.10 Process segment state

Address:	2022-0Bh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Used for process segment state feedback.

The process segment number will be read back when commands in the positioning mode are not done executing.

The process segment number + 10000 will be read back when commands in the positioning mode are done executing.

The process segment number + 20000 will be read back when commands in the positioning mode are done executing and positioning has been completed.

H22.19 Target speed

Address:	2022-14h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	50.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

Eight groups of target speed are available for each process segment command.

Target speed refers to the constant operating speed when the motor is not in the acceleration/deceleration process. If the displacement is too small in the positioning mode, the actual motor speed will be lower than the setpoint of H22.19.

H22.20 Target speed 1

Address:	2022-15h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	200.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.21 Target speed 2

Address:	2022-16h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	500.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.22 Target speed 3

Address:	2022-17h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	1000.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.23 Target speed 4

Address:	2022-18h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	1500.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.24 Target speed 5

Address:	2022-19h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	2000.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.25 Target speed 6

Address:	2022-1Ah	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]

Max.:	6000.0	Data Type:	UInt16
Default:	2500.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.26 Target speed 7

Address:	2022-1Bh	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	3000.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.35 Accel/Decel time

Address:	2022-24h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Eight groups of acceleration/deceleration time are available for each process segment command.

Acceleration/Deceleration time refers to the time for the motor to change from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

H22.36 Acceleration/Deceleration time 1

Address:	2022-25h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.37 Acceleration/Deceleration time 2

Address: 2022-26h

Effective Real time

mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 500

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.38 Acceleration/Deceleration time 3

Address: 2022-27h

Effective Real time

mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 1000

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.39 Acceleration/Deceleration time 4

Address: 2022-28h

Effective Real time

mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 1500

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.40 Acceleration/Deceleration time 5

Address: 2022-29h

Effective Real time

mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 2000

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.41 Acceleration/Deceleration time 6

Address: 2022-2Ah

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 2500

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.42 Acceleration/Deceleration time 7

Address: 2022-2Bh

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 3000

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.51 Delay after completion of the process segment

Address: 2022-34h

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Eight groups of delay time are available for each process segment command.

The delay time refers to the delay that starts from the end of current command to the operation of the next command in the process segment. See section 2.2 Process Segment Function.

H22.52 Delay time 1 after completion of the process segment

Address:	2022-35h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:
0 ms–65535 ms

Description
See H22.51.

H22.53 Delay time 2 after completion of the process segment

Address:	2022-36h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:
0 ms–65535 ms

Description
See H22.51.

H22.54 Delay time 3 after completion of the process segment

Address:	2022-37h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	500	Change:	Real-time

Value Range:
0 ms–65535 ms

Description
See H22.51.

H22.55 Delay time 4 after completion of the process segment

Address:	2022-38h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	1000	Change:	Real-time

Value Range:
0 ms–65535 ms

Description

See H22.51.

H22.56 Delay time 5 after completion of the process segment

Address:	2022-39h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	1500	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See H22.51.

H22.57 Delay time 6 after completion of the process segment

Address:	2022-3Ah	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	2000	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See H22.51.

H22.58 Delay time 7 after completion of the process segment

Address:	2022-3Bh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	3000	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See H22.51.

H22.70 Process segment homing mode

Address:	2022-47h	Effective mode:	Real time
Min.:	-32768	Unit:	-
Max.:	32767	Data Type:	Int16

Default: -2 Change: Real-time

Value Range:

-32768–32767

Description

Defines the default motor direction of rotation, deceleration point, and home during homing.

When H22.70 is set to a value from -2 to 35, 402 homing is used (6098h = -2...35). See section "Homing Function" in SV680P Series Servo Drive Function Guide for details.

When H22.70 is set to a value lower than or equal to -200, local homing is used (H22.70 = -200 + H05.31). See section "Homing Function" in SV680P Series Servo Drive Function Guide for details.

H22.71 Speed of high-speed search for home switch signal

Address:	2022-48h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	3000	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–3000[mm/s]/[rpm]

Description

Defines the motor speed for searching for the deceleration point signal during homing.

H22.72 Speed of low-speed search for home switch signal

Address:	2022-49h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Defines the motor speed for searching for the home signal during homing.

H22.73 Acceleration/Deceleration time during homing

Address:	2022-4Ah	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	1000	Data Type:	UInt16

Default: 1000

Change: Real-time

Value Range:

0 ms–1000 ms

Description

Defines the time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed during homing.

H22.74 Home search time limit

Address: 2022-4Bh

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 10000

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Defines the maximum homing time.

H22.75 Mechanical home offset

Address: 2022-4Ch

Effective mode: Real time

Min.: -2147483648

Unit: Reference unit

Max.: 2147483647

Data Type: Int32

Default: 0

Change: Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the absolute position of the motor after homing.

H22.79 Relative/Absolute homing

Address: 2022-50h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0–65535

Description

Defines the offset relationship between the mechanical home and mechanical zero point, and the action upon overtravel during homing.

When H22.79 is set to 0, the value of H05.40 is 2.
When H22.79 is set to 1, the value of H05.40 is 3.

H22.83 Jump count threshold

Address:	2022-54h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65534

Description

Eight jump count thresholds are provided for each process segment command.
Jump count threshold: There are two jump process segments for the jump command. When the cumulative number of jumps executed by the jump command is lower than the jump count threshold, you will jump to process segment A, otherwise jump to process segment B. For details, see section 2.2.

H22.84 Jump count threshold 1

Address:	2022-55h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	20	Change:	Real-time

Value Range:

0–65534

Description

See H22.83.

H22.85 Jump count threshold 2

Address:	2022-56h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	40	Change:	Real-time

Value Range:

0–65534

Description

See H22.83.

H22.86 Jump count threshold 3

Address: 2022-57h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 65534

Data Type: UInt16

Default: 80

Change: Real-time

Value Range:

0–65534

Description

See H22.83.

H22.87 Jump count threshold 4

Address: 2022-58h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 65534

Data Type: UInt16

Default: 160

Change: Real-time

Value Range:

0–65534

Description

See H22.83.

H22.88 Jump count threshold 5

Address: 2022-59h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 65534

Data Type: UInt16

Default: 320

Change: Real-time

Value Range:

0–65534

Description

See H22.83.

H22.89 Jump count threshold 6

Address: 2022-5Ah

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 65534

Data Type: UInt16

Default: 640

Change: Real-time

Value Range:

0–65534

Description

See H22.83.

H22.90 Jump count threshold 7

Address:	2022-5Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	1280	Change:	Real-time

Value Range:

0–65534

Description

See H22.83.

2.27 H23 Technology Segment

H23.00 Definition of homing

Address:	2023-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

For details about this parameter, see section 2.2.3 Homing Mode in SV680P Series Servo Drive Function Guide.

H23.02 Homing data

Address:	2023-03h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

Not used.

H23.04 Definition of process segment 1

Address:	2023-05h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

bit0 to bit3: Mode (process segment operation mode option)

Mode = 1: The fixed speed mode applies. Mode = 2: The positioning mode applies, which stops after positioning is done. Mode = 3: The next segment is executed automatically after positioning is done. Mode = 7: The jump mode applies, which is used to jump to the designated process segment. Mode = 8: The parameter-write mode applies, which allows you to write specific parameters.

For details on each mode, see section 2.2.4 in the SV680P Series Servo Drive Function Guide.

H23.06 Data of process segment 1

Address:	2023-07h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

Different modes selected in process segment 1 correspond to different process segment data. For details on each mode, see section 2.2.4 of the SV680P Series Servo Drive Function Guide.

H23.08 Definition of process segment 2

Address:	2023-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.10 Data of process segment 2

Address:	2023-0Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.12 Definition of process segment 3

Address:	2023-0Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.14 Data of process segment 3

Address:	2023-0Fh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.16 Definition of process segment 4

Address:	2023-11h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.18 Data of process segment 4

Address:	2023-13h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.20 Definition of process segment 5

Address:	2023-15h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.22 Data of process segment 5

Address:	2023-17h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.24 Definition of process segment 6

Address:	2023-19h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32

Change: Real-time

0-4294967295

See definition of technology segment 1.

H23.26 Data of process segment 6

Effective Real time

Unit: -

Data Type: Int32

Change: Real-time

-2147483648-2147483647

See that of technology segment 1.

H23.28 Definition of process segment 7

Effective Real time

Unit: -

Data Type: UInt32

Change: Real-time

0-4294967295

Description

See definition of technology segment 1.

H23.30 Data of process segment 7

Effective Real time

Unit: -

Data Type: Int32

Change: Real-time

-2147483648-2147483647

See that of technology segment 1.

H23.32 Definition of process segment 8

Address:	2023-21h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.34 Data of process segment 8

Address:	2023-23h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.36 Definition of process segment 9

Address:	2023-25h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.38 Data of process segment 9

Address:	2023-27h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.40 Definition of process segment 10

Address:	2023-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.42 Data of process segment 10

Address:	2023-2Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.44 Definition of process segment 11

Address:	2023-2Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.46 Data of process segment 11

Address:	2023-2Fh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32

Default: 0 Change: Real-time

Value Range:
-2147483648–2147483647

Description
See that of technology segment 1.

H23.48 Definition of process segment 12

Address: 2023-31h Effective mode: Real time

Min.: 0 Unit: -

Max.: 4294967295 Data Type: UInt32

Default: 0 Change: Real-time

Value Range:
0–4294967295

Description
See definition of technology segment 1.

H23.50 Data of process segment 12

Address: 2023-33h Effective mode: Real time

Min.: -2147483648 Unit: -

Max.: 2147483647 Data Type: Int32

Default: 0 Change: Real-time

Value Range:
-2147483648–2147483647

Description
See that of technology segment 1.

H23.52 Definition of process segment 13

Address: 2023-35h Effective mode: Real time

Min.: 0 Unit: -

Max.: 4294967295 Data Type: UInt32

Default: 0 Change: Real-time

Value Range:
0–4294967295

Description
See definition of technology segment 1.

H23.54 Data of process segment 13

Address:	2023-37h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.56 Definition of process segment 14

Address:	2023-39h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.58 Data of process segment 14

Address:	2023-3Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.60 Definition of process segment 15

Address:	2023-3Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.62 Data of process segment 15

Address:	2023-3Fh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

2.28 H30 Related Variables Read through Communication**H30.00 Servo state read via communication**

Address:	2030-01h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Displays the current running state of the drive to be communicated to the software.

H30.01 DO function status 1 read through communication

Address:	2030-02h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DO function 1.

Bit 1 corresponds to DO function 2.

Bit 2 corresponds to DO function 3.

...

By analogy

H30.02 DO function status 2 read through communication

Address:	2030-03h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DO function 17.

Bit 1 corresponds to DO function 18.

Bit 2 corresponds to DO function 19.

...

By analogy

H30.03 Input pulse reference sampling value read through communication

Address:	2030-04h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display the input pulse reference sampling value.

H30.16 1st encoder communication timeout count

Address:	2030-11h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

It indicates the total number of communication timeout errors of the first encoder after the latest power-on.

H30.17 1st encoder communication CRC error count

Address:	2030-12h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

It indicates the total number of communication CRC errors of the first encoder after the latest power-on.

H30.18 1st encoder communication frame stop bit error count

Address:	2030-13h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

It indicates the total number of communication frame stop bit errors of the encoder after the latest power-on.

2.29 H31 Communication Setting

H31.00 VDI virtual level set through communication

Address:	2031-01h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

When H17.90 is set to 1, the VDI state is defined by this parameter.

The VDI logic is determined by H17.91 (Default VDI virtual level value upon

power-on) upon initial power-on. Then, H31.00 is determined by the VDI logic.

"bit(n) = 1" of H31.00 indicates the logic of VDI (n+1) is "1". "bit(n)=0" indicates the logic of VDI (n+1) is "0".

H31.01 Frequency-division output frequency set through communication

Address:	2031-02h	Effective	Real time
		mode:	
Min.:	0	Unit:	Hz
Max.:	16000000	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0 Hz–16000000 Hz

Description

When H05.38 is set to 4, H31.01 sets the frequency of the frequency division output port.

H31.04 DO status set through communication

Address:	2031-05h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

Sets DO output status.

H31.05 AO status set through communication

Address:	2031-06h	Effective	Real time
		mode:	
Min.:	-10000	Unit:	mV
Max.:	10000	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-10000 mV–10000 mV

Description

Set H04.50 to 10 to define AO through H31.05 (in mV).

H31.09 Speed reference set through communication

Address:	2031-0Ah	Effective	Real time
		mode:	
Min.:	-9999.000	Unit:	[mm/s]/[rpm]
Max.:	9999.000	Data Type:	Int32
Default:	0.000	Change:	Real-time

Value Range:

-9999.000[mm/s]/[rpm]–9999.000[mm/s]/[rpm]

Description

Set H06.02 to 4 to define the speed reference in the speed control mode (unit: 0.001 [mm/s]/[rpm]).

H31.11 Torque reference set through communication

Address:	2031-0Ch	Effective mode:	Real time
Min.:	-100.000	Unit:	%
Max.:	100.000	Data Type:	Int32
Default:	0.000	Change:	Real-time

Value Range:

-100.000% to 100.000%

Description

Set H07.02 to 4 to define the torque reference in the torque control mode through this parameter (unit: 0.001%). The setpoint 100.000% corresponds to the rated torque of the motor.

2.30 H32 Direct Drive Parameters

H32.00 Encoder interpolator mismatch alarm (E124)

Address:	2032-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

The T2 interpolator matches the HiPeFace encoder. The power-on check switch is turned on by default.

0: Disabled

1: Enabled

H32.01 Encoder interface switchover switch

Address:	2032-02h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Default encoder interface

1: Switching encoder interface

Description

Encoder interface

0: Default encoder interface

1: Switching encoder interface

H32.02 Angle auto-tuning upon power-on

Address:	2032-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Angle auto-tuning starts after the drive switches to the rdy state and the time (in seconds) defined by H32.41 elapses.

0: Disabled

1: Enabled

H32.03 Angle auto-tuning switch controlled by control word

Address:	2032-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Control word 6

2: Control word 7

Description

Used to enable the angle auto-tuning switchover switch through the control word.

0: Disabled

1: Control word 6

2: Control word 7

H32.04 Angle auto-tuning state

Address:	2032-05h	Effective	Real time
Min.:	0	mode:	
Max.:	65535	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	At stop

Value Range:

bit0: bit7 of 6041

bit1: E602.9

Description

Display an alarm or status bit when the incremental encoder is not angle auto-tuned.

Bit0: bit7 of 6041

Bit1: E602.9

H32.05 Pre-positioning retract selection

Address:	2032-06h	Effective	Real time
Min.:	0	mode:	
Max.:	65535	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Used to retract by a certain distance after auto-tuning through pre-positioning is done.

0: Disabled

1: Enabled

H32.06 Position feedback

Address:	2032-07h	Effective	Real time
Min.:	0	mode:	
Max.:	1	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Used to align the position feedback to the position before angle auto-tuning for incremental encoders.

0: Disabled

1: Enabled

H32.07 Incremental homing method

Address:	2032-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	9	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Z Signal short circuit

1: Only first short circuit

Description

Set Z signal of the increment encoder during Z signal homing.

0: Z Signal short circuit

1: Only first short circuit

Note: The width of the Z signal is set based on H32.08.

H32.08 Homing signal width

Address:	2032-09h	Effective mode:	Real time
Min.:	100	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	800	Change:	At stop

Value Range:

100–65535

Description

The setpoint is active after the position is latched by Z signal.

H32.10 Max. reference current in angle auto-tuning through inching

Address:	2032-0Bh	Effective mode:	At stop
Min.:	10.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	100.0	Change:	At stop

Value Range:

10.0% to 300.0%

Description

Defines the maximum reference current during auto-tuning.

H32.13 Motor operation threshold (ROT/DDR) in angle auto-tuning through inching

Address:	2032-0Eh	Effective mode:	At stop
Min.:	0.001	Unit:	deg
Max.:	20.000	Data Type:	UInt16
Default:	0.200	Change:	At stop

Value Range:

0.001deg to 20.000deg

Description

Sets motor operation threshold for position lock angle auto-tuning. Usually no change is required. If you have special requirements for the operation range, you can adjust this parameter accordingly. The smaller the value, the smaller the operation range during auto-tuning, but the greater the auto-tuning error.

H32.14 Motor standstill threshold (ROT/DDR) in angle auto-tuning through inching

Address:	2032-0Fh	Effective mode:	At stop
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.15 Motor operation threshold (DDL) in angle auto-tuning through inching

Address:	2032-10h	Effective mode:	At stop
Min.:	0.001	Unit:	mm
Max.:	20.000	Data Type:	UInt16
Default:	0.200	Change:	At stop

Value Range:

0.001 millimeters–20.000 millimeters

Description

Sets motor operation threshold for position lock angle auto-tuning. Usually no change is required. If you have special requirements for the operation range, you can adjust this parameter accordingly. The smaller the value, the smaller the operation range during auto-tuning, but the greater the auto-tuning error.

H32.16 Motor standstill threshold (DDL) in angle auto-tuning through inching

Address:	2032-11h	Effective mode:	At stop
Min.:	0.1	Unit:	mm/s
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1 mm/s–100.0 mm/s

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.18 Motor standstill threshold for inching angle auto-tuning

Address:	2032-13h	Effective mode:	At stop
Min.:	0.1	Unit:	s
Max.:	10.0	Data Type:	UInt16
Default:	0.5	Change:	At stop

Value Range:

0.1s to 10.0s

Description

Sets motor standstill threshold for auto-tuning. Usually no change is required.

H32.20 Max. reference current in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-15h	Effective mode:	At stop
Min.:	10.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	100.0	Change:	At stop

Value Range:

10.0% to 300.0%

Description

Defines the maximum reference current during auto-tuning.

H32.22 Electrical angle reference in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-17h	Effective mode:	At stop
Min.:	0.0	Unit:	deg
Max.:	360.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0deg to 360.0deg

Description

Defines the electrical angle during auto-tuning through pre-positioning.

H32.23 Electrical angle reference change range in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-18h	Effective mode:	At stop
Min.:	10.0	Unit:	deg
Max.:	170.0	Data Type:	UInt16
Default:	90.0	Change:	At stop

Value Range:

10.0deg to 170.0deg

Description

Defines the electrical angle change range during auto-tuning.

H32.24 Motor stop threshold (ROT/DDR) in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-19h	Effective mode:	At stop
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.25 Motor stop threshold (DDL) in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-1Ah	Effective mode:	At stop
Min.:	0.1	Unit:	mm/s
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1 mm/s–100.0 mm/s

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.26 Damping in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-1Bh	Effective	At stop
		mode:	
Min.:	0.00	Unit:	$[N/(m/s)]/[N \cdot m/rpm]$
Max.:	655.35	Data Type:	UInt16
Default:	0.00	Change:	At stop

Value Range:

$0.00[N/(m/s)]/[N \cdot m/rpm] - 655.35[N/(m/s)]/[N \cdot m/rpm]$

Description

Sets the damping coefficient for motor auto-tuning. The appropriate coefficient ensures a smooth and impact-free operation.

(1) This coefficient is usually related to the load characteristics. Larger load requires a larger coefficient.

(2) When the coefficient is too small, the auto-tuning process may be prone to strong impact, which is normal. When it is too large, motor operation may be sluggish or even stops, which is also normal and a timeout alarm will be raised.

H32.29 Motor standstill threshold for close-loop pre-positioning angle auto-tuning

Address:	2032-1Eh	Effective	At stop
		mode:	
Min.:	0.1	Unit:	s
Max.:	10.0	Data Type:	UInt16
Default:	0.5	Change:	At stop

Value Range:

0.1s to 10.0s

Description

Sets motor standstill threshold for auto-tuning. Usually no change is required.

H32.30 Max. reference current in angle auto-tuning through position lock

Address:	2032-1Fh	Effective	At stop
		mode:	
Min.:	10.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	100.0	Change:	At stop

Value Range:

10.0% to 300.0%

Description

Defines the maximum reference current during auto-tuning.

H32.33 Motor operation threshold (ROT/DDR) in angle auto-tuning through position lock

Address:	2032-22h	Effective mode:	At stop
Min.:	0.001	Unit:	deg
Max.:	20.000	Data Type:	UInt16
Default:	0.200	Change:	At stop

Value Range:

0.001deg to 20.000deg

Description

Sets motor operation threshold for position lock angle auto-tuning.

Usually no change is required. If you have special requirements for the operation range, you can adjust this parameter accordingly. The smaller the value, the smaller the operation range during auto-tuning, but the greater the auto-tuning error.

H32.34 Motor standstill threshold (ROT/DDR) in angle auto-tuning through position lock

Address:	2032-23h	Effective mode:	At stop
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.35 Motor operation threshold (DDL) in angle auto-tuning through position lock

Address:	2032-24h	Effective mode:	At stop
Min.:	0.001	Unit:	mm
Max.:	20.000	Data Type:	UInt16
Default:	0.200	Change:	At stop

Value Range:

0.001 millimeters–20.000 millimeters

Description

Sets motor operation threshold for position lock angle auto-tuning. Usually no change is required. If you have special requirements for the operation range, you can adjust this parameter accordingly. The smaller the value, the smaller the operation range during auto-tuning, but the greater the auto-tuning error.

H32.36 Motor standstill threshold (DDL) in angle auto-tuning through position lock

Address:	2032-25h	Effective mode:	At stop
Min.:	0.1	Unit:	mm/s
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1 mm/s–100.0 mm/s

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.37 Angle gain in angle auto-tuning through position lock

Address:	2032-26h	Effective mode:	At stop
Min.:	0	Unit:	deg/(p/s)
Max.:	10000	Data Type:	UInt16
Default:	1000	Change:	At stop

Value Range:

0deg/(p/s)–10000deg/(p/s)

Description

Defines the angle gain during auto-tuning. A proper setpoint improves the auto-tuning angle accuracy. The default value applies to most of applications.

H32.38 Inertia ratio in angle auto-tuning through position lock

Address:	2032-27h	Effective mode:	At stop
Min.:	0.00	Unit:	-
Max.:	120.00	Data Type:	UInt16
Default:	0.00	Change:	At stop

Value Range:

0.00–120.00

Description

Sets the inertia ratio gain for auto-tuning. A proper value can ensure smooth and jitter-free operation and reduce the operation range.

(1) This coefficient is usually related to the load characteristics. You can just set it to the actual inertia ratio.

(2) A small value may lead to long movement during auto-tuning, which is a normal phenomenon. A large value may lead to gain mismatch oscillation.

H32.39 Gain class in angle auto-tuning through position lock

Address:	2032-28h	Effective mode:	At stop
Min.:	4	Unit:	level
Max.:	31	Data Type:	UInt16
Default:	16	Change:	At stop

Value Range:

4level to 31level

Description

Defines the loop stiffness level gain for auto-tuning. A proper value can ensure smooth and jitter-free operation and reduce the operation range.

(1) A small value may lead to long movement during auto-tuning, which is a normal phenomenon. A large value may lead to gain mismatch oscillation.

H32.40 Left/Right limit function

Address:	2032-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

1. Left limit being positive
2. Left limit being negative

Description

Enables the left and right limit function for the motor.

1. Left limit being positive
2. Left limit being negative

H32.41 Angle auto-tuning delay after power-on

Address:	2032-2Ah	Effective mode:	Real time
Min.:	0	Unit:	s
Max.:	65535	Data Type:	UInt16
Default:	3	Change:	Real-time

Value Range:

0s to 65535s

Description

Used to set automatic angle auto-tuning delay upon power-on.

H32.45 Black box channel 21 function

Address:	2032-2Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Real-time target speed (607Ah)

1: Electric angle

Description

Select the black box channel 21 function.

0: Real-time target speed (607Ah)

1: Electric angle

H32.50 32-bit range compatibility

Address:	2032-33h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0–99

Description

32-bit range compatibility.

H32.53 Motor standstill threshold for position lock angle auto-tuning

Address:	2032-36h	Effective mode:	At stop
Min.:	0.1	Unit:	s
Max.:	10.0	Data Type:	UInt16
Default:	0.5	Change:	At stop

Value Range:

0.1s to 10.0s

Description

Sets motor standstill threshold for auto-tuning. Usually no change is required.

H32.54 Hall auto-tuning selection

Address:	2032-37h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

When this parameter is enabled, the Hall auto-tuning will be started automatically after basic angle auto-tuning is done.

H32.55 Hall signal UVW manual adjustment

Address:	2032-38h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–7

Description

Set Hall level state.

H32.56 UVW filter time of Hall signal

Address:	2032-39h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	10	Data Type:	UInt16
Default:	5	Change:	Real-time

Value Range:

0 ms–10 ms

Description

Set UVW filter time of Hall signal.

H32.57 Hall closed-loop locked-rotor speed

Address:	2032-3Ah	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	65535	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0[mm/s]/[rpm]–65535[mm/s]/[rpm]

Description

Set the Hall closed loop angle auto-tuning locked-rotor speed.

H32.58 Hall closed-loop locked-rotor current

Address:	2032-3Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	120.0	Change:	At stop

Value Range:

0.0% to 300.0%

Description

Set the Hall closed loop angle auto-tuning locked-rotor current.

H32.59 Hall closed-loop locked-rotor window time

Address:	2032-3Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	2000	Data Type:	UInt16
Default:	10	Change:	At stop

Value Range:

0 ms–2000 ms

Description

Set the Hall closed loop angle auto-tuning locked-rotor window time.

H32.60 Hall closed-loop inertia ratio

Address:	2032-3Dh	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	120.00	Data Type:	UInt16
Default:	0.00	Change:	At stop

Value Range:

0.00–120.00

Description

Set the Hall closed loop angle auto-tuning Inertia ratio.

H32.61 Hall closed-loop rigidity

Address:	2032-3Eh	Effective mode:	Real time
Min.:	4	Unit:	-

Max.:	31	Data Type:	UInt16
Default:	16	Change:	At stop

Value Range:

4–31

Description

Set the Hall closed loop angle auto-tuning rigidity level.

H32.62 Electrical angle save flag

Address:	2032-3Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

Automatic reset will be performed after the electrical angle is saved when dynamic Hall auto-tuning is done.

H32.63 Hall1 electric angle

Address:	2032-40h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall1 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.64 Hall2 electric angle

Address:	2032-41h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall2 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.65

Hall3 electric angle

Address:	2032-42h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall3 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.66

Hall4 electric angle

Address:	2032-43h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall4 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.67

Hall5 electric angle

Address:	2032-44h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall5 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.68

Hall6 electric angle

Address:	2032-45h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

The hall6 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.70 Motor overload protection mode

Address: 2032-47h

Effective mode: Upon the next power-on

Min.: 0

Unit: -

Max.: 3

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

- 0: Internal motor overload curve
- 1: External motor overload curve
- 2: Current limit overload protection
- 3: Hide motor overload protection

Description

Set motor overload protection mode

- 0: Internal motor overload curve
- 1: External motor overload curve
- 2: Current limit overload protection
- 3: Hide motor overload protection

H32.73 Thermal threshold current of overload current limit

Address: 2032-4Ah

Effective mode: Upon the next power-on

Min.: 10.0

Unit: %

Max.: 750.0

Data Type: UInt16

Default: 115.0

Change: At stop

Value Range:

10.0% to 750.0%

Description

Thermal limit current is a percentage of motor rated current defaulted to 100%, above which the motor starts to heat continuously. The motor current will be finally maintained at this value.

H32.74 Peak current of overload current limit

Address: 2032-4Bh

Effective mode: Upon the next power-on

Min.:	100.0	Unit:	%
Max.:	750.0	Data Type:	UInt16
Default:	300.0	Change:	At stop

Value Range:

100.0% to 750.0%

Description

Defines the ratio of the peak current that can be reached by the motor to the rated current of the motor.

H32.75 Max. current duration of overload protection

Address:	2032-4Ch	Effective mode:	Real time
Min.:	0.01	Unit:	s
Max.:	655.35	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.01s to 655.35s

Description

Calculate the maximum heat that can be reached by the motor based on the maximum current continuous time, and take this value as the motor overload alarm threshold.

H32.76 Current limit time constant of overload protection

Address:	2032-4Dh	Effective mode:	Real time
Min.:	0.01	Unit:	-
Max.:	655.35	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.01–655.35

Description

It is related to the maximum current continuous time. The higher the setpoint, the longer the maximum current continuous time will be.

H32.77 Current limit alarm threshold of overload protection

Address:	2032-4Eh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	750.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0% to 750.0%

Description

If current limit protection is effective, and the limited current is lower than this value, the drive will raise an alarm.

H32.78 Current limit fault threshold of overload protection

Address:	2032-4Fh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	750.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0% to 750.0%

Description

If current limit protection is effective, and the limited current is lower than this value, the drive will report an error.

H32.79 Thermal threshold current of overload

Address:	2032-50h	Effective mode:	Upon the next power-on
Min.:	10.0	Unit:	%
Max.:	750.0	Data Type:	UInt16
Default:	115.0	Change:	At stop

Value Range:

10.0% to 750.0%

Description

Set thermal threshold current of overload.

H32.80 Thermal current interval of overload

Address:	2032-51h	Effective mode:	Upon the next power-on
Min.:	0.1	Unit:	%
Max.:	204.8	Data Type:	UInt16
Default:	6.4	Change:	At stop

Value Range:

0.1% to 204.8%

Description

Set the thermal current interval of overload.

H32.81 Overload heat dissipation current interval

Address:	2032-52h	Effective mode:	Upon the next power-on

Min.:	0.1	Unit:	%
Max.:	204.8	Data Type:	UInt16
Default:	6.4	Change:	At stop

Value Range:

0.1% to 204.8%

Description

Set the overload heat dissipation current interval.

H32.82 Length of overload heat dissipation curve

Address:	2032-53h	Effective mode:	Upon the next power-on
Min.:	1	Unit:	-
Max.:	200	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–200

Description

Set the length of overload heat dissipation curve.

H32.83 Length of overload heat dissipation curve

Address:	2032-54h	Effective mode:	Upon the next power-on
Min.:	1	Unit:	-
Max.:	200	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–200

Description

Set the length of overload heat dissipation curve.

2.31 H33 Compensation Parameters

H33.00 Compensation data BUFFER0

Address:	2033-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER0.

H33.01 Compensation data BUFFER1

Address:	2033-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER1.

H33.02 Compensation data BUFFER2

Address:	2033-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER2.

H33.03 Compensation data BUFFER3

Address:	2033-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER3.

H33.04 Compensation data BUFFER4

Address:	2033-05h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Default:	0	Change:	At stop
Value Range:			
0–65535			
Description			
Set compensation data BUFFER4.			

H33.05 Compensation data BUFFER5

Address:	2033-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop
Value Range:			
0–65535			
Description			
Set compensation data BUFFER5.			

H33.06 Compensation data BUFFER6

Address:	2033-07h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop
Value Range:			
0–65535			
Description			
Set compensation data BUFFER6.			

H33.07 Compensation data BUFFER7

Address:	2033-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop
Value Range:			
0–65535			
Description			
Set compensation data BUFFER7.			

H33.08 Compensation data BUFFER8

Address:	2033-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER8.

H33.09 Compensation data BUFFER9

Address:	2033-0Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER9.

H33.10 Compensation data BUFFER10

Address:	2033-0Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER10.

H33.11 Compensation data BUFFER11

Address:	2033-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER11.

H33.12

Compensation data BUFFER12

Address:	2033-0Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER12.

H33.13

Compensation data BUFFER13

Address:	2033-0Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER13.

H33.14

Compensation data BUFFER14

Address:	2033-0Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER14.

H33.15

Compensation data BUFFER15

Address:	2033-10h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Change: At stop

0-65535

Set compensation data BUFFER15.

Address: 2033-11h

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0-65535

Description

Set compensation data BUFFER16.

Address: 2033-12h

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0-65535

Description

Set compensation data BUFFER17.

Address: 2033-13h

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0-65535

Description

Set compensation data BUFFER18.

H33.19**Compensation data BUFFER19**

Address: 2033-14h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

Set compensation data BUFFER19.

H33.20**Compensation data BUFFER20**

Address: 2033-15h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

Set compensation data BUFFER20.

H33.21**Compensation data BUFFER21**

Address: 2033-16h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

Set compensation data BUFFER21.

H33.22**Compensation data BUFFER22**

Address: 2033-17h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

Set compensation data BUFFER22.

H33.23 Compensation data BUFFER23

Address:	2033-18h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER23.

H33.24 Compensation data BUFFER24

Address:	2033-19h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER24.

H33.25 Compensation data BUFFER25

Address:	2033-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER25.

H33.26 Compensation data BUFFER26

Address:	2033-1Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Change: At stop

H33.27 Compensation data BUFFER27

Effective Real time

Min.: 0

Max.: 65535

Default: 0

H33.28 Compensation data BUFFER28

Effective Real time

Min.: 0

Max.: 65535

Default: 0

H33.29 Compensation data BUFFER29

Effective Real time

Min.: 0

Max.: 65535

Default: 0

H33.30 Compensation data BUFFER30

Address:	2033-1Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER30.

H33.31 Compensation data BUFFER31

Address:	2033-20h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER31.

H33.32 Compensation data BUFFER32

Address:	2033-21h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER32.

H33.33 Compensation data BUFFER33

Address:	2033-22h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER33.

H33.34 Compensation data BUFFER34

Address:	2033-23h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER34.

H33.35 Compensation data BUFFER35

Address:	2033-24h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER35.

H33.36 Compensation data BUFFER36

Address:	2033-25h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER36.

H33.37 Compensation data BUFFER37

Address:	2033-26h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Change: At stop

0-65535

Set compensation data BUFFER37.

Address: 2033-27h Effective Real time

Address: 2033-27h

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0-65535

Set compensation data BUFFER38.

Address: 2033-28h Effective Real time

Address: 2033-28h

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0-65535

Set compensation data BUFFER39.

Address: 2033-29h Effective Real time

Address: 2033-29h

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0-65535

Current Compensation BUFFER group number

H33.41 Compensation data sum

Address:	2033-2Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	32767	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–32767

Description

Set compensation data sum.

H33.44 Data command

Address:	2033-2Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0–1

Description

Data command.

H33.45 Data storage position

Address:	2033-2Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Servo RAM

1: Servo FLASH

2: Encoder FLASH

Description

Set data storage position

0: Servo RAM

1: Servo FLASH

2: Encoder FLASH

H33.46 Data clear

Address:	2033-2Fh	Effective mode:	Real time
Min.:	0	Unit:	-

Max.:	3	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–3

Description

Data clear.

H33.47 Software tool write status

Address:	2033-30h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–2

Description

Display software write status: 0 - Idle; 1 - Writing BUFFER; 2 - Writing BUFFER completed

H33.48 Servo read status

Address:	2033-31h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display servo read status: 0 - Idle; 1 - Reading BUFFER; 2 - Reading BUFFER completed

H33.49 Software tool read status

Address:	2033-32h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–2

Description

Display software read status: 0 - Idle; 1 - Reading BUFFER; 2 - Reading BUFFER completed

H33.50	Servo write status		
Address:	2033-33h	Effective	-
Min.:	0	mode:	
Max.:	65535	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	Unchangeable
	Value Range:		
	0–65535		
	Description		
	Display servo write status: 0 - Idle; 1 - Writing BUFFER; 2 - Writing BUFFER completed		

H33.51	Data transmission completed flag		
Address:	2033-34h	Effective	Real time
Min.:	0	mode:	
Max.:	1	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	At stop
	Value Range:		
	0–1		
	Description		
	Data transmission completed flag.		

H33.52	Servo data transfer completed flag		
Address:	2033-35h	Effective	-
Min.:	0	mode:	
Max.:	65535	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	Unchangeable
	Value Range:		
	0–65535		
	Description		
	Servo data transfer completed flag: 0: Uncompleted; 1: Completed		

H33.60	Accuracy compensation function		
Address:	2033-3Dh	Effective	Upon the next power-on
Min.:	0	mode:	
Max.:	1	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	At stop
	Value Range:		

0–1

Description

Used to enable accuracy compensation.

H33.61 Accuracy compensation sum

Address:	2033-3Eh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	count
Max.:	2048	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0count to 2048count

Description

Total accuracy compensation points.

H33.62 Starting offset address of accuracy compensation

Address:	2033-3Fh	Effective mode:	Upon the next power-on
Min.:	-21474836.48	Unit:	[mm]/[deg]
Max.:	21474836.47	Data Type:	Int32
Default:	0.00	Change:	At stop

Value Range:

-21474836.48[mm]/[deg]–21474836.47[mm]/[deg]

Description

The direct-drive motor compensation home of incremental encoder is the home of the mechanical system coordinate.

H33.64 Accuracy compensation data interval

Address:	2033-41h	Effective mode:	Upon the next power-on
Min.:	-327.67	Unit:	[mm]/[deg]
Max.:	327.67	Data Type:	Int16
Default:	0.00	Change:	At stop

Value Range:

-327.67[mm]/[deg]–327.67[mm]/[deg]

Description

Interval of adjacent compensation points of accuracy compensation.

H33.65 Accuracy compensation dial phase sequence

Address:	2033-42h	Effective mode:	Upon the next power-on

Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	At stop

Value Range:

0x0 to 0xFFFF

Description

Phase sequence record of accuracy compensation dial stage.

H33.66 Accuracy compensation dial reference direction

Address:	2033-43h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–1

Description

Reference direction record of accuracy compensation dial stage.

H33.67 Servo homing completed

Address:	2033-44h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Accuracy compensation homing completion signal.

H33.68 Current acting index of accuracy compensation

Address:	2033-45h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Current compensation position of accuracy compensation.

H33.69 Forced homing start

Address:	2033-46h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–1

Description

Enables accuracy compensation forced homing.

H33.70 Forced homing mode

Address:	2033-47h	Effective mode:	Upon the next power-on
Min.:	-32768	Unit:	-
Max.:	32767	Data Type:	Int16
Default:	-2	Change:	At stop

Value Range:

-32768–32767

Description

Homing mode record of accuracy compensation dial stage.

H33.71 Forced homing at low speed

Address:	2033-48h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	10	Change:	At stop

Value Range:

0[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Homing speed record of accuracy compensation dial stage.

H33.72 Single-turn absolute position of accuracy compensation home of absolute encoder

Address:	2033-49h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	At stop

Value Range:

0 to 4294967295

Description

Single-turn absolute value of direct-drive motor compensation home of absolute encoder.

H33.74 Min.pulse width of frequency-division output accuracy compensation

Address:	2033-4Bh	Effective mode:	Upon the next power-on
Min.:	2	Unit:	count
Max.:	7	Data Type:	UInt16
Default:	3	Change:	At stop

Value Range:

2count to 7count

Description

Defines the minimum pulse width of accuracy compensation frequency-division output.

H33.75 Accuracy compensation data unit

Address:	2033-4Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: [um]/[arcsec]

1: [mm]/[mrad]

Description

Defines the accuracy compensation data unit.

For DDL: 0-um; 1-mm;

For DDR: 0-arcsec; 2-mrad

H33.81 Motor cogging torque ripple compensation sum

Address:	2033-52h	Effective mode:	Real time
Min.:	0	Unit:	count
Max.:	65535	Data Type:	UInt16
Default:	2000	Change:	At stop

Value Range:

0count to 65535count

Description

Motor cogging torque ripple compensation sum

2.32 H34 Servo Motor Parameters 2

H34.12 Error type supported by Endat2.2 encoder

Address:	2034-0Dh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

bit0: Light source; bit1: Signal amplitude; bit2: Position; bit3: Overvoltage; bit4: Undervoltage; bit5: Overcurrent; bit6: Battery

H34.13 Alarm types supported by EnDat2.2 encoders

Address:	2034-0Eh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

bit0: Transmission rate too high, bit1: Overtemperature, bit2: Interior light source approaching limit position, bit3: Battery voltage low, bit4: Reference point not reached, bit5: Reserved, bit6: Approaching limit position, bit7: Probe not at position, bit8: Value change too small

H34.14 Error value output by EnDat2.2 encoder

Address:	2034-0Fh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

bit0: Light source; bit1: Signal amplitude; bit2: Position; bit3: Overvoltage; bit4: Undervoltage; bit5: Overcurrent; bit6: Battery

H34.15 Alarm value output by EnDat2.2 encoder

Address:	2034-10h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

bit0: Transmission rate too high, bit1: Overtemperature, bit2: Interior light source approaching limit position, bit3: Battery voltage low, bit4: Reference point not reached, bit5: Reserved, bit6: Approaching limit position, bit7: Probe not at position, bit8: Value change too small

2.33 1000h Object Dictionary**1005h SYNC message COB-ID**

Address:	1005h	Effective	Real time
		mode:	
Min.:	0x80	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x80	Change:	Real-time

Value Range:

0x80 to 0xFFFFFFFF

Description

Only 0x80h and 0x40000080h can be written to the SYNC message.

If 0x80h is written, the sync generator does not work.

If 0x40000080h is written, the sync generator is activated.

To activate the sync generator, you must set 1006h to a non-zero value.

1006h Synchronization cycle

Address:	1006h	Effective	Real time
		mode:	
Min.:	0	Unit:	μs
Max.:	2147483647	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0μs to 2147483647μs

Description

Applicable to the synchronization generator only (unit: us).

100Ch Node guarding time

Address:	100Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the node daemon running time, in ms.

100dh Life factor

Address:	100dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	255	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–255

Description

This parameter must be used together with the node daemon function and must be set to a value greater than 1.

1014h Emergency message COB-ID

Address:	1014h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x80	Change:	Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

The most significant bit indicates whether to disable the emergency message of the device. Only the data "0x80+Node_ID" can be written for the bit to enable the emergency message of the device.

If the data "0x80000080+Node_ID" is written, the emergency message is disabled.

When the emergency message is enabled, the COB-ID must be the same as that of the object.

1016.01h Consumer heartbeat time 1

Address:	1016-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Parameters include the address of the monitored node and actual consumer time, which must be longer than the heartbeat producer time (unit: ms) of the corresponding node. Two different consumer time cannot be set for one node.
 Bits 0 to 15: Monitoring time
 Bits 16 to 23: The monitored address
 Bits 24 to 31: Reserved (0)

1016.02h Consumer heartbeat time 2

Address:	1016-02h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1016.01h.

1016.03h Consumer heartbeat time 3

Address:	1016-03h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1016.01h.

1016.04h Consumer heartbeat time 4

Address:	1016-04h	Effective mode:	Real time
Min.:	0x0	Unit:	-

Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1016.01h.

1016.05h Consumer heartbeat time 5

Address:	1016-05h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1016.01h.

1017h Producer heartbeat time

Address:	1017h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the heartbeat production time of the slave, in ms.

1400.01h COB-ID of RPDO1

Address:	1400-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x200	Change:	Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

Only the most significant bit can be modified. When the most significant bit is 0, the PDO is active. When the most significant bit is 1, the PDO is inactive.

The factory settings are as follows:

1400h: 0x00000200 + Node_ID

1401h: 0x80000300 + Node_ID

1402h: 0x80000400 + Node_ID

1403h: 0x80000500 + Node_ID

1400.02h Transmission type of RPDO1

Address:	1400-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	255	Data Type:	UInt16
Default:	255	Change:	Real-time

Value Range:

0–255

Description

This parameter can be modified only when PDO is inactive.

Different values correspond to different PDO transmission types, as follows:

0: Not circle synchronous data

1 to 240: Circle synchronous data

254 and 255: Not circle asynchronous data

1401.01h COB-ID of RPDO2

Address:	1401-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x300	Change:	Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1400.01h.

1401.02h Transmission type of RPDO2

Address:	1401-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	255	Data Type:	UInt16
Default:	255	Change:	Real-time

Value Range:

0–255

Description

Same as 1400.02h.

1402.01h COB-ID of RPDO3

Address: 1402-01h

Effective Real time

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x80000400

Change: Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1400.01h.

1402.02h Transmission type of RPDO3

Address: 1402-02h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 255

Data Type: UInt16

Default: 255

Change: Real-time

Value Range:

0–255

Description

Same as 1400.02h.

1403.01h COB-ID of RPDO4

Address: 1403-01h

Effective Real time

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x80000500

Change: Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1400.01h.

1403.02h Transmission type of RPDO4

Address: 1403-02h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 255

Data Type: UInt16

Default: 255

Change: Real-time

Value Range:

0–255

Description

Same as 1400.02h.

1600.00h Number of valid mapped objects in RPDO1

Address:	1600-00h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	3	Change:	Real-time

Value Range:

0–4

Description

This object can be modified only when PDO is inactive. When 0 is written, the mapping objects of other sub-indexes are cleared.

1600.01h Mapped object 1 in RPDO1

Address:	1600-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x60400010	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

The total length of a mapping object cannot exceed 64 bits. Mapping based on bytes instead of bits is supported. The indexes and sub-indexes of mapping objects must exist in the object dictionary list. The attribute of mapping objects is readable and the objects can be mapped.

Sub-indexes are written in the following format:

Bit 16 to bit 31: Index

Bit 8 to bit 15: Sub-index

Bit 0 to bit 7: Object length

1600.02h Mapped object 2 in RPDO1

Address:	1600-02h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x60FF0020	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1600.01h.

1600.03h Mapped object 3 in RPDO1

Address: 1600-03h

Effective mode: Real time

Min.: 0x0

Unit: -

Max.: 0x7FFFFFFF

Data Type: UInt32

Default: 0x60600008

Change: Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1600.01h.

1600.04h Mapped object 4 in RPDO1

Address: 1600-04h

Effective mode: Real time

Min.: 0x0

Unit: -

Max.: 0x7FFFFFFF

Data Type: UInt32

Default: 0x0

Change: Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1600.01h.

1601.00h Number of valid mapped objects in RPDO2

Address: 1601-00h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 4

Data Type: UInt16

Default: 2

Change: Real-time

Value Range:

0–4

Description

This object can be modified only when PDO is inactive. When 0 is written, the mapping objects of other sub-indexes are cleared.

1601.01h Mapped object 1 in RPDO2

Address: 1601-01h

Effective mode: Real time

Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x607A0020	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

The total length of a mapping object cannot exceed 64 bits. Mapping based on bytes instead of bits is supported. The indexes and sub-indexes of mapping objects must exist in the object dictionary list. The attribute of mapping objects is readable and the objects can be mapped.

Sub-indexes are written in the following format:

Bit 16 to bit 31: Index

Bit 8 to bit 15: Sub-index

Bit 0 to bit 7: Object length

1601.02h Mapped object 2 in RPDO2

Address:	1601-02h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x60810020	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1601.01h.

1601.03h Mapped object 3 in RPDO2

Address:	1601-03h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1601.01h.

1601.04h Mapped object 4 in RPDO2

Address:	1601-04h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32

Default: 0x0 Change: Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1601.01h.

1602.00h Number of valid mapped objects in RPDO3

Address: 1602-00h Effective mode: Real time

Min.: 0

Unit: -

Max.: 4

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0–4

Description

This object can be modified only when PDO is inactive. When 0 is written, the mapping objects of other sub-indexes are cleared.

1602.01h Mapped object 1 in RPDO3

Address: 1602-01h Effective mode: Real time

Min.: 0x0

Unit: -

Max.: 0x7FFFFFFF

Data Type: UInt32

Default: 0x0

Change: Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

The total length of a mapping object cannot exceed 64 bits. Mapping based on bytes instead of bits is supported. The indexes and sub-indexes of mapping objects must exist in the object dictionary list. The attribute of mapping objects is readable and the objects can be mapped.

Sub-indexes are written in the following format:

Bit 16 to bit 31: Index

Bit 8 to bit 15: Sub-index

Bit 0 to bit 7: Object length

1602.02h Mapped object 2 in RPDO3

Address: 1602-02h Effective mode: Real time

Min.: 0x0

Unit: -

Max.: 0x7FFFFFFF

Data Type: UInt32

Change: Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1602.01h.

1602.03h Mapped object 3 in RPD03

Effective Real time
mode:

Unit: -

Data Type: UInt32

Change: Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1602.01h.

1602.04h **Mapped object 4 in RPD03**

Effective Real time
mode:

Unit: -

Data Type: UInt32

Change: Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1602.01h.

1603.00h **Number of valid mapped objects in RPDO4**

Effective Real time
mode:

Unit: -

Data Type: UInt16

Change: Real-time

Value Range:

0-4

Description

This object can be modified only when PDO is inactive. When 0 is written, the mapping objects of other sub-indexes are cleared.

1603.01h Mapped object 1 in RPDO4

Address:	1603-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

The total length of a mapping object cannot exceed 64 bits. Mapping based on bytes instead of bits is supported. The indexes and sub-indexes of mapping objects must exist in the object dictionary list. The attribute of mapping objects is readable and the objects can be mapped.

Sub-indexes are written in the following format:

Bit 16 to bit 31: Index

Bit 8 to bit 15: Sub-index

Bit 0 to bit 7: Object length

1603.02h Mapped object 2 in RPDO4

Address:	1603-02h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1603.01h.

1603.03h Mapped object 3 in RPDO4

Address:	1603-03h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1603.01h.

1603.04h Mapped object 4 in RPDO4

Address:	1603-04h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1603.01h.

1800.01h COB-ID of TPDO1

Address:	1800-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x40000180	Change:	Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

Only the MSB and the second MSB can be modified.

When the most significant bit is 0, the PDO is active. When the most significant bit is 1, the PDO is inactive.

The second most significant bit defines whether the PDO can be triggered by a remote frame. You are recommended to set this bit to 1 to disable the remote frame to trigger the PDO.

The factory settings are as follows:

1800h: 0x40000180 + Node_ID

1801h: 0xC0000280 + Node_ID

1802h: 0xC0000380 + Node_ID

1803h: 0xC0000480 + Node_ID

1800.02h Transmission type of TPDO1

Address:	1800-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	255	Data Type:	UInt16
Default:	255	Change:	Real-time

Value Range:

0–255

Description

This parameter can be modified only when PDO is inactive. Different values correspond to different PDO transmission types, as follows:

0: Not circle synchronous data

1 to 240: Circle synchronous data

254 and 255: Not circle asynchronous data

1800.03h Inhibit time of TPDO1

Address:	1800-03h	Effective mode:	Real time
Min.:	0	Unit:	100µs
Max.:	65535	Data Type:	UInt16
Default:	500	Change:	Real-time

Value Range:

0µs to 65535µs

Description

This parameter can be modified only when PDO is inactive.

The unit is 100 µs. The value 0 indicates that the inhibit time is invalid.

1800.05h Event counter of TPDO1

Address:	1800-05h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

This parameter can be modified only when PDO is inactive.

When the unit is ms, the value 0 indicates that the event counter is inactive.

1801.01h COB-ID of TPDO2

Address:	1801-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x40000280	Change:	Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1800.01h.

1801.02h	Transmission type of TPDO2		
Address:	1801-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	255	Data Type:	UInt16
Default:	255	Change:	Real-time
Value Range:			
0–255			
Description			
Same as 1800.02h.			

1801.03h	Inhibit time of TPDO2		
Address:	1801-03h	Effective mode:	Real time
Min.:	0	Unit:	100µs
Max.:	65535	Data Type:	UInt16
Default:	500	Change:	Real-time
Value Range:			
0µs to 65535µs			
Description			
Same as 1800.03h.			

1801.05h	Event counter of TPDO2		
Address:	1801-05h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time
Value Range:			
0 ms–65535 ms			
Description			
Same as 1800.05h.			

1802.01h	COB-ID of TPDO3		
Address:	1802-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0xC0000380	Change:	Real-time
Value Range:			
0x0 to 0xFFFFFFFF			

Description

Same as 1800.01h.

1802.02h Transmission type of TPDO3

Address: 1802-02h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 255

Data Type: UInt16

Default: 255

Change: Real-time

Value Range:

0–255

Description

Same as 1800.02h.

1802.03h Inhibit time of TPDO3

Address: 1802-03h

Effective mode: Real time

Min.: 0

Unit: 100μs

Max.: 65535

Data Type: UInt16

Default: 500

Change: Real-time

Value Range:

0μs to 65535μs

Description

Same as 1800.03h.

1802.05h Event counter of TPDO3

Address: 1802-05h

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Same as 1800.05h.

1803.01h COB-ID of TPDO4

Address: 1803-01h

Effective mode: Real time

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0xC0000480

Change: Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1800.01h.

1803.02h Transmission type of TPDO4

Address: 1803-02h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 255

Data Type: UInt16

Default: 255

Change: Real-time

Value Range:

0–255

Description

Same as 1800.02h.

1803.03h Inhibit time of TPDO4

Address: 1803-03h

Effective mode: Real time

Min.: 0

Unit: 100µs

Max.: 65535

Data Type: UInt16

Default: 500

Change: Real-time

Value Range:

0µs to 65535µs

Description

Same as 1800.03h.

1803.05h Event counter of TPDO4

Address: 1803-05h

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Same as 1800.05h.

1A00.00h Number of valid mapped objects in TPDO1

Address: 1A00-00h

Effective mode: Real time

Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	3	Change:	Real-time

Value Range:

0–4

Description

This object can be modified only when PDO is inactive. When 0 is written, the mapping objects of other sub-indexes are cleared.

1A00.01h Mapped object 1 in TPDO1

Address:	1A00-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x60410010	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

The total length of a mapping object cannot exceed 64 bits. Mapping based on bytes instead of bits is supported. The indexes and sub-indexes of mapping objects must exist in the object dictionary list. The attribute of mapping objects is readable and the objects can be mapped.

Sub-indexes are written in the following format:

Bit 16 to bit 31: Index

Bit 8 to bit 15: Sub-index

Bit 0 to bit 7: Object length

1A00.02h Mapped object 2 in TPDO1

Address:	1A00-02h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x60FD0020	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A00.01h.

1A00.03h Mapped object 3 in TPDO1

Address:	1A00-03h	Effective mode:	Real time

Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x60610008	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A00.01h.

1A00.04h Mapped object 4 in TPDO1

Address:	1A00-04h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A00.01h.

1A01.00h Number of valid mapped objects in TPDO2

Address:	1A01-00h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0–4

Description

This object can be modified only when PDO is inactive. When 0 is written, the mapping objects of other sub-indexes are cleared.

1A01.01h Mapped object 1 in TPDO2

Address:	1A01-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x60640020	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

The total length of a mapping object cannot exceed 64 bits. Mapping based on bytes instead of bits is supported. The indexes and sub-indexes of mapping objects must exist in the object dictionary list. The attribute of mapping objects is readable and the objects can be mapped.

Sub-indexes are written in the following format:

Bit 16 to bit 31: Index

Bit 8 to bit 15: Sub-index

Bit 0 to bit 7: Object length

1A01.02h Mapped object 2 in TPDO2

Address:	1A01-02h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x606C0020	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A01.01h.

1A01.03h Mapped object 3 in TPDO2

Address:	1A01-03h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A01.01h.

1A01.04h Mapped object 4 in TPDO2

Address:	1A01-04h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A01.01h.

1A02.00h Number of valid mapped objects in TPDO3

Address:	1A02-00h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–4

Description

This object can be modified only when PDO is inactive. When 0 is written, the mapping objects of other sub-indexes are cleared.

1A02.01h Mapped object 1 in TPDO3

Address:	1A02-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

The total length of a mapping object cannot exceed 64 bits. Mapping based on bytes instead of bits is supported. The indexes and sub-indexes of mapping objects must exist in the object dictionary list. The attribute of mapping objects is readable and the objects can be mapped.

Sub-indexes are written in the following format:

Bit 16 to bit 31: Index

Bit 8 to bit 15: Sub-index

Bit 0 to bit 7: Object length

1A02.02h Mapped object 2 in TPDO3

Address:	1A02-02h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A02.01h.

1A02.03h Mapped object 3 in TPDO3

Address:	1A02-03h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A02.01h.

1A02.04h Mapped object 4 in TPDO3

Address:	1A02-04h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A02.01h.

1A03.00h Number of valid mapped objects in TPDO4

Address:	1A03-00h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–4

Description

This object can be modified only when PDO is inactive. When 0 is written, the mapping objects of other sub-indexes are cleared.

1A03.01h Mapped object 1 in TPDO4

Address:	1A03-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

The total length of a mapping object cannot exceed 64 bits. Mapping based on bytes instead of bits is supported. The indexes and sub-indexes of mapping objects must exist in the object dictionary list. The attribute of mapping objects is readable and the objects can be mapped.

Sub-indexes are written in the following format:

Bit 16 to bit 31: Index

Bit 8 to bit 15: Sub-index

Bit 0 to bit 7: Object length

1A03.02h Mapped object 2 in TPDO4

Address:	1A03-02h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A03.01h.

1A03.03h Mapped object 3 in TPDO4

Address:	1A03-03h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A03.01h.

1A03.04h Mapped object 4 in TPDO4

Address:	1A03-04h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x7FFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x7FFFFFFF

Description

Same as 1A03.01h.

2.34 6000h Object Dictionary**603Fh****Error code**

Address:	603Fh	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

When an error described in the DSP402 profile occurs on the servo drive, 603Fh is as described in DSP402.

When an error specified by the user occurs on the servo drive, 603Fh is 0xFF00.

The value of 603Fh is in hexadecimal.

In addition, the object dictionary 203Fh displays auxiliary bytes of fault codes in hexadecimal.

203Fh is a UInt 32 value, in which the high 16 bits indicate the manufacturer internal fault code, and the low 16 bits indicate the manufacturer external fault code.

6040h**Control word**

Address:	6040h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0xFFFF

Description

For details on the control word, see the Communication Guide.

6041h**Status word**

Address:	6041h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

For details on the control word, see the Communication Guide.

605Ah

Quick stop mode

Address:	605Ah	Effective mode:	At stop
Min.:	0	Unit:	-
Max.:	7	Data Type:	Int16
Default:	2	Change:	Real-time

Value Range:

- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state
- 2: Ramp to stop as defined by 6085h, keeping de-energized state
- 3: Stop at emergency stop torque, keeping de-energized state
- 5: Ramp to stop as defined by 6084h/609Ah (HM), keeping position lock state
- 6: Ramp to stop as defined by 6085h, keeping position lock state
- 7: Stop at emergency stop torque, keeping position lock state

Description

Defines the deceleration mode of the motor for stopping rotating upon quick stop and the motor status after stop.

- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state

- 2: Ramp to stop as defined by 6085h, keeping de-energized state
- 3: Stop at emergency stop torque, keeping de-energized state
- 5: Ramp to stop as defined by 6084h/609Ah (HM), keeping position lock state
- 6: Ramp to stop as defined by 6085h, keeping position lock state
- 7: Stop at emergency stop torque, keeping position lock state

Note: When the brake function is enabled and the value of 605Ah is lower than 4, the stop mode is forcibly set to "2: Ramp to stop as defined by 6085h, keeping de-energized state".

605Ch

Stop mode at S-OFF

Address:	605Ch	Effective mode:	At stop
Min.:	-4	Unit:	-
Max.:	2	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

- 4: Ramp to stop as defined by 6085h, keeping dynamic braking state
- 3: Stop at zero speed, keeping dynamic braking state
- 2: Ramp to stop as defined by 6084h/ 609Ah, keeping dynamic braking state
- 1: Dynamic braking stop, keeping dynamic braking state
- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/ 609Ah, keeping de-energized state
- 2: Dynamic braking stop, keeping de-energized state

Description

Defines the deceleration mode of the motor for stopping rotating upon S-ON OFF and the motor status after stop.

- 4: Ramp to stop as defined by 6085h, keeping dynamic braking state
- 3: Stop at zero speed, keeping dynamic braking state
- 2: Ramp to stop as defined by 6084h/609Ah, keeping dynamic braking state
- 1: Dynamic braking stop, keeping dynamic braking state
- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/609Ah, keeping de-energized status
- 2: Dynamic braking stop, keeping de-energized state

Note: After the brake is enabled, 605Ch is forced to "4: Ramp to stop as defined by 6085h, keeping dynamic braking state".

605Dh

Halt mode

Address:	605Dh	Effective mode:	At stop
Min.:	1	Unit:	-
Max.:	3	Data Type:	Int16
Default:	1	Change:	Real-time

Value Range:

- 1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping position lock state
- 2: Ramp to stop as defined by 6085h, keeping position lock state
- 3: Stop at emergency stop torque, keeping position lock state

Description

Defines the deceleration mode of the motor for stopping rotating upon S-ON pause and the motor status after stop.

PP/PV/HM mode:

Value	Stop Mode
1	Ramp to stop as defined by 6084h/609Ah (HM), keeping position lock status
2	Ramp to stop as defined by 6085h, keeping position lock status
3	Stop at emergency-stop torque, keeping position lock status

PT mode:

Value	Stop Mode
1/2/3	Ramp to stop as defined by 6087h, keeping position lock status

605Eh

Stop mode at No. 2 fault

Address:	605Eh	Effective mode:	At stop
Min.:	-5	Unit:	-
Max.:	4	Data Type:	Int16
Default:	2	Change:	Real-time

Value Range:

- 5: Stop at zero speed, keeping dynamic braking state
- 4: Stop at emergency stop torque, keeping dynamic braking state
- 3: Ramp to stop as defined by 6085h, keeping dynamic braking state
- 2: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping dynamic braking state
- 1: Dynamic braking stop, keeping dynamic braking state
- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping de-energized state
- 2: Ramp to stop as defined by 6085h, keeping de-energized state
- 3: Stop at emergency stop torque, keeping de-energized state
- 4: Dynamic braking stop, keeping de-energized state

Description

Defines the deceleration mode of the servo motor for stopping rotating and the servo motor status when a No. 2 fault occurs.

- 5: Stop at zero speed, keeping dynamic braking state
- 4: Stop at emergency stop torque, keeping dynamic braking state
- 3: Ramp to stop as defined by 6085h, keeping dynamic braking state
- 2: Ramp to stop as defined by 6084h/609Ah (HM), keeping dynamic braking state

–1: Dynamic braking stop, keeping dynamic braking state
 0: Coast to stop, keeping de-energized state
 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state
 2: Ramp to stop as defined by 6085h, keeping de-energized stat
 3: Stop at emergency stop torque, keeping de-energized state
 4: Dynamic braking stop, keeping de-energized state
 Note: If the brake is enabled, 605Eh is forced to "3: Ramp to stop as defined by 6085h, keeping dynamic braking state".

6060h**Servo drive mode**

Address:	6060h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	10	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

1: Profile position mode (pp)
 3: Profile velocity mode (pv)
 4: Profile torque mode (pt)
 6: Homing mode (hm)
 7: Interpolation mode (ip)

Description

It defines the operation mode of the servo drive.

0: N/A (internally forced to pp)

1: Profile position mode (pp)
 3: Profile velocity mode (pv)
 4: Profile torque mode (pt)
 6: Homing mode (hm)
 7: Interpolation mode (ip)

Other: N/A

If an unsupported operation mode is selected through an SDO, an SDO error will be returned.

If an unsupported operation mode is selected through a PDO, the change of the operation mode will be invalid.

6061h**Operation mode display**

Address:	6061h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	10	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

- 1: Profile position mode (pp)
- 3: Profile velocity mode (pv)
- 4: Profile torque mode (pt)
- 6: Homing mode (hm)
- 7: Interpolation mode (ip)

Description

Indicates the actual operation mode.

- 0: Profile position mode (pp)
- 1: Profile position mode (pp)
- 3: Profile velocity mode (pv)
- 4: Profile torque mode (pt)
- 6: Homing mode (hm)
- 7: Interpolation mode (ip)

6062h**Position reference**

Address:	6062h	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the real-time position reference (reference unit).

6063h**Position actual value**

Address:	6063h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the absolute position feedback (encoder unit) of the motor in real time.

6064h**Position actual value**

Address:	6064h	Effective mode:	-

Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the absolute position feedback (reference unit) in real time.

Position actual value in user-defined unit (6064h) x Gear ratio (6091h) = Position actual value in encoder unit (6063h)

6065h**Following error window**

Address:	6065h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit
Max.:	4294967295	Data Type:	UInt32
Default:	219895614	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the threshold of excessive position deviation (reference unit).

When the difference value between position demand value (6062h) and position actual value (6064h) keeps exceeding $\pm 6065h$ after the time defined by 6066h elapses, B00.0 (Position deviation too large) occurs.

6066h**Defines the time lapse to trigger excessive position deviation (EB00.0).**

Address:	6066h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the time lapse to trigger excessive position deviation (EB00.0), which must be used together with 6065h.

6067h**Position window**

Address:	6067h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit
Max.:	4294967295	Data Type:	UInt32

Default: 46976 Change: Real-time

Value Range:

0 to 4294967295

Description

Defines the threshold for position reach.

If the difference between 6062h and 6064h is within $\pm 6067h$ and the time reaches 6068h, the position is reached. In this case, bit 10 of 6041h is set to 1 in the profile position mode.

This flag bit is valid only when the S-ON signal is valid in profile position control mode.

6068h Position window time

Address: 6068h Effective mode: Real time

Min.: 0 Unit: ms
Max.: 65535 Data Type: UInt16
Default: 0 Change: Real-time

Value Range:

0 ms–65535 ms

Description

Defines the window time for position reach, which must be used together with 6067h.

606Ch Actual speed

Address: 606Ch Effective mode: -
Min.: -2147483648 Unit: Reference unit/s
Max.: 2147483647 Data Type: Int32
Default: 0 Change: Unchangeable

Value Range:

–2147483648 to +2147483647

Description

It indicates the velocity actual value.

606Dh Velocity window

Address: 606Dh Effective mode: Real time
Min.: 0 Unit: rpm
Max.: 65535 Data Type: UInt16
Default: 10 Change: Real-time

Value Range:

0 RPM to 65535 RPM

Description

Defines the threshold for speed reach.

If the difference value between the target speed 60FFh and the actual speed 606Ch is within $\pm 606Dh$ and the time reaches 606Eh, the speed is reached and bit 10 of the status word 6041h is set to 1 in the profile velocity (PV) mode.

This flag bit is meaningful only when the servo drive is enabled in PV mode.

606Eh

Velocity window time

Address:	606Eh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

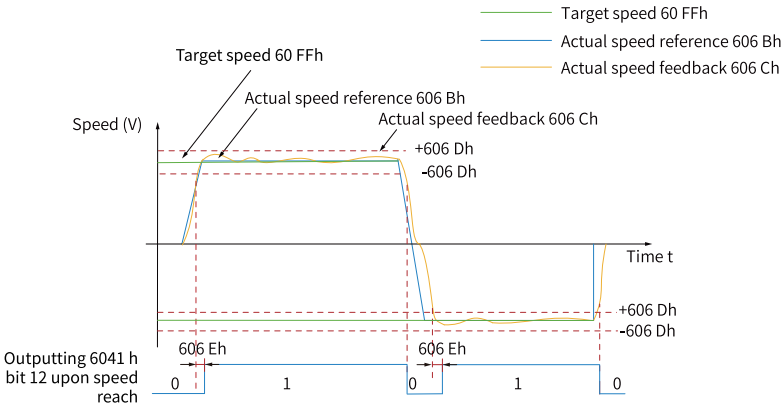
0 ms–65535 ms

Description

Defines the time window for speed reach, which must be used together with 606Dh.

Defines the time window for speed arrival. If the difference value between the target speed 60FFh and the actual speed 606Ch is within $\pm 606Dh$ and the time reaches 606Eh, the speed is reached and bit 10 of the status word 6041h is set to 1 in the profile velocity (PV) mode.

This flag bit is meaningful only when the servo drive is enabled in PV mode.



606Fh

Zero speed signal threshold

Address:	606Fh	Effective mode:	Real time

Min.:	0	Unit:	rpm
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 RPM to 65535 RPM

Description

Defines the threshold for determining whether the user velocity is 0.
When 606Ch is within $\pm 606Fh$ and the time reaches the value set by 6070h, the user velocity is 0. When either condition is not met, the user velocity is not 0.
This flag bit is valid only in PV mode.
This flag bit is unrelated to the enable/disable state of the servo drive.

6070h Velocity threshold time

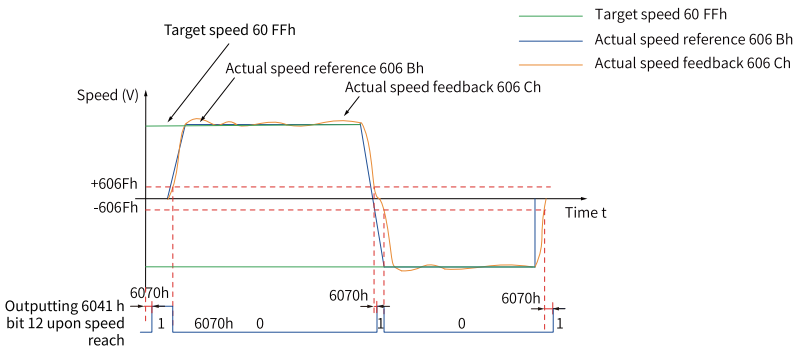
Address:	6070h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the time window for determining whether the user velocity is 0, which must be used together with 606Fh.
When 606Ch is within $\pm 606Fh$ and the time reaches the value set by 6070h, the user velocity is 0. When either condition is not met, the user velocity is not 0.
This flag bit is valid only in PV mode.
This flag bit is unrelated to the enable/disable state of the servo drive.



6071h	Target torque		
	Address:	6071h	Effective mode:
	Min.:	-4000	Unit:
	Max.:	4000	Data Type:
	Default:	0	Change:
	Value Range:		
	-4000.%—4000.0%		
	Description		
	Defines the target torque of the servo drive in the profile torque mode.		
	The value 1000 corresponds to the rated torque of the motor.		
6072h	Max. torque reference		
	Address:	6072h	Effective mode:
	Min.:	0	Unit:
	Max.:	4000	Data Type:
	Default:	3500	Change:
	Value Range:		
	0.0%—4000.0%		
	Description		
	Defines the maximum torque reference limit.		
	The value 1000 corresponds to the rated torque of the motor.		
6074h	Torque reference		
	Address:	6074h	Effective mode:
	Min.:	-4000	Unit:
	Max.:	4000	Data Type:
	Default:	0	Change:
	Value Range:		
	-4000.0%—4000.0%		
	Description		
	Defines the target torque value.		
	The value 1000 corresponds to the rated torque of the motor.		
6077h	Actual torque		
	Address:	6077h	Effective mode:
	Min.:	-4000	Unit:
	Max.:	4000	Data Type:

Default: 0

Change: Unchangeable

Value Range:

-4000.%—4000.%

Description

It displays the internal actual torque of the servo drive.

The value 1000 corresponds to the rated torque of the motor.

607Ah

Target position

Address: 607Ah

Effective mode: Real time

Min.: -2147483648

Unit: Reference unit

Max.: 2147483647

Data Type: Int32

Default: 0

Change: Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the target position of the servo drive in the profile position mode.

When bit 6 of 6040h is set to 0, 607Ah indicates the absolute target position of current segment.

After positioning of current segment is done, the value of 6064h will be the same as the value of 607Ah.

When bit 6 of 6040h is set to 1, 607Ah indicates the target increment displacement of current segment.

After positioning of current segment is done, user displacement increment will be the same as the value of 607Ah.

607Ch

Home offset

Address: 607Ch

Effective mode: At stop

Min.: -2147483648

Unit: Reference unit

Max.: 2147483647

Data Type: Int32

Default: 0

Change: Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the physical location of mechanical zero that deviates from the home of the motor in position control modes (profile position mode, interpolation mode, and homing mode).

The home offset takes effect in the following conditions: The device is powered on, the homing operation is complete, and bit15 of 6041h is set to 1.

After homing is done, the position actual value (6064h) will be the same as the value of 607Ch.

If 607Ch is outside the value of 607Dh (Software position limit), E09.1 (Home setting error) will occur.

607D.01h **Min. position limit**

Address:	607D-01h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	-2147483648	Change:	Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the minimum software position limit relative to the mechanical zero point.

Minimum software position limit = (607D.01h)

The software position limit is used to judge the absolute position. When homing is not performed, the internal software position limit is invalid.

The condition for activating the software position limit is set in H0A.01 (object dictionary 0x200A.02h).

607D.02h **Max. position limit**

Address:	607D-02h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	2147483647	Change:	Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the maximum software position limit relative to the mechanical zero.

Maximum software position limit = (607D.02h)

607Eh **Reference polarity**

Address:	607Eh	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFF	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0xFF

Description

Defines the polarity of position or speed references.

When bit 7 is 1, it indicates the position reference is multiplied by "-1" and the motor direction is reversed in the standard position mode or interpolation mode.

When bit 6 is 1, it indicates the speed reference (60FFh) is multiplied by "-1" and the motor direction is reversed in the speed mode.

When bit 5 is 1, it indicates the torque demand value (6071h) is multiplied by "-1" and the motor direction is reversed in the torque mode.

Other bits are meaningless.

607Fh

Max. speed

Address:	607Fh	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the maximum user running speed.

Set a proper gear ratio (8:1 recommended) when using a 26-bit encoder.

Otherwise, the motor speed will be limited to 3840 RPM.

6081h

Profile velocity

Address:	6081h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s
Max.:	4294967295	Data Type:	UInt32
Default:	111848106	Change:	Real-time

Value Range:

0 to 4294967295

Description

It sets the average velocity normally attained at the end of the acceleration ramp during a profiled motion.

The setpoint takes effect after the slave receives the displacement reference.

6083h

Profile acceleration

Address:	6083h	Effective mode:	Real time

Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the acceleration rate in the acceleration stage of the displacement reference in the profile position mode.

The following formula applies if a motor equipped with 23-bit encoder needs to run at 400 RPM (6081h: $400 \times 8388608/60$) with acceleration rate being 400 RPM/s (6083h: $400 \times 8388608/60$) and deceleration rate being 200 RPM/s (6084h: $200 \times 8388608/60$) under a gear ratio of 1:1:

Acceleration time $t_{up} = \Delta 6081h / \Delta 6083h = 1$ (s); Deceleration time $t_{down} = \Delta 6081h / \Delta 6084h = 2$ (s).

6084h**Profile deceleration**

Address:	6084h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the deceleration rate in the deceleration stage of the displacement reference in the profile position mode.

The following formula applies if a motor equipped with 23-bit encoder needs to run at 400 RPM (6081h: $400 \times 8388608/60$) with acceleration rate being 400 RPM/s (6083h: $400 \times 8388608/60$) and deceleration rate being 200 RPM/s (6084h: $200 \times 8388608/60$) under a gear ratio of 1:1:

Acceleration time $t_{up} = \Delta 6081h / \Delta 6083h = 1$ (s); Deceleration time $t_{down} = \Delta 6081h / \Delta 6084h = 2$ (s).

6085h**Quick stop deceleration**

Address:	6085h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	2147483647	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the deceleration rate when the quick stop command (6040h = 0x0002) is active and 605Ah (Quick stop option code) is set to 2 or 5.

6087h**Torque slope**

Address:	6087h	Effective mode:	Real time
Min.:	0	Unit:	0.1%/s
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0.%/s–4294967295.%/s

Description

It sets the rate of change of torque in profile torque mode, in unit of torque increment per second.

In the profile torque mode, if 605Ah is set to 1, 2, 5, or 6, or 605Dh is set to 1 or 2, the servo drive decelerates to stop as defined by 6087h.

If the value exceeds the torque reference limit, the servo drive runs at the limit.

6091.01h**Motor resolution**

Address:	6091-01h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	1	Change:	At stop

Value Range:

1–4294967295

Description

Defines the numerator of the gear ratio.

Defines the proportional relation between the load shaft displacement designated by the user and the motor shaft displacement.

The relation between motor position feedback (encoder unit) and load shaft position feedback (reference unit) is as follows.

Motor position feedback = Load shaft position feedback x Gear ratio

The relation between the motor speed (RPM) and the load shaft speed (reference unit/s) is as follows:

Motor speed (RPM) = Load shaft speed * 6091h * 60/Encoder resolution

The motor acceleration (RPM/ms) and the load shaft acceleration (reference unit/s²) is in the following relationship:

Motor acceleration (RPM/ms) = Load shaft acceleration * 6091h * 1000 / Encoder resolution / 60

6091.02h Shaft resolution

Address:	6091-02h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	1	Change:	At stop

Value Range:

1–4294967295

Description

Defines the denominator of the gear ratio.

6098h Homing method

Address:	6098h	Effective mode:	Real time
Min.:	-3	Unit:	-
Max.:	35	Data Type:	Int8
Default:	1	Change:	Real-time

Value Range:

-3–35

Description

It selects the homing method.

-3 Nearby, Z signal as home.

-2 Forward, positive mechanical limit as deceleration point and Z signal as home.

-1 Reverse, negative mechanical limit as deceleration point and Z signal as home.

1 Reverse, negative limit switch as deceleration point and Z signal as home, falling edge of the negative limit switch signal must be reached before Z signal.

2 Forward, positive limit switch as deceleration point and Z signal as home, falling edge of positive limit switch signal must be reached before Z signal.

3 Forward, home switch as deceleration point and Z signal as home, falling edge on the same side of the home switch signal must be reached before Z signal.

4 Reverse, home switch as deceleration point and Z signal as home, rising edge on the same side of the home switch signal must be reached before Z signal.

5 Reverse, home switch as deceleration point and Z signal as home, falling edge on the same side of the home switch signal must be reached before Z signal.

6 Forward, home switch as deceleration point and Z signal as home, rising edge on the same side of the home switch signal must be reached before Z signal.

7 Forward, home switch as deceleration point and Z signal as home, falling edge on the same side of the home switch signal must be reached before Z signal.

8 Forward, home switch as deceleration point and Z signal as home, rising edge on the same side of the home switch signal must be reached before Z signal.

- 9 Forward, home switch as deceleration point and Z signal as home, rising edge on the other side of the home switch signal must be reached before Z signal.
- 10 Forward, home switch as deceleration point and Z signal as home, falling edge on the other side of the home switch signal must be reached before Z signal.
- 11 Reverse, home switch as deceleration point and Z signal as home, falling edge on the same side of the home switch signal must be reached before Z signal.
- 12 Reverse, home switch as deceleration point and Z signal as home, rising edge on the same side of the home switch signal must be reached before Z signal.
- 13 Reverse, home switch as deceleration point and Z signal on the other side of the home switch signal as home, rising edge on the other side of the home switch signal must be reached before Z signal.
- 14 Reverse, home switch as deceleration point and Z signal on the other side of the home switch signal as home, falling edge on the other side of the home switch signal must be reached before Z signal.
- 17–32 are similar to 1–14 except that the deceleration point coincides with the home.
- 33 Reverse, Z signal as home.
- 34 Forward, Z signal as home.
- Current position as the home
- When 6098h is set to 15, 16, 31 or 32, it is meaningless and the servo drive does not perform the homing operation.

6099.01h Speed during search for switch

Address:	6099-01h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s
Max.:	4294967295	Data Type:	UInt32
Default:	111848106	Change:	At stop

Value Range:
0 to 4294967295

Description
Defines the speed during search for the deceleration point signal. A large setpoint helps prevent E601.0 (Homing timeout).

6099.02h Speed during search for zero

Address:	6099-02h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s
Max.:	4294967295	Data Type:	UInt32

Default: 11184810 Change: At stop

Value Range:

0 to 4294967295

Description

Defines the speed in searching for the home signal. Set this sub-index to a low value to avoid overshoot during stop at high speed, preventing excessive deviation between the stop position and the preset mechanical home.

609Ah

Homing acceleration

Address:	609Ah	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

It sets the acceleration during the homing operation.

60B8h

Touch probe function

Address:	60B8h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0xFFFF

Description

bit	Name	Description
0	Touch probe 1 function selection 0: Probe 1 disabled 1: Probe 1 enabled	Bit0 to bit5: settings related to probe 1 When a DI is used to trigger the touch probe function, the DI source cannot be changed once the touch probe function is enabled. For absolute encoders, Z signal refers to the zero point of the single-turn position feedback.
1	Touch probe 1 trigger mode 0: Single trigger mode (Latches the position at the first trigger event.) 1: Continuous trigger mode	
2	Touch probe 1 trigger signal selection 0: DI signal 1: Z signal	
3	N/A	
4	Touch probe 1 positive edge 0: Latching at positive edge disabled 1: Latching at positive edge enabled	
5	Touch probe 1 negative edge 0: Latching at negative edge disabled 1: Latching at negative edge enabled	
6–7	N/A	-
8	Touch probe 2 function selection 0: Probe 2 disabled 1: Probe 2 enabled	Bit8 to bit13: settings related to probe 2
9	Touch probe 2 trigger mode 0: Single trigger mode (Latches the position at the first trigger event.) 1: Continuous trigger mode	
10	Touch probe 2 trigger signal selection 0: DI signal 1: Z signal	
11	N/A	
12	Touch probe 2 positive edge 0: Latching at positive edge disabled 1: Latching at positive edge enabled	
13	Touch probe 2 negative edge 0: Latching at negative edge disabled 1: Latching at negative edge enabled	
14–15	N/A	-

60B9h**Touch probe status**

Address: 60B9h

Effective mode: -

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Defines the functions of touch probe 1 and touch probe 2.

See the following table for descriptions of each bit of 60B9h.

bit	Name	Description
0	Touch probe 1 function selection 0: Probe 1 disabled 1: Probe 1 enabled	Bit0 to bit2: Status of probe 1
1	Touch probe 1 positive edge value 0: No positive edge value latched 1: Edge value latched	
2	Touch probe 1 negative edge value 0: No negative edge value latched 1: Negative edge value latched	
3–5	N/A	-
6–7	When the function of probe 1 is selected as continuous sampling, the total number of times the probe is triggered	When the function of probe 1 is selected as continuous sampling, the total number of times (0–3) the probe is triggered
8	Probe 2 enable: 0: Probe 2 disabled 1: Probe 2 enabled	Bit8 to bit10: Status of probe 2
9	Touch probe 2 positive edge value 0: No positive edge value latched 1: Edge value latched	
10	Touch probe 2 negative edge value 0: No negative edge value latched 1: Negative edge value latched	
11–13	N/A	-
14–15	When the function of probe 2 is selected as continuous sampling, the total number of times the probe is triggered	When the function of probe 2 is selected as continuous sampling, the total number of times (0–3) the probe is triggered

60BAh**Touch probe 1 positive edge position value**

Address: 60BAh

Effective -

mode:

Min.: -2147483648

Unit: Reference unit

Max.: 2147483647

Data Type: Int32

Default: 0

Change: Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position feedback value (reference unit) latched at positive edge of touch probe 1 signal.

60BBh**Touch probe 1 negative edge position value**

Address:	60BBh	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position feedback value (reference unit) latched at negative edge of touch probe 1 signal.

60BCh**Touch probe 2 positive edge position value**

Address:	60BCh	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position feedback value (reference unit) latched at positive edge of touch probe 2 signal.

60BDh**Touch probe 2 negative edge position value**

Address:	60BDh	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position feedback value (reference unit) latched at negative edge of touch probe 2 signal.

60C1.01h Interpolation displacement

Address:	60C1-01h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the displacement reference in the interpolation mode.

In interpolation mode, 60C1.01h must be set to synchronize PDO and the transmission type must be set to 1.

The host controller will send a displacement reference to the slave upon every synchronization cycle.

60C2.01h Interpolation time period

Address:	60C2-01h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	20	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1–20

Description

Defines the interpolation time units.

The synchronization cycle must be set after the servo drive stops running.

60C2.02h Interpolation time units

Address:	60C2-02h	Effective mode:	Real time
Min.:	-3	Unit:	-
Max.:	-3	Data Type:	Int8
Default:	-3	Change:	Real-time

Value Range:

-3—3

Description

Defines the interpolation period time unit.

The value "-3" indicates the unit ms. Therefore, the actual interpolation period (ms) is the value of 60C2.01h.

60C5h**Max. acceleration**

Address:	60C5h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the maximum permissible acceleration rate of the acceleration segment in the profile position mode, profile velocity mode, and homing mode.

The setpoint 0 will be forcibly changed to 1.

60C6h**Max. deceleration**

Address:	60C6h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the maximum permissible deceleration in the profile position mode, profile velocity mode, and homing mode.

The setpoint 0 will be forcibly changed to 1.

60D5h**Touch probe 1 positive edge counter**

Address:	60D5h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

The counting value is added by "1" each time this object is triggered.

60D6h**Touch probe 1 negative edge counter**

Address:	60D6h	Effective mode:	-
Min.:	0x0	Unit:	-

Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

The counting value is added by "1" each time this object is triggered.

60D7h Touch probe 2 positive edge counter

Address:	60D7h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

The counting value is added by "2" each time this object is triggered.

60D8h Touch probe 2 negative edge counter

Address:	60D8h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

The counting value is added by "2" each time this object is triggered.

60E0h Positive torque limit

Address:	60E0h	Effective mode:	Real time
Min.:	0	Unit:	0.10%
Max.:	4000	Data Type:	UInt16
Default:	3500	Change:	Real-time

Value Range:

0.0%—4000.0%

Description

It sets the maximum positive torque in the motor.

60E1h Negative torque limit

Address:	60E1h	Effective	Real time
		mode:	
Min.:	0	Unit:	0.10%
Max.:	4000	Data Type:	UInt16
Default:	3500	Change:	Real-time

Value Range:

0.0%–4000.0%

Description

It sets the maximum negative torque in the motor.

60F4h Position deviation

Address:	60F4h	Effective	-
		mode:	
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position deviation (reference unit).

60FCh Position reference

Address:	60FCh	Effective	-
		mode:	
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position reference (encoder unit).

If no alarm is detected when the S-ON signal is active, the relation between the position reference in reference unit and that in encoder unit is as follows:

60FCh (in encoder unit) = 6062h (in reference unit) x 6091h

60FDh DI state

Address:	60FDh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Indicates current DI logic of the drive.

0: Inactive

1: Active

The signal indicated by each bit is described as follows:

Bit signal

0: Reverse overtravel signal active

1: Forward overtravel signal active

2: Home signal active

3–15: N/A

16: DI1 input active

17: DI2 input active

18: DI3 input active

19: DI4 input active

20: DI5 input active

21: DI6 input active

22: DI7 input active

23: DI8 input active

24–26: N/A

27: STO1 signal input

28: STO2 signal input

29: EDM output active

30: Z signal active

31: N/A

60FFh

PV target velocity

Address:	60FFh	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit/s
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

–2147483648 to +2147483647

Description

Defines the target speed in the profile velocity mode.

60FE.01h

Physical output

Address:	60FE-01h	Effective mode:	Real time

Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

Indicates the DO logic.

The signal indicated by each bit is described as follows:

Description of bits

0–15: N/A

16: DO1 forced output (0: off, 1: on), outputs only when DO output function 31 is configured and bit 16 of 60FE.02 is set to 1

17: DO2 forced output (0: off, 1: on), outputs only when DO output function 31 is configured and bit 17 of 60FE.02 is set to 1

18: DO3 forced output (0: off, 1: on), outputs only when DO output function 31 is configured and bit 18 of 60FE.02 is set to 1

19: DO4 forced output (0: off, 1: on), outputs only when the DO output function 31 is configured and bit 19 of 60FE.02 is set to 1

20: DO5 forced output (0: off, 1: on), outputs only when the DO output function 31 is configured and bit 20 of 60FE.02 is set to 1

21–25: N/A

26: P/PI switchover, only when bit 26 of 60FE.02 is set to 1

27–31: N/A

60FE.02h Bitmask

Address:	60FE-02h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

0 to 15: N/A

16: Forced DO1 output enable

17: Forced DO2 output enable

18: Forced DO3 output enable

19: Forced DO4 output enable

20: Forced DO5 output enable

19 to 25: N/A

26: P/PI switchover enable

27 to 31: N/A

3 Parameter List [N]

The mapping relation between the parameter displayed on the keypad (in decimal) and the object dictionary operated by the host controller (in hexadecimal, "Index" and "Sub-index") is as follows.

Object dictionary index = $0x2000 + \text{Parameter group number}$

Object dictionary sub-index = Hexadecimal offset within the parameter group + 1 For example:

Panel Display	Object dictionary operated by the host controller
H02.15	2002.10h

Note

The following section only describes the display and parameter settings on the keypad side (in decimal), which are different from those displayed in the software tool (in hexadecimal). Make necessary value conversions during use.

3.1 H00 Servo Motor Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H00.00	2000-01h	Motor SN	20000: linear motor-pulse encoder 14203: linear motor-BiSS-C encoder 14206: linear motor-SSI encoder 14207: linear motor-EnDat2.2 encoder 14202: linear motor-Inovance communication 23-bit encoder 14205: linear motor-Inovance interpolator 23-bit encoder 20001: DDR motor-pulse encoder 14210: DDR motor-Inovance interpolator 23-bit encoder 14201: DDR motor-Inovance communication 23-bit encoder 14211: DDR motor-BiSS-C encoder 14212: DDR motor-EnDat2.2 encoder 14213: DDR motor-SSI encoder 20002: rotary motor-pulse encoder	14102	-	At stop	"H00_en.00" on page 853

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
Continued			14000: rotary motor-Inovance communication 20-bit encoder 14101: rotary motor-Inovance communication 23-bit encoder 14102: rotary motor-Inovance communication 26-bit encoder 14020: rotary motor-Harmonic 20-bit encoder-2.5M baud rate 14021: rotary motor-Harmonic 17-bit encoder-2.5M baud rate 14022: rotary motor-Harmonic 17-bit encoder-4M baud rate 14120: rotary motor-Nikon 20-bit encoder-2.5M baud rate 14121: rotary motor-Nikon 17-bit encoder-2.5M baud rate 14122: rotary motor-Nikon 17-bit encoder-4M baud rate 14130: rotary motor-TAMAGAWA 17-bit encoder 14131: rotary motor-TAMAGAWA 23-bit encoder 14140: rotary motor-EnDat2.2 encoder 14150: rotary motor-SSI encoder 14160: rotary motor-BiSS-C encoder	Continued			
H00.02	2000-03h	Customized No.	0.00—42949672.95	0.00	-	Unchangeable	"H00_en.02" on page 854
H00.04	2000-05h	Encoder version	0.0—6553.5	0.0	-	Unchangeable	"H00_en.04" on page 855
H00.05	2000-06h	Encoder version	0—65535	0	-	Unchangeable	"H00_en.05" on page 855
H00.06	2000-07h	FPGA customized SN	0.00—655.35	0.00	-	Unchangeable	"H00_en.06" on page 855
H00.07	2000-08h	STO version	0.0—6553.5	0.0	-	Unchangeable	"H00_en.07" on page 855

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H00.08	2000-09h	Bus encoder type	0–65535	0	-	At stop	"H00_en.08" on page 856
H00.14	2000-0Fh	Rated speed	50[mm/s]/[rpm]–10000[mm/s]/[rpm]	3000	[mm/s]/[rpm]	At stop	"H00_en.14" on page 856
H00.15	2000-10h	Maximum speed	50[mm/s]/[rpm]–10000[mm/s]/[rpm]	6000	[mm/s]/[rpm]	At stop	"H00_en.15" on page 856
H00.18	2000-13h	Stator resistance	0.001Ω to 65.535Ω	0.500	Ω	At stop	"H00_en.18" on page 856
H00.19	2000-14h	Stator inductance Lq	0.01mH to 655.35mH	3.27	mH	At stop	"H00_en.19" on page 857
H00.20	2000-15h	Stator inductance Ld	0.01mH to 655.35mH	3.87	mH	At stop	"H00_en.20" on page 857
H00.22	2000-17h	Torque coefficient Kt	0.01[N/Arms]/[N·m/Arms]–655.35[N/Arms]/[N·m/Arms]	0.51	[N/Arms]/[N·m/Arms]	At stop	"H00_en.22" on page 857
H00.40	2000-29h	Motor control type	0: General-purpose rotary motor (ROT) 1: Direct drive rotary motor (DDR) 2: Direct drive linear motor (DDL) 3: Voice coil motor (VOL)	2	-	At stop	"H00_en.40" on page 858
H00.41	2000-2Ah	Master encoder configuration	0: CN2 1: CN7	1	-	Unchangeable	"H00_en.41" on page 858
H00.43	2000-2Ch	Number of BiSS-C/SSI/EnDat2.2 data bits	0–40	32	-	At stop	"H00_en.43" on page 858
H00.44	2000-2Dh	Number of BiSS-C/SSI fault bits	0–31	2	-	At stop	"H00_en.44" on page 859
H00.45	2000-2Eh	Encoder pitch 1	0.00[mm]/[deg]–655.35[mm]/[deg]	2.00	[mm]/[deg]	At stop	"H00_en.45" on page 859
H00.46	2000-2Fh	Encoder pitch 2	0.00[mm]/[deg]–655.35[mm]/[deg]	0.50	[mm]/[deg]	At stop	"H00_en.46" on page 859
H00.47	2000-30h	Encoder Type	0: Optical scale 1: Magnetic scale	0	-	At stop	"H00_en.47" on page 859
H00.48	2000-31h	Linear motor pole pitch (N-S)	0.00 millimeters–655.35 millimeters	16.00	mm	At stop	"H00_en.48" on page 860

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H00.49	2000-32h	Direct drive motor encoder resolution	0.000um/p–65.535um/p	1.000	um/p	At stop	"H00_en.49" on page 860
H00.54	2000-37h	BiSS-C/SSI CRC	0–1	1	-	At stop	"H00_en.54" on page 860
H00.55	2000-38h	Rated torque (Uint32)	0.00[N]/ [N·m]–42949672.95[N]/[N·m]	2.00	[N]/ [N·m]	At stop	"H00_en.55" on page 861
H00.57	2000-3Ah	Max. torque (Uint32)	0.00[N]/ [N·m]–42949672.95[N]/[N·m]	7.00	[N]/ [N·m]	At stop	"H00_en.57" on page 861
H00.59	2000-3Ch	Encoder counting direction	0: Forward 1: Reverse	0	-	At stop	"H00_en.59" on page 861
H00.63	2000-40h	Max. current (Uint32)	0.00A–42949672.95A	3.00	A	At stop	"H00_en.63" on page 861
H00.65	2000-42h	Rated current (Uint32)	0.00A–42949672.95A	1.00	A	At stop	"H00_en.65" on page 862
H00.67	2000-44h	Moment of inertia (Uint32)	0.00000[g]/ [0.00001kg·cm²]–42949.67295[g]/ [0.00001kg·cm²]	0.00001	[g]/ [0.00001kg·cm²]	At stop	"H00_en.67" on page 862
H00.69	2000-46h	Linear back EMF coefficient (Uint32)	0.00[V/(m/s)]/[100mV/rpm]–42949672.95[V/(m/s)]/[100mV/rpm]	33.00	[V/(m/s)]/[100mV/rpm]	At stop	"H00_en.69" on page 862

3.2 H01 Servo Drive Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H01.00	2001-01h	MCU software version	0.0–6553.5	0.0	-	Unchangeable	"H01_en.00" on page 863
H01.01	2001-02h	FPGA software version	0.0–6553.5	0.0	-	Unchangeable	"H01_en.01" on page 863
H01.02	2001-03h	Servo drive series No.	0–65535	0	-	Unchangeable	"H01_en.02" on page 863
H01.06	2001-07h	Board software version	0.0–6553.5	0.0	-	Unchangeable	"H01_en.06" on page 863

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H01.10	2001-0Bh	Drive series No.	2: S1R6 3: S2R8 5: S5R5 6: S7R6 7: S012 8: S018 9: S022 10: S027 10001: T3R5 10002: T5R4 10003: T8R4 10004: T012 10005: T017 10006: T021 10007: T026	3	-	At stop	"H01_en.10" on page 864
H01.11	2001-0Ch	DC-AC voltage class	0 V–65535 V	220	V	Unchangeable	"H01_en.11" on page 865
H01.12	2001-0Dh	Drive rated power	0.00 kW–42949672.95kW	0.40	kW	Unchangeable	"H01_en.12" on page 865
H01.14	2001-0Fh	Max. output power of the drive	0.00 kW–42949672.95kW	0.40	kW	Unchangeable	"H01_en.14" on page 865
H01.16	2001-11h	Rated output current of the drive	0.00 A–42949672.95 A	2.80	A	Unchangeable	"H01_en.16" on page 866
H01.18	2001-13h	Max. output current of the drive	0.00 A–42949672.95 A	10.10	A	Unchangeable	"H01_en.18" on page 866
H01.40	2001-29h	DC bus overvoltage protection threshold	0 V–2000 V	420	V	Real-time	"H01_en.40" on page 866
H01.75	2001-4Ch	Current loop amplification factor	0.00–655.35	1.00	-	Real-time	"H01_en.75" on page 867
H01.88	2001-59h	Junction temperature parameter version 1	0.0–6553.5	0.0	-	Unchangeable	"H01_en.88" on page 867
H01.89	2001-5Ah	Junction temperature parameter version 2	0–65535	0	-	Unchangeable	"H01_en.89" on page 867
H01.90	2001-5Bh	Motor property mask	0–65535	0	-	At stop	"H01_en.90" on page 867

3.3 H02 Basic Control Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H02.00	2002-01h	Control mode	0: Velocity mode 1: Position mode 2: Torque mode 7: Technology segment 9: EtherCAT mode	9	-	At stop	"H02_en.00" on page 868
H02.01	2002-02h	Absolute system selection	0: Incremental mode 1: Absolute position linear mode 2: Absolute position rotation mode 3: Absolute position linear mode (without encoder overflow alarm) 4: Absolute position single-turn mode	0	-	At stop	"H02_en.01" on page 868
H02.02	2002-03h	Rotation direction selection	0: Counterclockwise (CCW) as forward direction 1: Clockwise (CW) as forward direction	0	-	At stop	"H02_en.02" on page 869
H02.03	2002-04h	Output pulse phase	0: Phase A leads phase B 1: Phase A lags behind phase B	0	-	At stop	"H02_en.03" on page 869
H02.05	2002-06h	Stop mode at S-ON OFF	—4: Ramp to stop as defined by 6085h, keeping dynamic braking state —3: at zero speed, keeping dynamic braking state —2: Ramp to stop as defined by 6084h/609Ah (HM), keeping dynamic braking state —1: Dynamic braking stop, keeping dynamic braking state 0: Coast to stop, keeping de-energized state 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state 2: Dynamic braking stop, keeping de-energized state	0	-	Real-time	"H02_en.05" on page 869

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H02.06	2002-07h	Stop mode at No. 2 fault	-5: Stop at zero speed, keeping dynamic braking state -4: Stop at emergency stop torque, keeping dynamic braking state -3: Ramp to stop as defined by 6085h, keeping dynamic braking state -2: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping dynamic braking state -1: Dynamic braking stop, keeping dynamic braking state 0: Coast to stop, keeping de-energized state 1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping de-energized state 2: Ramp to stop as defined by 6085h, keeping de-energized state 3: Stop at emergency stop torque, keeping de-energized state 4: Dynamic braking stop, keeping de-energized state	2	-	Real-time	<i>" H02_en.06" on page 870</i>
H02.07	2002-08h	Stop mode at overtravel	0: Coast to stop, keeping de-energized state 1: Stop at zero speed, keeping position lock state 2: Stop at zero speed, keeping de-energized state 3: Stop based on ramp, keeping de-energized state 4: Stop based on ramp, keeping position lock state 5: Dynamic braking stop, keeping de-energized state 6: Dynamic braking stop, keeping dynamic braking state 7: Not responding to overtravel	1	-	At stop	<i>" H02_en.07" on page 871</i>

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H02.08	2002-09h	Stop mode at No.1 fault	0: Coast to stop, keeping de-energized state 1: Dynamic braking stop, keeping de-energized state 2: Dynamic braking stop, keeping dynamic braking state	2	-	At stop	"H02_en.08" on page 872
H02.09	2002-0Ah	Delay from brake output ON to command received	0 ms–500 ms	250	ms	Real-time	"H02_en.09" on page 873
H02.10	2002-0Bh	Delay from brake output OFF to motor de-energized	50 ms–1000 ms	150	ms	Real-time	"H02_en.10" on page 873
H02.11	2002-0Ch	Motor speed threshold at brake output OFF in rotation state	20[mm/s]/[rpm]–3000[mm/s]/[rpm]	30	[mm/s]/[rpm]	Real-time	"H02_en.11" on page 873
H02.12	2002-0Dh	Delay from S-ON OFF to brake output OFF in rotation state	1 ms–65535 ms	500	ms	Real-time	"H02_en.12" on page 873
H02.15	2002-10h	LED Alarm Display	0: Output alarm information immediately 1: Not output alarm information	0	-	Real-time	"H02_en.15" on page 874
H02.16	2002-11h	Brake enable switch	0: OFF 1: ON	0	-	Real-time	"H02_en.16" on page 874
H02.17	2002-12h	Stop mode upon main circuit power failure	0: Keep current action 1: Stop upon fault as defined by H02.06 2: Stop at S-ON OFF as defined by H02.05 3: Stop quickly as defined by H02.18	2	-	Real-time	"H02_en.17" on page 874

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H02.18	2002-13h	Quick stop mode	0: Coast to stop, keeping de-energized state 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state 2: Ramp to stop as defined by 6085h, keeping de-energized state 3: Stop at emergency stop torque, keeping de-energized state 5: Ramp to stop as defined by 6084h/609Ah (HM), keeping position lock state 6: Ramp to stop as defined by 6085h, keeping position lock state 7: Stop at emergency stop torque, keeping position lock state	2	-	Real-time	"H02_en.18" on page 875
H02.21	2002-16h	Permissible minimum resistance of braking resistor	1Ω to 1000Ω	40	Ω	Unchangeable	"H02_en.21" on page 876
H02.22	2002-17h	Power of built-in braking resistor	0W–65535W	50	W	Unchangeable	"H02_en.22" on page 876
H02.23	2002-18h	Resistance of built-in braking resistor	0Ω to 65535Ω	50	Ω	Unchangeable	"H02_en.23" on page 876
H02.24	2002-19h	Resistor heat dissipation coefficient	10% to 100%	30	%	Real-time	"H02_en.24" on page 876
H02.25	2002-1Ah	Braking resistor type	0: Built-in 1: External, natural cooling 2: External, forced air cooling 3: No resistor needed	3	-	Real-time	"H02_en.25" on page 877
H02.26	2002-1Bh	Power of external braking resistor	1 W–65535W	40	W	Real-time	"H02_en.26" on page 877
H02.27	2002-1Ch	Resistance of external braking resistor	15Ω to 1000Ω	50	Ω	Real-time	"H02_en.27" on page 878

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H02.28	2002-1Dh	Parameters Initialization	0: Parameters in group H02 and above initialized 1: Parameters in group H00, H02 and above initialized 2: All parameters initialized (default values used for model-related parameters)	0	-	At stop	"H02_en.28" on page 878
H02.30	2002-1Fh	User password	0-65535	0	-	Real-time	"H02_en.30" on page 878
H02.31	2002-20h	System parameter initialization	0: No operation 1: Restore default settings 2: Clear fault records	0	-	At stop	"H02_en.31" on page 878
H02.32	2002-21h	Selection of parameters in group H0b	0-99	50	-	Real-time	"H02_en.32" on page 879
H02.35	2002-24h	Keypad data update frequency	0 Hz-20 Hz	0	Hz	Real-time	"H02_en.35" on page 879
H02.38	2002-27h	Overload time of external resistor	0s to 200s	40	s	Real-time	"H02_en.38" on page 879
H02.41	2002-2Ah	Manufacturer password	0-65535	0	-	Real-time	"H02_en.41" on page 880
H02.47	2002-30h	Delay time from power cable breakage to brake OFF	0 ms-1000 ms	10	ms	Real-time	"H02_en.47" on page 880

3.4 H03 Terminal Input Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H03.02	2003-03h	DI1 function	0: No assignment 1: Servo ON 2: Alarm reset signal 5: Multi-reference direction 6: Multi-reference switchover CMD1 7: Multi-reference switchover CMD2 8: Multi-reference switchover CMD3 9: Multi-reference switchover CMD4 14: Positive limit switch 15: Negative limit switch 16: Positive external torque limit 17: Negative external torque limit 18: Forward jog 19: Reverse jog 24: Electronic gear 28: Multi-position reference enable 31: Home switch 34: Emergency stop 36: Internal speed limit source 38: Touch probe 1 39: Touch probe 2	14	-	Real-time	"H03_en.02" on page 880

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
Continued			40: Multi-speed enable 46: Process segment enable 47: Process segment command switchover 1 48: Process segment command switchover 2 49: Process segment command switchover 3 50: Process segment command switchover 4 51: Event trigger process segment 1 52: Event trigger process segment 2 53: Event trigger process segment 3 54: Event trigger process segment 4 55: Process segment pause 56: Gantry torque alignment 57: Gantry DI alignment enable 58: Gantry DI alignment clear 59: Gantry synchronization enable	Continued			
H03.03	2003-04h	DI1 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.03" on page 881
H03.04	2003-05h	DI2 function	See H03.02.	15	-	Real-time	"H03_en.04" on page 882
H03.05	2003-06h	DI2 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.05" on page 882
H03.06	2003-07h	DI3 function	See H03.02.	31	-	Real-time	"H03_en.06" on page 882
H03.07	2003-08h	DI3 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.07" on page 883
H03.08	2003-09h	DI4 function	See H03.02.	34	-	Real-time	"H03_en.08" on page 883
H03.09	2003-0Ah	DI4 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.09" on page 883
H03.10	2003-0Bh	DI5 function	See H03.02.	38	-	Real-time	"H03_en.10" on page 883
H03.11	2003-0Ch	DI5 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H03_en.11" on page 884
H03.50	2003-33h	Voltage-type AI1 offset	-5000 mV to 5000 mV	0	mV	Real-time	"H03_en.50" on page 884

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H03.51	2003-34h	Voltage-type AI1 input filter time constant	0.00 ms–655.35 ms	2.00	ms	Real-time	"H03_en.51" on page 884
H03.53	2003-36h	Voltage-type AI1 dead zone	0.0 mV to 1000.0 mV	10.0	mV	Real-time	"H03_en.53" on page 885
H03.54	2003-37h	Voltage-type AI1 zero drift	-500.0 mV–500.0 mV	0.0	mV	Real-time	"H03_en.54" on page 885
H03.55	2003-38h	Voltage-type AI2 offset	-5000 mV to 5000 mV	0	mV	Real-time	"H03_en.55" on page 885
H03.56	2003-39h	Voltage-type AI2 input filter time constant	0.00 ms–655.35 ms	2.00	ms	Real-time	"H03_en.56" on page 886
H03.58	2003-3Bh	Voltage-type AI2 dead zone	0.0 mV to 1000.0 mV	10.0	mV	Real-time	"H03_en.58" on page 886
H03.59	2003-3Ch	Voltage-type AI2 zero drift	-500.0 mV–500.0 mV	0.0	mV	Real-time	"H03_en.59" on page 886
H03.60	2003-3Dh	DI1 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.60" on page 887
H03.61	2003-3Eh	DI2 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.61" on page 887
H03.62	2003-3Fh	DI3 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.62" on page 887
H03.63	2003-40h	DI4 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.63" on page 887
H03.64	2003-41h	DI5 fitter time	0.00 ms–500.00 ms	3.00	ms	Real-time	"H03_en.64" on page 888
H03.80	2003-51h	Speed corresponding to analog 10 V	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	3000	[mm/s]/[rpm]	At stop	"H03_en.80" on page 888
H03.81	2003-52h	Torque corresponding to analog 10 V	0.00 to 8.00	1.00	Multiplier	At stop	"H03_en.81" on page 888

3.5 H04 Terminal Output Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H04.00	2004-01h	DO1 function	0: Undefined 1: Servo ready 2: Motor rotation signal 5: Positioning completed 6: Positioning near 9: Braking 10: Warning 11: Failure 22: Internal command completed 24: Internal motion completed 25: Comparison output DO 26: Closed-loop state 27: Left limit 28: Right limit 31: Forced communication DO 32: EDM output 33: Gantry alignment	1	-	Real-time	"H04_en.00" on page 889
H04.01	2004-02h	DO1 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H04_en.01" on page 889
H04.02	2004-03h	DO2 function	0: Undefined 1: Servo ready 2: Motor rotation signal 5: Positioning completed 6: Positioning near 9: Braking 10: Warning 11: Failure 22: Internal command completed 24: Internal motion completed 25: Comparison output DO 26: Closed-loop state 27: Left limit 28: Right limit 31: Forced communication DO 32: EDM output 33: Gantry alignment	11	-	Real-time	"H04_en.02" on page 890
H04.03	2004-04h	DO2 logic selection	0: Normally open 1: Closed	0	-	Real-time	"H04_en.03" on page 890

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H04.22	2004-17h	DO source selection	Bit0: DO1 output source 0: DO1 function output 1: Bit0 of H31.04 Bit1: DO2 output source 0: DO2 function output 1: Bit1 of H31.04	0	-	Real-time	"H04_en.22" on page 891
H04.23	2004-18h	EtherCAT communication-forced DO logic in non-OP status	Bit0: DO1 0: Maintain output 1: No output Bit1: DO2 0: Maintain output 1: No output	0	-	Real-time	"H04_en.23" on page 891
H04.24	2004-19h	DO brake enable	0: Disabled 1: Enabled	0	-	At stop	"H04_en.24" on page 891
H04.50	2004-33h	AO1 signal selection	0: Motor speed (1 V/1000 [mm/s]/[rpm]) 1: Speed reference (1 V/1000 [mm/s]/[rpm]) 2: Torque reference (1 V/100 x rated torque) 3: Position deviation (0.5 mV/1 reference unit) 4: Position deviation (0.5 mV/1 encoder unit) 5: Position reference speed (1 V/1000 [mm/s]/[rpm]) 6: Positioning completed 8: AI1 voltage 9: AI2 voltage 10: Defined by H31.05	0	-	Real-time	"H04_en.50" on page 892
H04.51	2004-34h	AO1 offset voltage	-10000 mV–10000 mV	0	mV	Real-time	"H04_en.51" on page 892
H04.52	2004-35h	AO1 ratio	-99.99–99.99	1.00	-	Real-time	"H04_en.52" on page 892

3.6 H05 Position Control Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.00	2005-01h	Primary position reference source	2: Multi-position reference	2	-	Real-time	"H05_en.00" on page 893
H05.02	2005-03h	Pulses per revolution	0–4294967295	0	[P/N- N]/[P/ Rev]	At stop	"H05_en.02" on page 893
H05.04	2005-05h	First-order low-pass filter time constant	0.0 ms–6553.5 ms	0.0	ms	At stop	"H05_en.04" on page 893
H05.06	2005-07h	Moving average filter time constant 1	0.0 ms–128.0 ms	0.0	ms	At stop	"H05_en.06" on page 894
H05.07	2005-08h	Electronic gear ratio 1 (numerator)	1–1073741824	1	-	Real-time	"H05_en.07" on page 894
H05.09	2005-0Ah	Electronic gear ratio 1 (denominator)	1–1073741824	1	-	Real-time	"H05_en.09" on page 894
H05.11	2005-0Ch	Electronic gear ratio 2 (numerator)	1–1073741824	1	-	Real-time	"H05_en.11" on page 894
H05.13	2005-0Eh	Electronic gear ratio 2 (denominator)	1–1073741824	1	-	Real-time	"H05_en.13" on page 895
H05.17	2005-12h	Number of encoder frequency-division pulses	0–4194303	2500	[P/N- N]/[P/ Rev]	At stop	"H05_en.17" on page 895
H05.19	2005-14h	Speed feedforward control	0: No speed feedforward 1: Internal speed feedforward 2: H05.72 3: Zero phase	1	-	At stop	"H05_en.19" on page 895

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.20	2005-15h	Condition for positioning completed signal output	0: When absolute value of position deviation is smaller than the value of H05.21, a positioning completion ON signal is output. 1: When filtered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. 2: When unfiltered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. 3: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the unfiltered position command and the absolute value of the position deviation.	0	-	Real-time	"H05_en.20" on page 896

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
		Continued	4: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the filtered position command and the absolute value of the position deviation. 5: When the unfiltered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.			Continued	

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
		Continued	6: When the filtered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. 7: When the unfiltered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. 8: When the filtered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.			Continued	

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
Continued			9: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. 10: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.	Continued			
H05.21	2005-16h	Threshold of positioning completed	1 to 65535	46976	Encoder unit	Real-time	"H05_en.21" on page 899
H05.22	2005-17h	Proximity threshold	1 to 65535	65535	Encoder unit	Real-time	"H05_en.22" on page 900
H05.30	2005-1Fh	Homing enable selection	0: Disabled 6: Current position as home	0	-	Real-time	"H05_en.30" on page 900
H05.35	2005-24h	Home search time limit	0 ms–65535 ms	10000	ms	Real-time	"H05_en.35" on page 901
H05.36	2005-25h	Mechanical home offset	-2147483648 to 2147483647	0	Reference unit	Real-time	"H05_en.36" on page 901
H05.38	2005-27h	Frequency-division output source	0: Encoder frequency-division output 2: Frequency-division output inhibited 3: Second encoder frequency-division output 4: H31-01 reference frequency output	0	-	Real-time	"H05_en.38" on page 901

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.39	2005-28h	Electronic gear ratio switchover condition	0: Switchover after position reference is kept 0 for 2.5 ms 1: Switched in real time	0	-	At stop	"H05_en.39" on page 902
H05.40	2005-29h	Mechanical home offset and action upon overtravel	0: H05.36 as the coordinate after homing, reverse homing applied after homing triggered again on overtravel 1: H05.36 as the relative offset after homing, reverse homing applied after homing triggered again on overtravel 2: H05.36 as the coordinate after homing, reverse homing auto-applied on overtravel 3: H05.36 as the relative offset after homing, reverse homing auto-applied on overtravel	0	-	Real-time	"H05_en.40" on page 902
H05.41	2005-2Ah	Z pulse output polarity	bit0: Frequency-division Z output polarity 0: Positive (high level upon active Z pulse) 1: Negative (low level upon active Z pulse) bit1: OCZ output polarity 0: Positive (high level upon active Z pulse) 1: Negative (low level upon active Z pulse) bit2: Inner loop probe Z signal source 0: Motor Z signal 1: Frequency-division output Z signal	0x1	-	At stop	"H05_en.41" on page 903
H05.44	2005-2Dh	Numerator of frequency-division output reduction ratio	1–16383	1	-	At stop	"H05_en.44" on page 903
H05.45	2005-2Eh	Denominator of frequency-division output reduction ratio	1–8191	1	-	At stop	"H05_en.45" on page 904

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.46	2005-2Fh	DI selection of multi-turn frequency-division Z starting point	0: No operation 1: DI1 2: DI2 3: DI3 4: DI4 5: DI5	0	-	Real-time	"H05_en.46" on page 904
H05.47	2005-30h	Frequency-division Z pulse width	0μs to 400μs	0	μs	Real-time	"H05_en.47" on page 905
H05.48	2005-31h	Frequency-division output dead zone setting threshold	0 to 255	0	Encoder unit	Real-time	"H05_en.48" on page 905
H05.50	2005-33h	Mechanical gear ratio in absolute position rotation mode (numerator)	1–65535	1	-	At stop	"H05_en.50" on page 905
H05.51	2005-34h	Mechanical gear ratio in absolute position rotation mode (denominator)	1–65535	1	-	At stop	"H05_en.51" on page 906
H05.52	2005-35h	Pulses per revolution of the load in absolute position rotation mode (low 32 bits)	0 to 4294967295	0	Encoder unit	At stop	"H05_en.52" on page 906
H05.54	2005-37h	Pulses per revolution of the load in absolute position rotation mode (high 32 bits)	0 to 4294967295	0	Encoder unit	At stop	"H05_en.54" on page 906
H05.58	2005-3Bh	Torque threshold in homing upon hit-and-stop	0.0% to 400.0%	100.0	%	Real-time	"H05_en.58" on page 906
H05.59	2005-3Ch	Positioning window time	0 ms–30000 ms	0	ms	Real-time	"H05_en.59" on page 907

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H05.60	2005-3Dh	Hold time of positioning completed	0 ms–30000 ms	0	ms	Real-time	"H05_en.60" on page 907
H05.66	2005-43h	Homing time unit	0: 1 ms 1: 10 ms 2: 100 ms	2	-	At stop	"H05_en.66" on page 908
H05.67	2005-44h	Offset between zero point and single-turn absolute position	-2147483648 to 2147483647	0	Encoder unit	At stop	"H05_en.67" on page 908
H05.71	2005-48h	Motor Z signal width	1 ms–100 ms	4	ms	Real-time	"H05_en.71" on page 909
H05.72	2005-49h	External speed feedforward source selection	0: 60B1 1: AI1 2: AI2	0	-	Real-time	"H05_en.72" on page 909

3.7 H06 Speed Control Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.00	2006-01h	Source of main speed reference A	0: Digital setting (H06.03) 1: AI1 2: AI2	0	-	At stop	"H06_en.00" on page 909
H06.01	2006-02h	Source of auxiliary speed reference B	0: Digital setting (H06.03) 1: AI1 2: AI2 5: Multi-speed reference	1	-	At stop	"H06_en.01" on page 910
H06.02	2006-03h	Speed reference source	0: Source of main speed reference A 1: Source of auxiliary speed reference B 2: A+B 3: Switched between A and B 4: Communication	0	-	At stop	"H06_en.02" on page 910
H06.03	2006-04h	Speed reference set through keypad	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H06_en.03" on page 911
H06.04	2006-05h	DI jog speed reference	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	150	[mm/s]/[rpm]	Real-time	"H06_en.04" on page 911

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.05	2006-06h	Acc. ramp time of speed reference	0 ms–65535 ms	0	ms	Real-time	"H06_en.05" on page 911
H06.06	2006-07h	Dec. ramp time of speed reference	0 ms–65535 ms	0	ms	Real-time	"H06_en.06" on page 912
H06.07	2006-08h	Maximum speed limit	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	7000	[mm/s]/[rpm]	Real-time	"H06_en.07" on page 912
H06.08	2006-09h	Forward speed threshold	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	7000	[mm/s]/[rpm]	Real-time	"H06_en.08" on page 912
H06.09	2006-0Ah	Reverse speed threshold	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	7000	[mm/s]/[rpm]	Real-time	"H06_en.09" on page 913
H06.10	2006-0Bh	Deceleration unit in emergency stop	0: Multiplied by 1 1: Multiplied by 10 2: Multiplied by 100	0	-	At stop	"H06_en.10" on page 913
H06.11	2006-0Ch	Torque feedforward control	0: No torque feedforward 1: Internal torque feedforward 2: 60B2h as external torque feedforward 3: STune mode 5	1	-	Real-time	"H06_en.11" on page 913
H06.12	2006-0Dh	Acc./dec. ramp time of speed jog	0 ms–65535 ms	10	ms	Real-time	"H06_en.12" on page 914
H06.13	2006-0Eh	Speed feedforward smoothing filter	0μs to 65535μs	0	μs	Real-time	"H06_en.13" on page 914
H06.15	2006-10h	Zero clamp speed threshold	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	10	[mm/s]/[rpm]	Real-time	"H06_en.15" on page 914
H06.16	2006-11h	Threshold of TGON (motor rotation) signal	0[mm/s]/[rpm]–1000[mm/s]/[rpm]	20	[mm/s]/[rpm]	Real-time	"H06_en.16" on page 915
H06.17	2006-12h	Threshold of V-Cmp (speed matching) signal	0[mm/s]/[rpm]–100[mm/s]/[rpm]	10	[mm/s]/[rpm]	Real-time	"H06_en.17" on page 915
H06.18	2006-13h	Threshold of speed reach signal	20[mm/s]/[rpm]–10000[mm/s]/[rpm]	1000	[mm/s]/[rpm]	Real-time	"H06_en.18" on page 915

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.19	2006-14h	Threshold of zero speed output signal	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	10	[mm/s]/[rpm]	Real-time	"H06_en.19" on page 916
H06.50	2006-33h	Speed S-curve enable switch	0: Disabled 1: Enabled	1	-	At stop	"H06_en.50" on page 916
H06.51	2006-34h	Increasing acceleration 1 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.51" on page 916
H06.52	2006-35h	Decreasing acceleration 1 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.52" on page 916
H06.53	2006-36h	Decreasing deceleration 1 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.53" on page 917
H06.54	2006-37h	Decreasing acceleration 1 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.54" on page 917
H06.55	2006-38h	Increasing acceleration 2 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.55" on page 917
H06.56	2006-39h	Decreasing acceleration 2 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.56" on page 918

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.57	2006-3Ah	Decreasing deceleration 2 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.57" on page 918
H06.58	2006-3Bh	Decreasing acceleration 2 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.58" on page 918
H06.59	2006-3Ch	Increasing acceleration 3 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.59" on page 919
H06.60	2006-3Dh	Decreasing acceleration 3 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.60" on page 919
H06.61	2006-3Eh	Decreasing deceleration 3 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.61" on page 919
H06.62	2006-3Fh	Decreasing acceleration 3 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.62" on page 920
H06.63	2006-40h	Increasing acceleration 4 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.63" on page 920

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.64	2006-41h	Decreasing acceleration 4 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.64" on page 920
H06.65	2006-42h	Decreasing deceleration 4 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.65" on page 921
H06.66	2006-43h	Decreasing acceleration 4 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.66" on page 921
H06.67	2006-44h	Increasing acceleration 5 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.67" on page 921
H06.68	2006-45h	Decreasing acceleration 5 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.68" on page 922
H06.69	2006-46h	Decreasing deceleration 5 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.69" on page 922
H06.70	2006-47h	Decreasing acceleration 5 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.70" on page 922

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.71	2006-48h	Increasing acceleration 6 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.71" on page 923
H06.72	2006-49h	Decreasing acceleration 6 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.72" on page 923
H06.73	2006-4Ah	Decreasing deceleration 6 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.73" on page 923
H06.74	2006-4Bh	Decreasing acceleration 6 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.74" on page 924
H06.75	2006-4Ch	Increasing acceleration 7 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.75" on page 924
H06.76	2006-4Dh	Decreasing acceleration 7 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.76" on page 924
H06.77	2006-4Eh	Decreasing deceleration 7 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.77" on page 925

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H06.78	2006-4Fh	Decreasing acceleration 7 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.78" on page 925
H06.79	2006-50h	Increasing acceleration 8 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.79" on page 925
H06.80	2006-51h	Decreasing acceleration 8 of speed S-curve acceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.80" on page 926
H06.81	2006-52h	Decreasing deceleration 8 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.81" on page 926
H06.82	2006-53h	Decreasing acceleration 8 of speed S-curve deceleration segment	0.0% to 100.0%	50.0	%	At stop	"H06_en.82" on page 926

3.8 H07 Torque Control Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H07.00	2007-01h	Source of main torque reference A	0: Keypad (H07.03) 1: AI1 2: AI2	0	-	At stop	"H07_en.00" on page 927
H07.01	2007-02h	Source of auxiliary torque reference B	0: Keypad (H07.03) 1: AI1 2: AI2	1	-	At stop	"H07_en.01" on page 927

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H07.02	2007-03h	Torque reference source	0: Source of main torque reference A 1: Source of auxiliary torque reference B 2: Source of A+B 3: Switched between A and B 4: Communication	0	-	At stop	"H07_en.02" on page 927
H07.03	2007-04h	Torque reference set through keypad	-400.0% to 400.0%	0.0	%	Real-time	"H07_en.03" on page 928
H07.05	2007-06h	Torque reference filter time constant 1	0.00 ms–30.00 ms	0.50	ms	Real-time	"H07_en.05" on page 928
H07.06	2007-07h	Torque reference filter time constant 2	0.00 ms–30.00 ms	0.27	ms	Real-time	"H07_en.06" on page 928
H07.07	2007-08h	Torque Limit source	0: Positive/Negative internal torque limit 1: Internal or external limit as defined by DI 2: T_LMT 3: T_LMT or external limit as defined by DI (FunIN.16 or FunIN.17) 4: T_LMT or internal limit (FunIN.16 or FunIN.17) as defined by DI	0	-	Real-time	"H07_en.07" on page 929
H07.08	2007-09h	T-LMT selection	1: AI1 2: AI2	1	-	Real-time	"H07_en.08" on page 929
H07.09	2007-0Ah	Positive internal torque limit	0.0% to 400.0%	350.0	%	Real-time	"H07_en.09" on page 930
H07.10	2007-0Bh	Negative internal torque limit	0.0% to 400.0%	350.0	%	Real-time	"H07_en.10" on page 930
H07.11	2007-0Ch	Positive external torque limit	0.0% to 400.0%	350.0	%	Real-time	"H07_en.11" on page 930
H07.12	2007-0Dh	Negative external torque limit	0.0% to 400.0%	350.0	%	Real-time	"H07_en.12" on page 930
H07.15	2007-10h	Emergency-stop torque	0.0% to 400.0%	100.0	%	Real-time	"H07_en.15" on page 931

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H07.17	2007-12h	Speed limit source	0: Internal speed limit 1: V-LMT 2: H07.19 or H07.20 as defined by DI	0	-	Real-time	"H07_en.17" on page 931
H07.18	2007-13h	V-LMT selection	1: AI1 2: AI2	1	-	Real-time	"H07_en.18" on page 931
H07.19	2007-14h	Positive speed limit/Speed limit 1 in torque control	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	3000	[mm/s]/[rpm]	Real-time	"H07_en.19" on page 932
H07.20	2007-15h	Negative speed limit/Speed limit 2 in torque control	0[mm/s]/[rpm]–10000[mm/s]/[rpm]	3000	[mm/s]/[rpm]	Real-time	"H07_en.20" on page 932
H07.21	2007-16h	Torque reach base value	0.0% to 400.0%	0.0	%	Real-time	"H07_en.21" on page 932
H07.22	2007-17h	Torque reach valid value	0.0% to 400.0%	20.0	%	Real-time	"H07_en.22" on page 932
H07.23	2007-18h	Torque reach invalid value	0.0% to 400.0%	10.0	%	Real-time	"H07_en.23" on page 933
H07.24	2007-19h	Field weakening depth	60% to 115%	115	%	Real-time	"H07_en.24" on page 933
H07.25	2007-1Ah	Max. permissible demagnetizing current	0% to 300%	100	%	Real-time	"H07_en.25" on page 933
H07.26	2007-1Bh	Field weakening selection	0: Disabled 1: Enabled	0	-	At stop	"H07_en.26" on page 934
H07.27	2007-1Ch	Flux weakening gain	0.001 kHz–1.000 kHz	0.030	kHz	Real-time	"H07_en.27" on page 934
H07.28	2007-1Dh	Speed of flux weakening point	0–65535	0	-	Unchangeable	"H07_en.28" on page 934
H07.35	2007-24h	Torque non-standard feature enable	bit0: Motor output correction enable bit1: Shield compensation data enable	0	-	At stop	"H07_en.35" on page 934
H07.36	2007-25h	Time constant of low-pass filter 2	0.00 ms–10.00 ms	0.00	ms	Real-time	"H07_en.36" on page 935
H07.37	2007-26h	Torque reference filter selection	0: First-order filter 1: Biquad filter	0	-	Real-time	"H07_en.37" on page 935

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H07.38	2007-27h	Biquad filter attenuation ratio	0–50	16	-	Real-time	"H07_en.38" on page 935
H07.40	2007-29h	Speed limit threshold in torque control mode	0 ms–300 ms	10	ms	Real-time	"H07_en.40" on page 936
H07.42	2007-2Bh	Biquad low pass filter damping coefficient	0.001–10.000	1.000	-	Real-time	"H07_en.42" on page 936

3.9 H08 Gain Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.00	2008-01h	Speed loop gain	0.0 Hz–2000.0 Hz	40.0	Hz	Real-time	"H08_en.00" on page 936
H08.01	2008-02h	Speed loop integral time constant	0.15 ms–512.00 ms	19.89	ms	Real-time	"H08_en.01" on page 937
H08.02	2008-03h	Position loop gain	0.0 Hz–2000.0 Hz	64.0	Hz	Real-time	"H08_en.02" on page 937
H08.03	2008-04h	2nd speed loop gain	0.1 Hz–2000.0 Hz	75.0	Hz	Real-time	"H08_en.03" on page 937
H08.04	2008-05h	2nd speed loop integral time constant	0.15 ms–512.00 ms	10.61	ms	Real-time	"H08_en.04" on page 938
H08.05	2008-06h	2nd position loop gain	0.1 Hz–2000.0 Hz	120.0	Hz	Real-time	"H08_en.05" on page 938
H08.08	2008-09h	2nd gain mode setting	0: Fixed to the 1st gain, switched between P and PI as defined by bit26 of external 60FEh 1: Switched between the 1st and 2nd gain sets as defined by H08.09	1	-	Real-time	"H08_en.08" on page 938

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.09	2008-0Ah	Gain switchover condition	0: Fixed to the 1st gain set (PS) 1: Switched as defined by bit26 of 60FEh 2: Torque reference too large (PS) 3: Speed reference too large (PS) 4: Speed reference change rate too large (PS) 5: Speed reference low/high speed threshold (PS) 6: Position deviation too large (P) 7: Position reference available (P) 8: Positioning unfinished (P) 9: Actual speed (P) 10: Position reference + Actual speed (P)	0	-	Real-time	"H08_en.09" on page 939
H08.10	2008-0Bh	Gain switchover delay	0.0 ms–1000.0 ms	5.0	ms	Real-time	"H08_en.10" on page 939
H08.11	2008-0Ch	Gain switchover level	0–20000	50	-	Real-time	"H08_en.11" on page 940
H08.12	2008-0Dh	Gain switchover hysteresis	0–20000	30	-	Real-time	"H08_en.12" on page 940
H08.13	2008-0Eh	Position gain switchover time	0.0 ms–1000.0 ms	3.0	ms	Real-time	"H08_en.13" on page 941
H08.15	2008-10h	Load moment of inertia ratio	0.00–120.00	1.00	-	Real-time	"H08_en.15" on page 941
H08.17	2008-12h	Zero phase delay	0.0 ms–4.0 ms	0.0	ms	Real-time	"H08_en.17" on page 941
H08.18	2008-13h	Time constant of speed feedforward filter	0.00 ms–64.00 ms	0.50	ms	Real-time	"H08_en.18" on page 942
H08.19	2008-14h	Speed feedforward gain	0.0% to 100.0%	0.0	%	Real-time	"H08_en.19" on page 942
H08.20	2008-15h	Torque feedforward filter time constant	0.00 ms–64.00 ms	0.50	ms	Real-time	"H08_en.20" on page 942

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.21	2008-16h	Torque feedforward gain	0.0% to 300.0%	0.0	%	Real-time	"H08_en.21" on page 943
H08.22	2008-17h	Speed feedback filtering option	0: Inhibited 1: 2 times 2: 4 times 3: 8 times 4: 16 times	0	-	At stop	"H08_en.22" on page 943
H08.23	2008-18h	Cutoff frequency of speed feedback low-pass filter	100 Hz–8000 Hz	8000	Hz	Real-time	"H08_en.23" on page 944
H08.24	2008-19h	PDF control coefficient	0.0% to 200.0%	100.0	%	Real-time	"H08_en.24" on page 944
H08.25	2008-1Ah	Speed measurement method	0: M-method 1: MT-method	0	-	At stop	"H08_en.25" on page 945
H08.27	2008-1Ch	Speed observer cutoff frequency	50 Hz–600 Hz	170	Hz	Real-time	"H08_en.27" on page 945
H08.28	2008-1Dh	Speed observer inertia correction coefficient	1% to 1600%	100	%	Real-time	"H08_en.28" on page 945
H08.29	2008-1Eh	Speed observer filter time	0.00 ms–10.00 ms	0.80	ms	Real-time	"H08_en.29" on page 946
H08.31	2008-20h	Disturbance cutoff frequency	1 Hz–4000 Hz	600	Hz	Real-time	"H08_en.31" on page 946
H08.32	2008-21h	Disturbance compensation gain	0% to 100%	0	%	Real-time	"H08_en.32" on page 946
H08.33	2008-22h	Disturbance observer inertia correction coefficient	1% to 1600%	100	%	Real-time	"H08_en.33" on page 947
H08.37	2008-26h	Phase modulation for medium-frequency jitter suppression 2	-90° to 90°	0	°	Real-time	"H08_en.37" on page 947
H08.38	2008-27h	Medium-frequency suppression 2 frequency	0 Hz–1000 Hz	0	Hz	Real-time	"H08_en.38" on page 947

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.39	2008-28h	Compensation gain of medium-frequency jitter suppression 2	0% to 300%	0	%	Real-time	"H08_en.39" on page 947
H08.40	2008-29h	Speed observer selection	0: Disabled 1: Enabled	0	-	Real-time	"H08_en.40" on page 948
H08.42	2008-2Bh	Model control selection	0: Disabled 1: Enabled 2: Reserved 4: Model tracking B	0	-	Real-time	"H08_en.42" on page 948
H08.43	2008-2Ch	Model gain	0.1–2000.0	40.0	-	Real-time	"H08_en.43" on page 948
H08.46	2008-2Fh	Feedforward value	0.0–102.4	95.0	-	Real-time	"H08_en.46" on page 949
H08.48	2008-31h	Model torque feedforward forward compensation coefficient	0.0–204.8	102.4	-	Real-time	"H08_en.48" on page 949
H08.49	2008-32h	Model torque feedforward reverse compensation coefficient	0.0–204.8	102.4	-	Real-time	"H08_en.49" on page 949
H08.53	2008-36h	Medium- and low-frequency jitter suppression frequency 3	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H08_en.53" on page 950
H08.54	2008-37h	Medium- and low-frequency jitter suppression compensation 3	0% to 200%	0	%	Real-time	"H08_en.54" on page 950
H08.56	2008-39h	Medium- and low-frequency jitter suppression phase modulation 3	0% to 600%	100	%	Real-time	"H08_en.56" on page 950

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.59	2008-3Ch	Medium- and low-frequency jitter suppression frequency 4	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H08_en.59" on page 950
H08.60	2008-3Dh	Medium- and low-frequency jitter suppression compensation 4	0% to 200%	0	%	Real-time	"H08_en.60" on page 951
H08.61	2008-3Eh	Medium- and low-frequency jitter suppression phase modulation 4	0% to 600%	100	%	Real-time	"H08_en.61" on page 951
H08.62	2008-3Fh	Position loop integral time constant	0.15–512.00	512.00	-	Real-time	"H08_en.62" on page 951
H08.63	2008-40h	2nd position loop integral time constant	0.15–512.00	512.00	-	Real-time	"H08_en.63" on page 952
H08.64	2008-41h	Speed observer feedback source	0: Observer output speed 1: Observer observed speed	0	-	Real-time	"H08_en.64" on page 952
H08.65	2008-42h	Zero deviation control selection	0: Disabled 1: Enabled	0	-	Real-time	"H08_en.65" on page 952
H08.66	2008-43h	Zero deviation control position average filter	0.0 ms–320.0 ms	5.0	ms	At stop	"H08_en.66" on page 952
H08.68	2008-45h	Speed feedforward of zero deviation control	0.0% to 100.0%	100.0	%	Real-time	"H08_en.68" on page 953

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H08.69	2008-46h	Torque feedforward of zero deviation control	0.0% to 100.0%	100.0	%	Real-time	"H08_en.69" on page 953
H08.90	2008-5Bh	Encoder scale spacing ripple suppressor enable	0: Disabled 1: 1st group activated only-adaptive mode 2: 1st group activated only-hysteresis mode 3: Two groups activated-adaptive mode 4: Two groups activated-hysteresis mode	0	-	Real-time	"H08_en.90" on page 953

3.10 H09 Auto-tuning Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.00	2009-01h	Auto-adjustment mode	0: Disabled, manual gain tuning required 1: Enabled, gain parameters generated automatically based on the stiffness level 2: Positioning mode, gain parameters generated automatically based on the stiffness level 3: Interpolation mode+Inertia auto-tuning 4: Normal mode+Inertia auto-tuning 5: Stune mode 5 6: Quick positioning mode+Inertia auto-tuning 9: Model tracking + Inertia auto-tuning + Friction force compensation	4	-	Real-time	"H09_en.00" on page 954
H09.01	2009-02h	Stiffness level selection	0–41	15	-	Real-time	"H09_en.01" on page 955

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.02	2009-03h	Mode selection of adaptive notch	0: Adaptive notch no longer updated 1: One adaptive notch activated (3rd notch) 2: Two adaptive notches activated (3rd and 4th notches) 3: Resonance point tested only (displayed in H09.24) 4: Adaptive notch cleared, values of 3rd and 4th notches restored to default	0	-	Real-time	"H09_en.02" on page 955
H09.03	2009-04h	Online inertia auto-tuning mode	0: Disabled 1: Enabled, changing slowly 2: Enabled, changing normally 3: Enabled, changing quickly	0	-	Real-time	"H09_en.03" on page 956
H09.05	2009-06h	Offline inertia auto-tuning mode	0: Bi-directional 1: Unidirectional	0	-	At stop	"H09_en.05" on page 956
H09.06	2009-07h	Max. speed of inertia auto-tuning	100[mm/s]/[rpm]–1000[mm/s]/[rpm]	500	[mm/s]/[rpm]	At stop	"H09_en.06" on page 957
H09.07	2009-08h	Time constant for accelerating to max. speed during inertia auto-tuning	10 ms–5000 ms	125	ms	At stop	"H09_en.07" on page 957
H09.08	2009-09h	Interval time after an individual inertia auto-tuning	50 ms–10000 ms	800	ms	At stop	"H09_en.08" on page 957
H09.09	2009-0Ah	Motor rotating distance per inertia auto-tuning	0.00[mm]/[Rev]–100.00[mm]/[Rev]	1.00	[mm]/[Rev]	Real-time	"H09_en.09" on page 958
H09.11	2009-0Ch	Vibration threshold	0.0% to 100.0%	5.0	%	Real-time	"H09_en.11" on page 958
H09.12	2009-0Dh	Frequency of the 1st notch	50 Hz–8000 Hz	8000	Hz	Real-time	"H09_en.12" on page 958
H09.13	2009-0Eh	Width level of the 1st notch	0–20	2	-	Real-time	"H09_en.13" on page 959
H09.14	2009-0Fh	Depth level of the 1st notch	0–99	0	-	Real-time	"H09_en.14" on page 959

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.15	2009-10h	Frequency of the 2nd notch	50 Hz–8000 Hz	8000	Hz	Real-time	"H09_en.15" on page 959
H09.16	2009-11h	Width level of the 2nd notch	0–20	2	-	Real-time	"H09_en.16" on page 959
H09.17	2009-12h	Depth level of the 2nd notch	0–99	0	-	Real-time	"H09_en.17" on page 960
H09.18	2009-13h	Frequency of the 3rd notch	50 Hz–8000 Hz	8000	Hz	Real-time	"H09_en.18" on page 960
H09.19	2009-14h	Width level of the 3rd notch	0–20	2	-	Real-time	"H09_en.19" on page 960
H09.20	2009-15h	Depth level of the 3rd notch	0–99	0	-	Real-time	"H09_en.20" on page 961
H09.21	2009-16h	Frequency of the 4th notch	50 Hz–8000 Hz	8000	Hz	Real-time	"H09_en.21" on page 961
H09.22	2009-17h	Width level of the 4th notch	0–20	2	-	Real-time	"H09_en.22" on page 961
H09.23	2009-18h	Depth level of the 4th notch	0–99	0	-	Real-time	"H09_en.23" on page 961
H09.24	2009-19h	Auto-tuned resonance frequency	0 Hz–5000 Hz	0	Hz	Unchangeable	"H09_en.24" on page 962
H09.32	2009-21h	Gravity compensation value	-100.0% to 100.0%	0.0	%	Real-time	"H09_en.32" on page 962
H09.33	2009-22h	Positive friction compensation value	0.0% to 100.0%	0.0	%	Real-time	"H09_en.33" on page 962
H09.34	2009-23h	Negative friction compensation value	-100.0% to 0.0%	0.0	%	Real-time	"H09_en.34" on page 962
H09.35	2009-24h	Friction compensation speed	0.0–20.0	2.0	-	Real-time	"H09_en.35" on page 963

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.36	2009-25h	Friction compensation speed	0: Slow mode+Speed reference 1: Slow mode+Model speed 2: Slow mode+Speed feedback 3: Slow mode+Observe speed 16: Quick mode +Speed reference 17: Quick mode +Model speed 18: Quick mode +Speed feedback 19: Quick mode+Observe speed	0x0	-	Real-time	"H09_en.36" on page 963
H09.37	2009-26h	Vibration monitoring time	0–65535	300	-	Real-time	"H09_en.37" on page 964
H09.38	2009-27h	Frequency of low-frequency resonance suppression 1 at the mechanical end	1.0 Hz–100.0 Hz	100.0	Hz	At stop	"H09_en.38" on page 964
H09.39	2009-28h	Low-frequency resonance suppression 1 at the mechanical end	0–3	2	-	At stop	"H09_en.39" on page 964
H09.44	2009-2Dh	Frequency of low-frequency resonance suppression 2 at the mechanical end	0.0 Hz–200.0 Hz	0.0	Hz	At stop	"H09_en.44" on page 965
H09.45	2009-2Eh	Responsiveness of low-frequency resonance suppression 2 at mechanical load end	0.01–10.00	1.00	-	At stop	"H09_en.45" on page 965
H09.47	2009-30h	Width of low-frequency resonance suppression 2 at mechanical load end	0.00–2.00	1.00	-	At stop	"H09_en.47" on page 965

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.49	2009-32h	Frequency of low-frequency resonance suppression 3 at the mechanical end	0.0 Hz–200.0 Hz	0.0	Hz	At stop	"H09_en.49" on page 966
H09.50	2009-33h	Responsiveness of low-frequency resonance suppression 3 at mechanical load end	0.01–10.00	1.00	-	At stop	"H09_en.50" on page 966
H09.52	2009-35h	Width of low-frequency resonance suppression 3 at mechanical load end	0.00–2.00	1.00	-	At stop	"H09_en.52" on page 966
H09.54	2009-37h	Resonance detection torque threshold	0.0% to 300.0%	50.0	%	Real-time	"H09_en.54" on page 966
H09.56	2009-39h	Max. overshoot allowed by ETune	0–65535	2936	-	Real-time	"H09_en.56" on page 967
H09.57	2009-3Ah	STune resonance suppression switchover frequency	0 Hz–4000 Hz	650	Hz	Real-time	"H09_en.57" on page 967
H09.58	2009-3Bh	STune resonance suppression reset selection	0: Disabled 1: Enabled	0	-	Real-time	"H09_en.58" on page 967
H09.62	2009-3Fh	Stune stop delay judgment	0.00 ms–50.00 ms	1.00	ms	Real-time	"H09_en.62" on page 968
H09.63	2009-40h	STune quick convergence speed	0.00–50.00	1.00	-	Real-time	"H09_en.63" on page 968
H09.71	2009-48h	Starting frequency	0 Hz–8000 Hz	15	Hz	Real-time	"H09_en.71" on page 968
H09.72	2009-49h	End frequency	0 Hz–8000 Hz	8000	Hz	Real-time	"H09_en.72" on page 969
H09.73	2009-4Ah	Frequency subdivision	0–500	50	-	Real-time	"H09_en.73" on page 969

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.74	2009-4Bh	Excitation amplitude	0.0% to 400.0%	15.0	%	Real-time	"H09_en.74" on page 969
H09.75	2009-4Ch	Starting frequency 2	0 Hz–8000 Hz	500	Hz	Real-time	"H09_en.75" on page 969
H09.76	2009-4Dh	Frequency subdivision 2	0–1000	500	-	Real-time	"H09_en.76" on page 970
H09.77	2009-4Eh	Biquad filter mode	0: Disabled 1: First-order low-pass 2: Second-order low-pass 3: Notch 4: Lead-lag 5: User-defined	0	-	Real-time	"H09_en.77" on page 970
H09.78	2009-4Fh	Biquad filter numerator frequency	0 Hz–16000 Hz	8000	Hz	Real-time	"H09_en.78" on page 971
H09.79	2009-50h	Biquad filter numerator damping coefficient	0.001–10.000	1.000	-	Real-time	"H09_en.79" on page 971
H09.80	2009-51h	Biquad filter denominator frequency	0 Hz–16000 Hz	8000	Hz	Real-time	"H09_en.80" on page 971
H09.81	2009-52h	Biquad filter denominator damping coefficient	0.001–10.000	1.000	-	Real-time	"H09_en.81" on page 971
H09.82	2009-53h	Vibration frequency 1	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H09_en.82" on page 972
H09.83	2009-54h	Resonance frequency 1	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H09_en.83" on page 972
H09.84	2009-55h	Vibration damping 1	0.00–0.50	0.05	-	Real-time	"H09_en.84" on page 972
H09.85	2009-56h	Resonance damping 1	0.00–0.50	0.05	-	Real-time	"H09_en.85" on page 972
H09.86	2009-57h	Vibration frequency 2	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H09_en.86" on page 973
H09.87	2009-58h	Resonance frequency 2	0.0 Hz–300.0 Hz	0.0	Hz	Real-time	"H09_en.87" on page 973
H09.88	2009-59h	Vibration damping 2	0.00–0.50	0.05	-	Real-time	"H09_en.88" on page 973
H09.89	2009-5Ah	Resonance damping 2	0.00–0.50	0.05	-	Real-time	"H09_en.89" on page 974

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H09.92	2009-5Dh	Model friction force compensation enable	0: Disabled 1: Enabled	1	-	Real-time	"H09_en.92" on page 974
H09.93	2009-5Eh	Model friction force compensation coefficient	0.00%/1000 rpm–50.00%/1000 rpm	0.00	%/1000 rpm	Real-time	"H09_en.93" on page 974
H09.98	2009-63h	Vibration suppression auto-tuning	0: Disabled 1: Fast auto-tuning 2: Slow auto-tuning	0	-	Real-time	"H09_en.98" on page 974

3.11 H0A Fault and Protection Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.00	200A-01h	Power input phase loss and failure protection	0: Enable 1: Disable	0	-	Real-time	"H0A_en.00" on page 975
H0A.01	200A-02h	Absolute position limit	0: Disabled 1: Enabled 2: Enabled after homing	0	-	Real-time	"H0A_en.01" on page 975
H0A.04	200A-05h	Motor overload protection gain	50–300	100	-	Real-time	"H0A_en.04" on page 976
H0A.08	200A-09h	Overspeed threshold	0[mm/s]/[rpm]–20000[mm/s]/[rpm]	0	[mm/s]/[rpm]	Real-time	"H0A_en.08" on page 976
H0A.10	200A-0Bh	Threshold of excessive local position deviation	0 to 4294967295	219895614	Encoder unit	Real-time	"H0A_en.10" on page 976
H0A.12	200A-0Dh	Runaway protection enable	0: Disabled 1: Runaway protection scheme 1 2: Runaway protection scheme 2	1	-	At stop	"H0A_en.12" on page 977

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.13	200A-0Eh	Angle auto-tuning mode	0: pre-positioning 1: Inching 2: Voltage injection 6: Static hall 8: Closed-loop pre-positioning 9: Position locking	0	-	At stop	" " on page
H0A.17	200A-12h	Reference pulse selection	0: Pulse unit 1: Reference unit	1	-	At stop	" H0A_en.17" on page 977
H0A.18	200A-13h	IGBT over-temperature threshold	120°C–175°C	140	°C	Real-time	" H0A_en.18" on page 978
H0A.19	200A-14h	Filter time constant of touch probe 1	0.00μs to 6.30μs	2.00	μs	Real-time	" H0A_en.19" on page 978
H0A.20	200A-15h	Filter time constant of touch probe 2	0.00μs to 6.30μs	2.00	μs	Real-time	" H0A_en.20" on page 978
H0A.21	200A-16h	STO function display selection	0–7	0	-	Real-time	" H0A_en.21" on page 978
H0A.23	200A-18h	TZ signal filter time	0 ns–31 ns	15	25ns	At stop	" H0A_en.23" on page 979
H0A.25	200A-1Ah	Speed display DO low-pass filter time	0 ms–5000 ms	0	ms	At stop	" H0A_en.25" on page 979
H0A.26	200A-1Bh	Motor overload detection	0: Show motor overload alarm (E909.0) and fault (E620.0) 1: Hide motor overload alarm (E909.0) and fault (E620.0)	0	-	Real-time	" H0A_en.26" on page 979
H0A.27	200A-1Ch	Average filter time for speed display DO	0 ms–100 ms	50	ms	At stop	" H0A_en.27" on page 980
H0A.28	200A-1Dh	Quadrature encoder filter time	0 ns–255 ns	2	25ns	At stop	" H0A_en.28" on page 980
H0A.29	200A-1Eh	Fully closed-loop encoder (ABZ) filter time	bit0–bit7: Fully closed loop encoder (ABZ) pulse signal filtering time bit8–bit15: Fully closed loop encoder (ABZ) wire breakage filter time	4111	25ns	At stop	" H0A_en.29" on page 980
H0A.32	200A-21h	Time threshold for locked motor overheat protection	10 ms–65535 ms	200	ms	Real-time	" H0A_en.32" on page 981

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.33	200A-22h	Locked motor overheat protection	0: Disabled 1: Enabled	1	-	Real-time	"H0A_en.33" on page 981
H0A.36	200A-25h	Encoder multi-turn overflow fault selection	0: Not hide 1: Hide	0	-	Real-time	"H0A_en.36" on page 981
H0A.40	200A-29h	Compensation function selection	bit0: Overtravel compensation 0: Enabled 1: Disabled bit1: Touch probe rising edge compensation 0: Disabled 1: Enabled bit2: Touch probe falling edge compensation 0: Disabled 1: Enabled bit3: Touch probe scheme 0: New scheme 1: Old scheme (same as SV660N) bit4: Probe 2 separate compensation time enable 0: Disabled 1: Enabled	0x6	-	At stop	"H0A_en.40" on page 982
H0A.41	200A-2Ah	Forward position of software position limit	-2147483648 to 2147483647	2147483647	Encoder unit	At stop	"H0A_en.41" on page 982
H0A.43	200A-2Ch	Reverse position of software position limit	-2147483648 to 2147483647	-2147483648	Encoder unit	At stop	"H0A_en.43" on page 983
H0A.50	200A-33h	Encoder communication fault tolerance threshold	0–31	31	-	Real-time	"H0A_en.50" on page 983
H0A.51	200A-34h	Phase loss detection filter times	3 ms–36 ms	20	55ms	Real-time	"H0A_en.51" on page 983
H0A.52	200A-35h	Encoder temperature protection threshold	0°C–175°C	120	°C	Real-time	"H0A_en.52" on page 984
H0A.53	200A-36h	Probe DI ON compensation time	-3000 ns–3000 ns	200	25ns	Real-time	"H0A_en.53" on page 984

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.54	200A-37h	Probe DI OFF compensation time	-3000 ns–3000 ns	1512	25ns	Real-time	"H0A_en.54" on page 984
H0A.55	200A-38h	Runaway current threshold	100.0% to 400.0%	200.0	%	Real-time	"H0A_en.55" on page 985
H0A.56	200A-39h	Fault reset delay	0 ms–60000 ms	10000	ms	Real-time	"H0A_en.56" on page 985
H0A.57	200A-3Ah	Runaway speed threshold	1[mm/s]/[rpm]–1000[mm/s]/[rpm]	50	[mm/s]/[rpm]	Real-time	"H0A_en.57" on page 985
H0A.58	200A-3Bh	Runaway speed filter time	0.1 ms–100.0 ms	2.0	ms	Real-time	"H0A_en.58" on page 985
H0A.59	200A-3Ch	Runaway protection detection time	10 ms–1000 ms	30	ms	Real-time	"H0A_en.59" on page 986
H0A.60	200A-3Dh	Black box function mode	0: Disable 1: Any fault 2: Designated fault 3: Triggered based on designated condition	1	-	Real-time	"H0A_en.60" on page 986
H0A.61	200A-3Eh	Designated fault code	0.0–6553.5	0.0	-	Real-time	"H0A_en.61" on page 986
H0A.62	200A-3Fh	Trigger source	0–27	0	-	Real-time	"H0A_en.62" on page 987
H0A.63	200A-40h	Trigger level	-2147483648–2147483647	0	-	Real-time	"H0A_en.63" on page 987
H0A.65	200A-42h	Trigger level	0: Rising edge 1: Equal 2: Falling edge 3: Edge-triggered	0	-	Real-time	"H0A_en.65" on page 987
H0A.66	200A-43h	Trigger position	0% to 100%	75	%	Real-time	"H0A_en.66" on page 988
H0A.67	200A-44h	Sampling frequency	0: Current loop 1: Position loop 2: Main cycle	0	-	Real-time	"H0A_en.67" on page 988
H0A.70	200A-47h	Overspeed threshold 2	0[mm/s]/[rpm]–20000[mm/s]/[rpm]	0	[mm/s]/[rpm]	Real-time	"H0A_en.70" on page 988
H0A.71	200A-48h	Internal function switch	0–65535	4098	-	Real-time	"H0A_en.71" on page 989
H0A.72	200A-49h	Maximum stop time in ramp-to-stop	0 ms–65535 ms	10000	ms	At stop	"H0A_en.72" on page 990

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0A.73	200A-4Ah	STO 24 V disconnection filter time	1 ms–5 ms	1	ms	Real-time	"H0A_en.73" on page 990
H0A.74	200A-4Bh	Filter time for two inconsistent STO channels	1 ms–1000 ms	100	ms	Real-time	"H0A_en.74" on page 990
H0A.75	200A-4Ch	Servo OFF delay after STO triggered	0 ms–25 ms	20	ms	Real-time	"H0A_en.75" on page 991
H0A.87	200A-58h	Hall state fault filtering count	0–1000	1	-	Real-time	"H0A_en.87" on page 991
H0A.88	200A-59h	Alarm enable	0–3	0	-	At stop	"H0A_en.88" on page 991
H0A.89	200A-5Ah	Correct state of DDL BiSS-C data	0–31	1	-	At stop	"H0A_en.89" on page 991
H0A.90	200A-5Bh	Speed display low-pass filter time	0 ms–100 ms	0	ms	At stop	"H0A_en.90" on page 992
H0A.91	200A-5Ch	Moving average filter time for torque display values	0 ms–100 ms	0	ms	At stop	"H0A_en.91" on page 992
H0A.92	200A-5Dh	Moving average filter time for position display values	0 ms–100 ms	0	ms	At stop	"H0A_en.92" on page 992
H0A.93	200A-5Eh	Low-pass filter time for voltage display values	0 ms–250 ms	0	ms	At stop	"H0A_en.93" on page 993
H0A.94	200A-5Fh	Low-pass filter time for thermal display values	0 ms–250 ms	0	ms	At stop	"H0A_en.94" on page 993

3.12 H0b Monitoring Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.00	200b-01h	Motor speed actual value	-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]	0	[mm/s]/[rpm]	Unchangeable	"H0b_en.00" on page 993
H0b.01	200b-02h	Speed reference	-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]	0	[mm/s]/[rpm]	Unchangeable	"H0b_en.01" on page 994
H0b.02	200b-03h	Internal torque reference	-3276.7% to 3276.7%	0.0	%	Unchangeable	"H0b_en.02" on page 994
H0b.03	200b-04h	Input (DI) signal monitoring	0–65535	0	-	Unchangeable	"H0b_en.03" on page 994
H0b.05	200b-06h	Output (DO) signal monitoring	0–65535	0	-	Unchangeable	"H0b_en.05" on page 994
H0b.07	200b-08h	Absolute position counter	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"H0b_en.07" on page 995
H0b.09	200b-0Ah	Mechanical angle	0.0° to 360.0°	0.0	°	Unchangeable	"H0b_en.09" on page 995
H0b.10	200b-0Bh	Electrical angle	0.0° to 360.0°	0.0	°	Unchangeable	"H0b_en.10" on page 995
H0b.12	200b-0Dh	Average load ratio	0.0% to 800.0%	0.0	%	Unchangeable	"H0b_en.12" on page 996
H0b.15	200b-10h	Position following error (encoder unit)	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.15" on page 996
H0b.17	200b-12h	Feedback pulse counter	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.17" on page 997
H0b.19	200b-14h	Total power-on time	0.0s–429496729.5s	0.0	s	Unchangeable	"H0b_en.19" on page 997
H0b.21	200b-16h	Displayed AI1 voltage	-327.67 V–327.67 V	0.00	V	Unchangeable	"H0b_en.21" on page 997
H0b.22	200b-17h	Displayed AI2 voltage	-327.67 V–327.67 V	0.00	V	Unchangeable	"H0b_en.22" on page 998

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.24	200b-19h	Phase current RMS value	0.0 A–6553.5 A	0.0	A	Unchangeable	"H0b_en.24" on page 998
H0b.25	200b-1Ah	Angle obtained upon voltage injection auto-tuning	0.0° to 360.0°	0.0	°	Unchangeable	"H0b_en.25" on page 998
H0b.26	200b-1Bh	Bus voltage	0.0 V–6553.5 V	0.0	V	Unchangeable	"H0b_en.26" on page 998
H0b.27	200b-1Ch	Module temperature	-20°C–200°C	0	°C	Unchangeable	"H0b_en.27" on page 999
H0b.28	200b-1Dh	Absolute encoder fault information given by FPGA	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.28" on page 999
H0b.29	200b-1Eh	Axis status information given by FPGA	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.29" on page 999
H0b.30	200b-1Fh	Axis fault information given by FPGA	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.30" on page 999
H0b.31	200b-20h	Encoder fault information	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.31" on page 1000
H0b.33	200b-22h	Fault log 0: Present fault 1: Last fault 2: 2nd to last fault 3: 3rd to last fault 4: 4th to last fault 5: 5th to last fault 6: 6th to last fault 7: 7th to last fault 8: 8th to last fault 9: 9th to last fault 10: 10th to last fault 11: 11th to last fault 12: 12th to last fault 13: 13th to last fault 14: 14th to last fault 15: 15th to last fault 16: 16th to last fault 17: 17th to last fault 18: 18th to last fault 19: 19th to last fault	0	-	Real-time	"H0b_en.33" on page 1000	

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.34	200b-23h	Fault code of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.34" on page 1002
H0b.35	200b-24h	Timestamp of the selected fault	0.0s–429496729.5s	0.0	s	Unchangeable	"H0b_en.35" on page 1002
H0b.37	200b-26h	Motor speed upon occurrence of the selected fault	-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]	0	[mm/s]/[rpm]	Unchangeable	"H0b_en.37" on page 1002
H0b.38	200b-27h	Motor phase U current upon occurrence of the selected fault	-3276.7 A–3276.7 A	0.0	A	Unchangeable	"H0b_en.38" on page 1002
H0b.39	200b-28h	Motor phase V current upon occurrence of the selected fault	-3276.7 A–3276.7 A	0.0	A	Unchangeable	"H0b_en.39" on page 1003
H0b.40	200b-29h	Bus voltage upon occurrence of the selected fault	0.0 V–6553.5 V	0.0	V	Unchangeable	"H0b_en.40" on page 1003
H0b.41	200b-2Ah	Input terminal state on selected fault	0–65535	0	-	Unchangeable	"H0b_en.41" on page 1003
H0b.43	200b-2Ch	Output terminal status upon occurrence of the selected fault	0–65535	0	-	Unchangeable	"H0b_en.43" on page 1003
H0b.45	200b-2Eh	Internal fault code	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.45" on page 1004
H0b.46	200b-2Fh	Absolute encoder fault information given by FPGA upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.46" on page 1004

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.47	200b-30h	System status information given by FPGA upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.47" on page 1004
H0b.48	200b-31h	System fault information given by FPGA upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.48" on page 1005
H0b.49	200b-32h	Encoder fault information upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.49" on page 1005
H0b.51	200b-34h	Internal fault code upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.51" on page 1005
H0b.52	200b-35h	FPGA timeout fault standard bit upon occurrence of the selected fault	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.52" on page 1005
H0b.53	200b-36h	Position following error (reference unit)	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"H0b_en.53" on page 1006
H0b.55	200b-38h	Actual motor speed 2	-214748364.8[mm/s]/[rpm]–214748364.7[mm/s]/[rpm]	0.0	[mm/s]/[rpm]	Unchangeable	"H0b_en.55" on page 1006
H0b.57	200b-3Ah	Control circuit bus voltage	0.0 V–6553.5 V	0.0	V	Unchangeable	"H0b_en.57" on page 1006
H0b.58	200b-3Bh	Mechanical absolute position (low 32 bits)	0 to 4294967295	0	Encoder unit	Unchangeable	"H0b_en.58" on page 1007

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.60	200b-3Dh	Mechanical absolute position (high 32 bits)	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.60" on page 1007
H0b.63	200b-40h	NotRdy state	0: Normal 1: Control circuit error 2: Main circuit power input error 3: Bus undervoltage 4: Soft start failed 5: Encoder initialization undone 6: Short circuit to ground failed 7: Others 9: Fully closed-loop encoder initialization not completed	0	-	Unchangeable	"H0b_en.63" on page 1007
H0b.66	200b-43h	Encoder temperature	-32768°C–32767°C	0	°C	Unchangeable	"H0b_en.66" on page 1008
H0b.67	200b-44h	Load rate of braking resistor	0.0% to 200.0%	0.0	%	Unchangeable	"H0b_en.67" on page 1008
H0b.70	200b-47h	Number of absolute encoder revolutions	-32768Rev to 32767Rev	0	Rev	Unchangeable	"H0b_en.70" on page 1009
H0b.71	200b-48h	Single-turn position fed back by the absolute encoder	0 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.71" on page 1009
H0b.74	200b-4Bh	System fault information given by FPGA	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.74" on page 1009
H0b.77	200b-4Eh	Encoder position (low 32 bits)	0 to 4294967295	0	Encoder unit	Unchangeable	"H0b_en.77" on page 1009
H0b.79	200b-50h	Encoder position (high 32 bits)	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.79" on page 1010
H0b.81	200b-52h	Single-turn position of the rotary load (low 32 bits)	0 to 4294967295	0	Encoder unit	Unchangeable	"H0b_en.81" on page 1010

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0b.83	200b-54h	Single-turn position of the rotary load (high 32 bits)	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0b_en.83" on page 1010
H0b.85	200b-56h	Single-turn position of the rotary load (reference unit)	0 to 4294967295	0	Reference unit	Unchangeable	"H0b_en.85" on page 1011
H0b.87	200b-58h	IGBT junction temperature	0–200	0	-	Unchangeable	"H0b_en.87" on page 1011
H0b.90	200b-5Bh	Group No. of the abnormal parameter	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0b_en.90" on page 1011
H0b.91	200b-5Ch	Offset within the group of the abnormal parameter	0–65535	0	-	Unchangeable	"H0b_en.91" on page 1011
H0b.92	200b-5Dh	Hall state	0–65535	0	-	Unchangeable	"H0b_en.92" on page 1012
H0b.93	200b-5Eh	Closed loop state	0: Half closed loop 1: Fully closed loop	0	-	Unchangeable	"H0b_en.93" on page 1012
H0b.94	200b-5Fh	Individual power-on time	0.0s–429496729.5s	0.0	s	Unchangeable	"H0b_en.94" on page 1012
H0b.96	200b-61h	Individual power-on time upon occurrence of the selected fault	0.0s–429496729.5s	0.0	s	Unchangeable	"H0b_en.96" on page 1013
H0b.98	200b-63h	Dynamic braking resistor load rate	0.0% to 200.0%	0.0	%	Unchangeable	"H0b_en.98" on page 1013

3.13 H0C Fault and Protection Parameters 2

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
H0C.53	200C-36h	Probe DI ON compensation time 2	-3000 ns–3000 ns	200	25ns	Real-time	"H0C_en.53" on page 1013
H0C.54	200C-37h	Probe DI OFF compensation time 2	-3000 ns–3000 ns	1512	25ns	Real-time	"H0C_en.54" on page 1013
H0C.71	200C-48h	Internal function switch 2	0–65535	512	-	Real-time	"H0C_en.71" on page 1014

3.14 H0d Auxiliary Function Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0d.00	200d-01h	Software Reset	0: No operation 1: Enable	0	-	At stop	"H0d_en.00" on page 1014
H0d.01	200d-02h	Fault Reset	0: No operation 1: Enable	0	-	At stop	"H0d_en.01" on page 1014
H0d.02	200d-03h	Inertia auto-tuning enable	0–65	0	-	Real-time	"H0d_en.02" on page 1015
H0d.04	200d-05h	Read/write in encoder ROM	0: No operation 1: Write ROM 2: Read ROM 3: ROM failure	0	-	At stop	"H0d_en.04" on page 1015
H0d.05	200d-06h	Emergency stop	0: No operation 1: Emergency stop	0	-	Real-time	"H0d_en.05" on page 1016
H0d.06	200d-07h	Current loop auto-tuning test	0: No operation 1: Enable current loop auto-tuning 2: Enable current loop step test (static) 3: Enable current loop step test	0	-	At stop	"H0d_en.06" on page 1016
H0d.10	200d-0Bh	Analog channel auto adjusting	0: No operation 1: Adjusted through AI1 2: Adjusted through AI2	0	-	At stop	"H0d_en.10" on page 1016
H0d.12	200d-0Dh	Phase U/V current balance correction	0: Disabled 1: Enabled	0	-	At stop	"H0d_en.12" on page 1017

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0d.17	200d-12h	Forced DI/DO enable switch	bit0: Forced DI enable switch 0: Disabled 1: Enabled bit1: Forced DO enable switch 0: Disabled 1: Enabled	0	-	Real-time	"H0d_en.17" on page 1017
H0d.18	200d-13h	Forced DI value	0x0 to 0x1F	0x1F	-	Real-time	"H0d_en.18" on page 1018
H0d.19	200d-14h	Forced DO value	0x0 to 0x3	0x0	-	Real-time	"H0d_en.19" on page 1018
H0d.20	200d-15h	Absolute encoder reset	0: No operation 1: Reset fault 2: Reset fault and multi-turn data 3: Reset Inovance 2nd encoder fault 4: Reset Inovance 2nd encoder fault and multi-turn data	0	-	At stop	"H0d_en.20" on page 1018
H0d.21	200d-16h	Read error status bit of Nikon and EnDat2.2 encoders	0: No operation 1: Reading error status bit	0	-	At stop	"H0d_en.21" on page 1019
H0d.29	200d-1Eh	Motor parameter auto-tuning	0: No operation 1: Enabled	0	-	At stop	"H0d_en.29" on page 1019

3.15 H0E Communication Function Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0E.00	200E-01h	Node address	1–127	1	-	At stop	"H0E_en.00" on page 1020
H0E.01	200E-02h	Save objects written through communication to EEPROM	0: Not save 1: Save parameters 2: Save object dictionaries 3: Save parameters and object dictionaries 4: Save object dictionaries written before communication (OP) 255: Determine through H0E03 and H0E04	4	-	Real-time	"H0E_en.01" on page 1020

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0E.03	200E-04h	Save objects written through software (commissioning protocol) to EEPROM	0: Do not save 1: Save	1	-	Real-time	"H0E_en.03" on page 1021
H0E.04	200E-05h	Save objects written through communication to EEPROM (excluding commissioning protocol)	0: Do not save 1: Save	0	-	Real-time	"H0E_en.04" on page 1021
H0E.07	200E-08h	Object dictionary unit selection	0: Reference unit system (p/s, p/s ²) 1: User unit system (0.01 [mm/s]/[rpm], ms)	0	-	At stop	"H0E_en.07" on page 1021
H0E.20	200E-15h	EtherCAT slave name	0–65535	0	-	Unchangeable	"H0E_en.20" on page 1022
H0E.21	200E-16h	EtherCAT slave alias	0–65535	0	-	At stop	"H0E_en.21" on page 1022
H0E.22	200E-17h	Number of synchronous loss events allowed by EtherCAT	1–20	8	-	Real-time	"H0E_en.22" on page 1022
H0E.24	200E-19h	Sync loss count	0–65535	0	-	Unchangeable	"H0E_en.24" on page 1023
H0E.25	200E-1Ah	Max. error value and invalid frames of EtherCAT port 0 per unit time	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0E_en.25" on page 1023
H0E.26	200E-1Bh	Max. error value and invalid frames of EtherCAT port 1 per unit time	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0E_en.26" on page 1023
H0E.27	200E-1Ch	Max. transfer error of EtherCAT port per unit time	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0E_en.27" on page 1023

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0E.28	200E-1Dh	Max. EtherCAT data frame processing unit error per unit time	0x0 to 0xFF	0x0	-	Unchangeable	"H0E_en.28" on page 1024
H0E.29	200E-1Eh	Max. link loss value of EtherCAT port 0 per unit time	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0E_en.29" on page 1024
H0E.31	200E-20h	EtherCAT synchronization mode setting	0–3	2	-	At stop	"H0E_en.31" on page 1024
H0E.32	200E-21h	EtherCAT synchronization error threshold	100 ns–8000 ns	4000	ns	At stop	"H0E_en.32" on page 1024
H0E.33	200E-22h	EtherCAT state machine status and port connection status	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0E_en.33" on page 1025
H0E.34	200E-23h	Excessive CSP position command increment count	1–30	20	-	Real-time	"H0E_en.34" on page 1025
H0E.35	200E-24h	AL fault code	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0E_en.35" on page 1025
H0E.36	200E-25h	EtherCAT enhanced link enable	0: Disabled 1: Enabled	0	-	Real-time	"H0E_en.36" on page 1026
H0E.37	200E-26h	EtherCAT XML reset selection	0: Disabled 1: Enabled	0	-	Real-time	"H0E_en.37" on page 1026
H0E.73	200E-4Ah	EtherCAT port control mode and status display	0x0 to 0xFFFF	0x0	-	Unchangeable	"H0E_en.73" on page 1026

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0E.80	200E-51h	Modbus baud rate	0: 300 bps 1: 600 bps 2: 1200 bps 3: 2400 bps 4: 4800 bps 5: 9600 bps 6: 19200 bps 7: 38400 bps 8: 57600 bps 9: 115200 bps	9	-	Real-time	"H0E_en.80" on page 1026
H0E.81	200E-52h	Modbus data format	0: No parity, 2 stop bits (N-2) 1: Even parity, 1 stop bit (E-1) 2: Odd parity, 1 stop bit (O-1) 3: No parity, 1 stop bit (N-1)	3	-	Real-time	"H0E_en.81" on page 1027
H0E.82	200E-53h	Modbus response delay	0 ms–20 ms	0	ms	Real-time	"H0E_en.82" on page 1028
H0E.83	200E-54h	Modbus communication timeout	0 ms–600 ms	0	ms	Real-time	"H0E_en.83" on page 1028
H0E.84	200E-55h	Sequence of Modbus communication data bits	0: High bits before low bits 1: Low bits before high bits	1	-	Real-time	"H0E_en.84" on page 1028
H0E.90	200E-5Bh	Communication version	0.00–655.35	0.00	-	Unchangeable	"H0E_en.90" on page 1029
H0E.96	200E-61h	XML version information	0.00–655.35	0.00	-	Unchangeable	"H0E_en.96" on page 1029

3.16 H0F Fully Closed-loop Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0F.00	200F-01h	Encoder feedback mode	0: Internal encoder feedback 1: External encoder feedback 2: Inner/Outer loop switchover	0	-	Real-time	"H0F_en.00" on page 1029
H0F.01	200F-02h	Fully closed-loop encoder application mode	0: Standard operating direction 1: Reverse operating direction	0	-	Real-time	"H0F_en.01" on page 1030

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0F.02	200F-03h	Fully closed-loop encoder absolute value	0: Incremental mode 1: Absolute linear mode	0	-	At stop	"H0F_en.02" on page 1030
H0F.03	200F-04h	Fully closed-loop encoder feedback type	0: Quadrature pulse 1: Inovance 2: BiSS-C 3: EnDat2.2 4: SSI	0	-	At stop	"H0F_en.03" on page 1031
H0F.04	200F-05h	Number of fully closed-loop encoder pulses per revolution	1–2147483647	10000	-	At stop	"H0F_en.04" on page 1031
H0F.06	200F-07h	Fully closed-loop encoder interface	0: CN2 1: CN7	1	-	At stop	"H0F_en.06" on page 1032
H0F.08	200F-09h	Excessive deviation threshold in compound control mode	0–2147483647	1000	-	Real-time	"H0F_en.08" on page 1032
H0F.10	200F-0Bh	Clear deviation in compound control mode	0 Rev to 100 Rev	1	Rev	Real-time	"H0F_en.10" on page 1033
H0F.13	200F-0Eh	Compound vibration suppression filter time	0.0 ms–6553.5 ms	0.0	ms	At stop	"H0F_en.13" on page 1033
H0F.16	200F-11h	Pulse deviation display in compound control mode	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0F_en.16" on page 1033
H0F.18	200F-13h	Internal position pulse feedback display	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0F_en.18" on page 1034
H0F.20	200F-15h	Fully closed-loop encoder position pulse feedback display	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H0F_en.20" on page 1034
H0F.22	200F-17h	Quadrature pulse phase Z detection invalid in fully closed-loop mode	0: Detected 1: Not detected	0	-	Real-time	"H0F_en.22" on page 1034

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0F.23	200F-18h	BiSS-C/SSI/EDNAT2.2 fully closed-loop encoder absolute homing offset	-2147483648–2147483647	0	-	Real-time	"H0F_en.23" on page 1035
H0F.25	200F-1Ah	Set the source of touch probe Z signal in fully closed-loop mode.	0: Motor Z signal 1: External feedback Z signal	0	-	Real-time	"H0F_en.25" on page 1035
H0F.26	200F-1Bh	BiSS-C/SSI/EDNAT2.2 fully closed-loop encoder absolute feedback offset	-2147483648–2147483647	0	-	Real-time	"H0F_en.26" on page 1035
H0F.28	200F-1Dh	Index value of BiSS-C/SSI communication alarm	0–65535	0	-	Unchangeable	"H0F_en.28" on page 1036
H0F.29	200F-1Eh	CRC of BiSS-C/SSI fully closed-loop encoder feedback	0: Positive 1: Negative	1	-	Real-time	"H0F_en.29" on page 1036
H0F.30	200F-1Fh	BiSS-C/SSI/EDNAT2.2 valid bits of encoder communication position feedback in full closed-loop mode	0–127	29	-	At stop	"H0F_en.30" on page 1036
H0F.31	200F-20h	Valid bit of BiSS-C/SSI encoder communication alarm index in full closed-loop mode	0–31	2	-	At stop	"H0F_en.31" on page 1037
H0F.32	200F-21h	BiSS-C/SSI/ENDAT encoder communication frequency in fully closed-loop mode	0 kHz–10000 kHz	2000	kHz	Real-time	"H0F_en.32" on page 1038

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0F.33	200F-22h	SSI/ENDAT encoder recovery time in fully closed-loop mode	0.000μs to 40.000μs	0.500	μs	Real-time	"H0F_en.33" on page 1038
H0F.35	200F-24h	BiSS-C error detection enable in fully closed-loop mode	0: Disabled 1: Enabled	0	-	At stop	"H0F_en.35" on page 1038
H0F.36	200F-25h	BiSS-C error bit polarity in fully closed-loop mode	0: Positive 1: Negative	0	-	At stop	"H0F_en.36" on page 1038
H0F.40	200F-29h	Fully closed-loop communication encoder fault info	0–65535	0	-	Unchangeable	"H0F_en.40" on page 1039
H0F.41	200F-2Ah	Inovance fully closed-loop encoder version	0.0–6553.5	0.0	-	Unchangeable	"H0F_en.41" on page 1041
H0F.42	200F-2Bh	Inovance fully closed-loop encoder resolution	0–4294967295	0	-	Unchangeable	"H0F_en.42" on page 1041
H0F.45	200F-2Eh	Positioning completed/ Position deviation threshold in fully closed-loop mode	0: Threshold scaled to outer loop unit 1: Same threshold used for inner and outer loops	0	-	At stop	"H0F_en.45" on page 1041
H0F.51	200F-34h	SSI encoder check bit selection in fully closed-loop mode	0: No check 1: Check applied	1	-	At stop	"H0F_en.51" on page 1042
H0F.52	200F-35h	SSI encoder code system in full closed-loop mode	0: Binary 1: Gray code	1	-	At stop	"H0F_en.52" on page 1042

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H0F.53	200F-36h	SSI encoder state word code system in fully closed-loop mode	0: Binary 1: Gray code	1	-	At stop	"H0F_en.53" on page 1042
H0F.54	200F-37h	SSI encoder parity check in fully closed-loop mode	0: Disabled 1: Enabled	0	-	At stop	"H0F_en.54" on page 1043
H0F.55	200F-38h	Fully closed-loop encoder communication timeout error count	0–65535	0	-	Unchangeable	"H0F_en.55" on page 1043
H0F.56	200F-39h	Encoder CRC error count in fully closed-loop mode	0–65535	0	-	Unchangeable	"H0F_en.56" on page 1043
H0F.57	200F-3Ah	Fully closed-loop encoder communication frame stop bit error count.	0–65535	0	-	Unchangeable	"H0F_en.57" on page 1044

3.17 H11 Multi-Position Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.00	2011-01h	Multi-position running mode	0: Single run (number of displacements selected in H11.01) 1: Cyclic operation (number of displacement selected in H11.01) 2: DI-based operation (selected by DI) 3: Sequential operation 5: Axis-controlled continuous operation	1	-	At stop	"H11_en.00" on page 1044
H11.01	2011-02h	Number of displacement references in multi-position mode	1–16	1	-	At stop	"H11_en.01" on page 1048

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.02	2011-03h	Starting displacement No. after pause	0: Continue to execute the unexecuted displacements 1: Start from displacement 1	0	-	At stop	"H11_en.02" on page 1048
H11.03	2011-04h	Interval time unit	0: ms 1: s	0	-	At stop	"H11_en.03" on page 1049
H11.04	2011-05h	Displacement reference type	0: Relative displacement reference 1: Absolute displacement reference	0	-	Real-time	"H11_en.04" on page 1049
H11.05	2011-06h	Starting displacement No. in sequential operation	0–16	0	-	At stop	"H11_en.05" on page 1050
H11.09	2011-0Ah	Deceleration upon axis control OFF	0 ms–65535 ms	65535	ms	Real-time	"H11_en.09" on page 1050
H11.10	2011-0Bh	Starting speed of displacement 1	0[mm/s]/[rpm]–6000[mm/s]/[rpm]	0	[mm/s]/[rpm]	Real-time	"H11_en.10" on page 1050
H11.11	2011-0Ch	Stop speed of displacement 1	0[mm/s]/[rpm]–6000[mm/s]/[rpm]	0	[mm/s]/[rpm]	Real-time	"H11_en.11" on page 1051
H11.12	2011-0Dh	Displacement 1	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.12" on page 1051
H11.14	2011-0Fh	Max. speed of displacement 1	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.14" on page 1051
H11.15	2011-10h	Acc/Dec time of displacement 1	0 ms–65535 ms	10	ms	Real-time	"H11_en.15" on page 1052
H11.16	2011-11h	Interval time after displacement 1	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.16" on page 1052
H11.17	2011-12h	Displacement 2	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.17" on page 1053
H11.19	2011-14h	Max. speed of displacement 2	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.19" on page 1053
H11.20	2011-15h	Acc/Dec time of displacement 2	0 ms–65535 ms	10	ms	Real-time	"H11_en.20" on page 1053
H11.21	2011-16h	Interval time after displacement 2	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.21" on page 1054

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.22	2011-17h	Displacement 3	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.22" on page 1054
H11.24	2011-19h	Max. speed of displacement 3	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.24" on page 1054
H11.25	2011-1Ah	Acc/Dec time of displacement 3	0 ms–65535 ms	10	ms	Real-time	"H11_en.25" on page 1055
H11.26	2011-1Bh	Interval time after displacement 3	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.26" on page 1055
H11.27	2011-1Ch	Displacement 4	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.27" on page 1055
H11.29	2011-1Eh	Max. speed of displacement 4	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.29" on page 1055
H11.30	2011-1Fh	Acc/Dec time of displacement 4	0 ms–65535 ms	10	ms	Real-time	"H11_en.30" on page 1056
H11.31	2011-20h	Interval time after displacement 4	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.31" on page 1056
H11.32	2011-21h	Displacement 5	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.32" on page 1056
H11.34	2011-23h	Max. speed of displacement 5	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.34" on page 1056
H11.35	2011-24h	Acc/Dec time of displacement 5	0 ms–65535 ms	10	ms	Real-time	"H11_en.35" on page 1057
H11.36	2011-25h	Interval time after displacement 5	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.36" on page 1057
H11.37	2011-26h	Displacement 6	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.37" on page 1057
H11.39	2011-28h	Max. speed of displacement 6	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.39" on page 1058
H11.40	2011-29h	Acc/Dec time of displacement 6	0 ms–65535 ms	10	ms	Real-time	"H11_en.40" on page 1058
H11.41	2011-2Ah	Interval time after displacement 6	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.41" on page 1058

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.42	2011-2Bh	Displacement 7	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.42" on page 1058
H11.44	2011-2Dh	Max. speed of displacement 7	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.44" on page 1059
H11.45	2011-2Eh	Acc/Dec time of displacement 7	0 ms–65535 ms	10	ms	Real-time	"H11_en.45" on page 1059
H11.46	2011-2Fh	Interval time after displacement 7	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.46" on page 1059
H11.47	2011-30h	Displacement 8	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.47" on page 1059
H11.49	2011-32h	Max. speed of displacement 8	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.49" on page 1060
H11.50	2011-33h	Acc/Dec time of displacement 8	0 ms–65535 ms	10	ms	Real-time	"H11_en.50" on page 1060
H11.51	2011-34h	Interval time after displacement 8	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.51" on page 1060
H11.52	2011-35h	Displacement 9	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.52" on page 1061
H11.54	2011-37h	Max. speed of displacement 9	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.54" on page 1061
H11.55	2011-38h	Acc/Dec time of displacement 9	0 ms–65535 ms	10	ms	Real-time	"H11_en.55" on page 1061
H11.56	2011-39h	Interval time after displacement 9	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.56" on page 1061
H11.57	2011-3Ah	Displacement 10	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.57" on page 1062
H11.59	2011-3Ch	Max. speed of displacement 10	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.59" on page 1062
H11.60	2011-3Dh	Acc/Dec time of displacement 10	0 ms–65535 ms	10	ms	Real-time	"H11_en.60" on page 1062

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.61	2011-3Eh	Interval time after displacement 10	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.61" on page 1062
H11.62	2011-3Fh	Displacement 11	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.62" on page 1063
H11.64	2011-41h	Max. speed of displacement 11	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.64" on page 1063
H11.65	2011-42h	Acc/Dec time of displacement 11	0 ms–65535 ms	10	ms	Real-time	"H11_en.65" on page 1063
H11.66	2011-43h	Interval time after displacement 11	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.66" on page 1064
H11.67	2011-44h	Displacement 12	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.67" on page 1064
H11.69	2011-46h	Max. speed of displacement 12	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.69" on page 1064
H11.70	2011-47h	Acc/Dec time of displacement 12	0 ms–65535 ms	10	ms	Real-time	"H11_en.70" on page 1064
H11.71	2011-48h	Interval time after displacement 12	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.71" on page 1065
H11.72	2011-49h	Displacement 13	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.72" on page 1065
H11.74	2011-4Bh	Max. speed of displacement 13	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.74" on page 1065
H11.75	2011-4Ch	Acc/Dec time of displacement 13	0 ms–65535 ms	10	ms	Real-time	"H11_en.75" on page 1065
H11.76	2011-4Dh	Interval time after displacement 13	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.76" on page 1066
H11.77	2011-4Eh	Displacement 14	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.77" on page 1066

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H11.79	2011-50h	Max. speed of displacement 14	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.79" on page 1066
H11.80	2011-51h	Acc/Dec time of displacement 14	0 ms–65535 ms	10	ms	Real-time	"H11_en.80" on page 1067
H11.81	2011-52h	Interval time after displacement 14	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.81" on page 1067
H11.82	2011-53h	Displacement 15	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.82" on page 1067
H11.84	2011-55h	Max. speed of displacement 15	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.84" on page 1067
H11.85	2011-56h	Acc/Dec time of displacement 15	0 ms–65535 ms	10	ms	Real-time	"H11_en.85" on page 1068
H11.86	2011-57h	Interval time after displacement 15	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.86" on page 1068
H11.87	2011-58h	Displacement 16	-1073741824 to 1073741824	10000	Reference unit	Real-time	"H11_en.87" on page 1068
H11.89	2011-5Ah	Max. speed of displacement 16	1[mm/s]/[rpm]–10000[mm/s]/[rpm]	200	[mm/s]/[rpm]	Real-time	"H11_en.89" on page 1068
H11.90	2011-5Bh	Acc/Dec time of displacement 16	0 ms–65535 ms	10	ms	Real-time	"H11_en.90" on page 1069
H11.91	2011-5Ch	Interval time after displacement 16	0 ms(s) to 10000 ms(s)	10	ms (s)	Real-time	"H11_en.91" on page 1069

3.18 H12 Multi-Speed Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.00	2012-01h	Multi-speed operation mode	0: Individual operation (number of speeds selected in H12.01) 1: Cyclic operation (number of speeds selected in H12.01) 2: DI-based operation	1	-	At stop	"H12_en.00" on page 1069
H12.01	2012-02h	Number of speed references in multi-speed mode	1–16	16	-	At stop	"H12_en.01" on page 1070
H12.02	2012-03h	Operating time unit	0: s 1: min	0	-	At stop	"H12_en.02" on page 1070
H12.03	2012-04h	Acceleration time 1	0 ms–65535 ms	10	ms	Real-time	"H12_en.03" on page 1071
H12.04	2012-05h	Deceleration time 1	0 ms–65535 ms	10	ms	Real-time	"H12_en.04" on page 1071
H12.05	2012-06h	Acceleration time 2	0 ms–65535 ms	50	ms	Real-time	"H12_en.05" on page 1071
H12.06	2012-07h	Deceleration time 2	0 ms–65535 ms	50	ms	Real-time	"H12_en.06" on page 1072
H12.07	2012-08h	Acceleration time 3	0 ms–65535 ms	100	ms	Real-time	"H12_en.07" on page 1072
H12.08	2012-09h	Deceleration time 3	0 ms–65535 ms	100	ms	Real-time	"H12_en.08" on page 1072
H12.09	2012-0Ah	Acceleration time 4	0 ms–65535 ms	150	ms	Real-time	"H12_en.09" on page 1073
H12.10	2012-0Bh	Deceleration time 4	0 ms–65535 ms	150	ms	Real-time	"H12_en.10" on page 1073
H12.20	2012-15h	1st speed reference	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	0	[mm/s]/[rpm]	Real-time	"H12_en.20" on page 1073
H12.21	2012-16h	Operating time of speed 1	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.21" on page 1074

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.22	2012-17h	1st speed rise/drop and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.22" on page 1074
H12.23	2012-18h	Reference 2	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	100	[mm/s]/[rpm]	Real-time	"H12_en.23" on page 1076
H12.24	2012-19h	Operating time of speed 2	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.24" on page 1077
H12.25	2012-1Ah	2nd speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.25" on page 1077
H12.26	2012-1Bh	Reference 3	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	300	[mm/s]/[rpm]	Real-time	"H12_en.26" on page 1077
H12.27	2012-1Ch	Operating time of speed 3	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.27" on page 1078

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.28	2012-1Dh	3rd speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.28" on page 1078
H12.29	2012-1Eh	Reference 4	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	500	[mm/s]/[rpm]	Real-time	"H12_en.29" on page 1079
H12.30	2012-1Fh	Operating time of speed 4	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.30" on page 1079
H12.31	2012-20h	4th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.31" on page 1079
H12.32	2012-21h	Reference 5	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	700	[mm/s]/[rpm]	Real-time	"H12_en.32" on page 1080
H12.33	2012-22h	Operating time of speed 5	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.33" on page 1080

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.34	2012-23h	5th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.34" on page 1081
H12.35	2012-24h	Reference 6	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	900	[mm/s]/[rpm]	Real-time	"H12_en.35" on page 1081
H12.36	2012-25h	Operating time of speed 6	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.36" on page 1081
H12.37	2012-26h	6th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.37" on page 1082
H12.38	2012-27h	Reference 7	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	600	[mm/s]/[rpm]	Real-time	"H12_en.38" on page 1082
H12.39	2012-28h	Operating time of speed 7	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.39" on page 1083

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.40	2012-29h	7th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.40" on page 1083
H12.41	2012-2Ah	Reference 8	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	300	[mm/s]/[rpm]	Real-time	"H12_en.41" on page 1083
H12.42	2012-2Bh	Operating time of speed 8	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.42" on page 1084
H12.43	2012-2Ch	8th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.43" on page 1084
H12.44	2012-2Dh	Reference 9	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	100	[mm/s]/[rpm]	Real-time	"H12_en.44" on page 1085
H12.45	2012-2Eh	Operating time of speed 9	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.45" on page 1085

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.46	2012-2Fh	9th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.46" on page 1085
H12.47	2012-30h	Reference 10	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-100	[mm/s]/[rpm]	Real-time	"H12_en.47" on page 1086
H12.48	2012-31h	Operating time of speed 10	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.48" on page 1086
H12.49	2012-32h	10th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.49" on page 1087
H12.50	2012-33h	Reference 11	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-300	[mm/s]/[rpm]	Real-time	"H12_en.50" on page 1087
H12.51	2012-34h	Operating time of speed 11	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.51" on page 1087

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.52	2012-35h	11th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.52" on page 1088
H12.53	2012-36h	Reference 12	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-500	[mm/s]/[rpm]	Real-time	"H12_en.53" on page 1088
H12.54	2012-37h	Operating time of speed 12	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.54" on page 1089
H12.55	2012-38h	12th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.55" on page 1089
H12.56	2012-39h	Reference 13	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-700	[mm/s]/[rpm]	Real-time	"H12_en.56" on page 1089
H12.57	2012-3Ah	Operating time of speed 13	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.57" on page 1090

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.58	2012-3Bh	13th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.58" on page 1090
H12.59	2012-3Ch	Reference 14	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-900	[mm/s]/[rpm]	Real-time	"H12_en.59" on page 1091
H12.60	2012-3Dh	Operating time of speed 14	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.60" on page 1091
H12.61	2012-3Eh	14th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.61" on page 1091
H12.62	2012-3Fh	Reference 15	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-600	[mm/s]/[rpm]	Real-time	"H12_en.62" on page 1092
H12.63	2012-40h	Operating time of speed 15	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.63" on page 1092

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H12.64	2012-41h	15th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.64" on page 1093
H12.65	2012-42h	Reference 16	-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]	-300	[mm/s]/[rpm]	Real-time	"H12_en.65" on page 1093
H12.66	2012-43h	Operating time of speed 16	0.0s(m) to 6553.5s(m)	5.0	s (m)	Real-time	"H12_en.66" on page 1093
H12.67	2012-44h	16th speed rise/drop time and curve smoothing parameter time	bit0-bit7: Speed rise and drop time 0: Zero acc and dec time 1: Acc and dec time 1 2: Acc and dec time 2 3: Acc and dec time 3 4: Acc and dec time 4 bit8-bit15: S curve smoothing parameter 1: Smoothing parameter 1 2: Smoothing parameter 2 3: Smoothing parameter 3 4: Smoothing parameter 4 5: Smoothing parameter 5 6: Smoothing parameter 6 7: Smoothing parameter 7 8: Smoothing parameter 8	256	-	Real-time	"H12_en.67" on page 1094

3.19 H13 Application Safety Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H13.00	2013-01h	Auto-tuned scheme 2 runaway distance threshold	0.00[mm]/[Rev]–655.35[mm]/[Rev]	0.00	[mm]/[Rev]	Unchangeable	"H13_en.00" on page 1094
H13.01	2013-02h	Scheme 2 runaway distance threshold	0.00[mm]/[Rev]–15.00[mm]/[Rev]	0.50	[mm]/[Rev]	At stop	"H13_en.01" on page 1095
H13.02	2013-03h	Scheme 2 runaway current threshold	0.0% to 400.0%	50.0	%	At stop	"H13_en.02" on page 1095
H13.03	2013-04h	Runaway speed threshold in scheme 2 speed or position mode	1[mm/s]/[rpm]–6000[mm/s]/[rpm]	50	[mm/s]/[rpm]	At stop	"H13_en.03" on page 1095
H13.04	2013-05h	Runaway speed threshold in scheme 2 torque mode	1[mm/s]/[rpm]–6000[mm/s]/[rpm]	500	[mm/s]/[rpm]	At stop	"H13_en.04" on page 1095
H13.05	2013-06h	Scheme 2 runaway inspection window time	10 ms–100 ms	30	ms	At stop	"H13_en.05" on page 1096

3.20 H14 Gantry Synchronization Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H14.00	2014-01h	Gantry communication state	0–1	0	-	Unchangeable	"H14_en.00" on page 1096
H14.01	2014-02h	Gantry alignment state	0–1	0	-	Unchangeable	"H14_en.01" on page 1096
H14.02	2014-03h	Gantry function selection	0: None 1: Gantry synchronization	0	-	At stop	"H14_en.02" on page 1097

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H14.03	2014-04h	Gantry axis attribute (master-slave)	0: Slave axis 1: Master axis	0	-	At stop	"H14_en.03" on page 1097
H14.04	2014-05h	Gantry mechanical attribute	0: Rigid gantry scheme 1-Two-axis position control 1: Flexible gantry scheme 1-Two-axis position control 2: Rigid gantry scheme 2-Master axis position control and slave axis torque control	0	-	At stop	"H14_en.04" on page 1097
H14.05	2014-06h	Current axis position sync direction	0: Forward 1: Reverse	0	-	At stop	"H14_en.05" on page 1098
H14.07	2014-08h	Gantry sync enable	0: Disabled 1: Enabled 2: DI-enabled	0	-	Real-time	"H14_en.07" on page 1098
H14.08	2014-09h	Gantry sync position loop proportional gain	0.0% to 300.0%	0.0	%	Real-time	"H14_en.08" on page 1099
H14.09	2014-0Ah	Gantry sync position loop integral time constant	0.5 ms–1000.0 ms	1000.0	ms	Real-time	"H14_en.09" on page 1099
H14.10	2014-0Bh	Gantry sync speed loop proportional gain	0.0% to 300.0%	0.0	%	Real-time	"H14_en.10" on page 1099
H14.11	2014-0Ch	Gantry sync speed loop integral time constant	0.5 ms–1000.0 ms	1000.0	ms	Real-time	"H14_en.11" on page 1100
H14.12	2014-0Dh	Gantry sync speed limit	0.0rpm to 6000.0rpm	50.0	rpm	Real-time	"H14_en.12" on page 1100
H14.13	2014-0Eh	Gantry alignment speed	0.0rpm to 3000.0rpm	10.0	rpm	Real-time	"H14_en.13" on page 1100
H14.14	2014-0Fh	Gantry alignment acc./dec. time	0 ms–1000 ms	100	ms	Real-time	"H14_en.14" on page 1100
H14.18	2014-13h	Torque pre-alignment before gantry homing	0: Disabled 1: Enabled	0	-	At stop	"H14_en.18" on page 1101

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H14.20	2014-15h	Gantry aligned by default upon power-on	0: No operation 1: Align at first power-on	1	-	At stop	"H14_en.20" on page 1101
H14.21	2014-16h	Gantry alignment mode	0: Gantry homing alignment 2: Gantry torque alignment 3: Gantry enable alignment 4: Gantry DI alignment	0	-	At stop	"H14_en.21" on page 1101
H14.25	2014-1Ah	Flexible gantry homing - Master/slave home deviation auto-tuning	0: Disabled 1: Torque alignment auto-tuning 2: Position auto-tuning	0	-	Real-time	"H14_en.25" on page 1102
H14.26	2014-1Bh	Gantry torque alignment enable	0: Disabled 1: Enabled 2: DI-enabled 3: Enabled at power-on	0	-	Real-time	"H14_en.26" on page 1102
H14.27	2014-1Ch	Gantry torque alignment torque	0.0% to 300.0%	10.0	%	Real-time	"H14_en.27" on page 1103
H14.28	2014-1Dh	Gantry torque alignment count	1–2	2	-	Real-time	"H14_en.28" on page 1103
H14.29	2014-1Eh	Gantry torque alignment speed	0.0rpm to 3000.0rpm	10.0	rpm	Real-time	"H14_en.29" on page 1103
H14.30	2014-1Fh	Gantry torque alignment timeout alarm time	1s to 65535s	100	s	Real-time	"H14_en.30" on page 1103
H14.31	2014-20h	Gantry torque alignment acc./dec. time	0 ms–1000 ms	100	ms	Real-time	"H14_en.31" on page 1104
H14.32	2014-21h	Gantry torque alignment zero speed threshold	0.0rpm to 100.0rpm	2.0	rpm	Real-time	"H14_en.32" on page 1104
H14.33	2014-22h	Gantry torque alignment mechanical limit evaluation position loop period count	0–65535	5	-	Real-time	"H14_en.33" on page 1104
H14.35	2014-24h	2-axis position deviation (encoder unit)	-2147483648 to 2147483647	0	Encoder unit	Unchangeable	"H14_en.35" on page 1104

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H14.37	2014-26h	2-axis speed deviation	-32767rpm to 32767rpm	0	rpm	Unchangeable	"H14_en.37" on page 1105
H14.38	2014-27h	Torque reference of active axis	-3276.7% to 3276.7%	0.0	%	Unchangeable	"H14_en.38" on page 1105
H14.39	2014-28h	Torque reference of paired axis	-3276.7% to 3276.7%	0.0	%	Unchangeable	"H14_en.39" on page 1105
H14.40	2014-29h	Motor speed of active axis	-32767rpm to 32767rpm	0	rpm	Unchangeable	"H14_en.40" on page 1106
H14.41	2014-2Ah	Motor speed of paired axis	-32767rpm to 32767rpm	0	rpm	Unchangeable	"H14_en.41" on page 1106
H14.44	2014-2Dh	Alarm time threshold of large gantry deviation	0.5 ms–1000.0 ms	3.0	ms	Real-time	"H14_en.44" on page 1106
H14.45	2014-2Eh	Gantry position alarm threshold	0 to 4294967295	50000	Encoder unit	At stop	"H14_en.45" on page 1106
H14.47	2014-30h	Large gantry position deviation alarm enable	0: Disabled 1: Enabled	1	-	Real-time	"H14_en.47" on page 1107
H14.48	2014-31h	Alarm time threshold of large gantry torque deviation	0.5 ms–1000.0 ms	3.0	ms	Real-time	"H14_en.48" on page 1107
H14.49	2014-32h	Gantry torque deviation alarm threshold	0.0% to 800.0%	300.0	%	At stop	"H14_en.49" on page 1107
H14.50	2014-33h	Large gantry torque deviation alarm enable	0: Disabled 1: Enabled	0	-	Real-time	"H14_en.50" on page 1108
H14.52	2014-35h	Gantry mismatch	0–1451	0	-	Unchangeable	"H14_en.52" on page 1108

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H14.71	2014-48h	Flexible gantry homing - Enable aligning slave axis homing position to home offset	0: No operation 1: Enabled	0	-	Real-time	"H14_en.71" on page 1108
H14.74	2014-4Bh	Gantry scheme 2 slave axis enable	0: No operation 1: Enabled	0	-	At stop	"H14_en.74" on page 1109

3.21 H17 Virtual DI/DO Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.90	2017-5Bh	Communication VDI enable	0: Disabled 1: Enabled	0	-	At stop	"H17_en.90" on page 470
H17.91	2017-5Ch	VDI default value after power-on	bit0: VDI1 bit1: VDI2 bit2: VDI3 bit3: VDI4 bit4: VDI5 bit5: VDI6 bit6: VDI7 bit7: VDI8 bit8: VDI9 bit9: VDI10 bit10: VDI11 bit11: VDI12 bit12: VDI13 bit13: VDI14 bit14: VDI15 bit15: VDI16	0	-	Real-time	"H17_en.91" on page 471

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.00	2017-01h	VDI1 function	0: No assignment 1: S-ON 2: Warning reset signal 3: Gain switchover switch 4: Switchover between main and auxiliary references 5: Multi-reference direction 6: Multi-reference switchover CMD1 7: Multi-reference switchover CMD2 8: Multi-reference switchover CMD3 9: Multi-reference switchover CMD4 10: Mode switchover M1-SEL 11: Mode switchover M2-SEL 12: Zero clamp enable signal 13: Position reference inhibited 14: Positive limit switch 15: Negative limit switch 16: Positive external torque limit 17: Negative external torque limit 18: Forward jog 19: Reverse jog 20: Step enable 21: Handwheel override signal 1 22: Handwheel override signal 2 23: Hand wheel enable signal 24: Electronic gear ratio selection 25: Torque reference direction 26: Speed reference direction 27: Position reference direction 28: Multi-position reference enable 29: Interrupt positioning cancel signal	0	-	Real-time	<i>"H17_en.00" on page 471</i>

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.00	2017-01h	VDI1 function	31: Home switch 32: Homing enable 33: Interrupt positioning inhibited 34: Emergency stop 35: Clear position deviation 36: Internal speed limit source 37: Pulse reference inhibited 40: Multi-speed enable 41: Current position as home 42: Axis control command executed immediately 43: Axis control command not executed immediately 44: Positioning and command completed signal clear 46: Process segment enable 47: Process segment command switchover 1 48: Process segment command switchover 2 49: Process segment command switchover 3 50: Process segment command switchover 4 51: Event trigger process segment 1 52: Event trigger process segment 2 53: Event trigger process segment 3 54: Event trigger process segment 4 55: Process segment pause 56: Gantry alignment 57: Gantry DI alignment enable 58: Gantry DI alignment clear 59: Gantry synchronization enable	0	-	Real-time	"H17_en.00" on page 471
H17.01	2017-02h	VDI1 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.01" on page 473
H17.02	2017-03h	VDI2 function	See H17.00	0	-	Real-time	"H17_en.02" on page 474

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.03	2017-04h	VDI2 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.03" on page 475
H17.04	2017-05h	VDI3 function	See H17.00	0	-	Real-time	"H17_en.04" on page 476
H17.05	2017-06h	VDI3 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.05" on page 477
H17.06	2017-07h	VDI4 function	See H17.00	0	-	Real-time	"H17_en.06" on page 478
H17.07	2017-08h	VDI4 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.07" on page 479
H17.08	2017-09h	VDI5 function	See H17.00	0	-	Real-time	"H17_en.08" on page 480
H17.09	2017-0Ah	VDI5 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.09" on page 481
H17.10	2017-0Bh	VDI6 function	See H17.00	0	-	Real-time	"H17_en.10" on page 482
H17.11	2017-0Ch	VDI6 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.11" on page 483
H17.12	2017-0Dh	VDI7 function	See H17.00	0	-	Real-time	"H17_en.12" on page 484
H17.13	2017-0Eh	VDI7 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.13" on page 485
H17.14	2017-0Fh	VDI8 function	See H17.00	0	-	Real-time	"H17_en.14" on page 486
H17.15	2017-10h	VDI8 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.15" on page 487
H17.16	2017-11h	VDI9 function	See H17.00	0	-	Real-time	"H17_en.16" on page 488

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.17	2017-12h	VDI9 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.17" on page 489
H17.18	2017-13h	VDI10 function	See H17.00	0	-	Real-time	"H17_en.18" on page 490
H17.19	2017-14h	VDI10 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.19" on page 491
H17.20	2017-15h	VDI11 function	See H17.00	0	-	Real-time	"H17_en.20" on page 492
H17.21	2017-16h	VDI11 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.21" on page 493
H17.22	2017-17h	VDI12 function	See H17.00	0	-	Real-time	"H17_en.22" on page 494
H17.23	2017-18h	VDI12 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.23" on page 495
H17.24	2017-19h	VDI13 function	See H17.00	0	-	Real-time	"H17_en.24" on page 496
H17.25	2017-1Ah	VDI13 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.25" on page 497
H17.26	2017-1Bh	VDI14 function	See H17.00	0	-	Real-time	"H17_en.26" on page 498
H17.27	2017-1Ch	VDI14 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.27" on page 499
H17.28	2017-1Dh	VDI15 function	See H17.00	0	-	Real-time	"H17_en.28" on page 500
H17.29	2017-1Eh	VDI15 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.29" on page 501
H17.30	2017-1Fh	VDI16 function	See H17.00	0	-	Real-time	"H17_en.30" on page 502

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.31	2017-20h	VDI16 logic level selection	0: Active when the written value is 1 1: Active when the written value changes from 0 to 1	0	-	Real-time	"H17_en.31" on page 503
H17.92	2017-5Dh	Communication VDO enable	0: Disabled 1: Enabled	0	-	At stop	"H17_en.92" on page 504
H17.93	2017-5Eh	VDO default value after power-on	bit0: VDO1 bit1: VDO2 bit2: VDO3 bit3: VDO4 bit4: VDO5 bit5: VDO6 bit6: VDO7 bit7: VDO8 bit8: VDO9 bit9: VDO10 bit10: VDO11 bit11: VDO12 bit12: VDO13 bit13: VDO14 bit14: VDO15 bit15: VDO16	0x0	-	At stop	"H17_en.93" on page 504
H17.32	2017-21h	VDO virtual level	0x0 to 0xFFFF	0x0	-	Unchangeable	"H17_en.32" on page 505
H17.33	2017-22h	VDO1 function	0: No function 1: Servo ready 2: Motor rotation signal 3: Zero speed signal 4: Speed matching signal 5: Positioning completed 6: Positioning near 7: Torque limited signal 8: Speed limited signal 9: Braking 10: Warning 11: Fault	0	-	Real-time	"H17_en.33" on page 505

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
(Continued)			15: Interrupt positioning completed 16: Homing completed 17: Electrical homing completed 18: Torque reached signal 19: Speed reached signal 21: Enable completed 22: Internal command completed 23: Writing next command allowed 24: Internal motion completed 26: Closed-loop state 27: Left limit 28: Right limit 30: Warning or fault output 32: EDM output 33: Gantry alignment	(Continued)			
H17.34	2017-23h	VDO1 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.34" on page 506
H17.35	2017-24h	VDO2 function	See H17.33.	0	-	Real-time	"H17_en.35" on page 507
H17.36	2017-25h	VDO2 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.36" on page 507
H17.37	2017-26h	VDO3 function	See H17.33.	0	-	Real-time	"H17_en.37" on page 508
H17.38	2017-27h	VDO3 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.38" on page 509
H17.39	2017-28h	VDO4 function	See H17.33.	0	-	Real-time	"H17_en.39" on page 509
H17.40	2017-29h	VDO4 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.40" on page 510
H17.41	2017-2Ah	VDO5 function	See H17.33.	0	-	Real-time	"H17_en.41" on page 511
H17.42	2017-2Bh	VDO5 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.42" on page 511
H17.43	2017-2Ch	VDO6 function	See H17.33.	0	-	Real-time	"H17_en.43" on page 512
H17.44	2017-2Dh	VDO6 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.44" on page 513

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H17.45	2017-2Eh	VDO7 function	See H17.33.	0	-	Real-time	"H17_en.45" on page 513
H17.46	2017-2Fh	VDO7 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.46" on page 514
H17.47	2017-30h	VDO8 function	See H17.33.	0	-	Real-time	"H17_en.47" on page 515
H17.48	2017-31h	VDO8 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.48" on page 515
H17.49	2017-32h	VDO9 function	See H17.33.	0	-	Real-time	"H17_en.49" on page 516
H17.50	2017-33h	VDO9 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.50" on page 517
H17.51	2017-34h	VDO10 function	See H17.33.	0	-	Real-time	"H17_en.51" on page 517
H17.52	2017-35h	VDO10 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.52" on page 518
H17.53	2017-36h	VDO11 function	See H17.33.	0	-	Real-time	"H17_en.53" on page 519
H17.54	2017-37h	VDO11 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.54" on page 519
H17.55	2017-38h	VDO12 function	See H17.33.	0	-	Real-time	"H17_en.55" on page 520
H17.56	2017-39h	VDO12 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.56" on page 521
H17.57	2017-3Ah	VDO13 function	See H17.33.	0	-	Real-time	"H17_en.57" on page 521
H17.58	2017-3Bh	VDO13 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.58" on page 522
H17.59	2017-3Ch	VDO14 function	See H17.33.	0	-	Real-time	"H17_en.59" on page 523
H17.60	2017-3Dh	VDO14 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.60" on page 523
H17.61	2017-3Eh	VDO15 function	See H17.33.	0	-	Real-time	"H17_en.61" on page 524
H17.62	2017-3Fh	VDO15 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.62" on page 525
H17.63	2017-40h	VDO16 function	See H17.33.	0	-	Real-time	"H17_en.63" on page 525
H17.64	2017-41h	VDO16 logic level selection	0: Output 1 upon active logic 1: Output 0 upon active logic	0	-	Real-time	"H17_en.64" on page 526

3.22 H18 Position Comparison Output Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H18.00	2018-01h	Position comparison output selection	0: Disable 1: Enable (rising edge-triggered)	0	-	Real-time	"H18_en.00" on page 1159
H18.01	2018-02h	Position comparison output feedback source	0: Motor encoder feedback 1: Fully closed-loop position feedback	0	-	Real-time	"H18_en.01" on page 1160
H18.02	2018-03h	Position comparison resolution	0: 24-bit 1: 23-bit 2: 22-bit 3: 21-bit 4: 20-bit 5: 19-bit 6: 18-bit 7: 17-bit	1	-	Real-time	"H18_en.02" on page 1160
H18.03	2018-04h	Position comparison mode	0: Individual comparison mode 1: Cyclic comparison mode 2: Fixed cyclic comparison mode	0	-	Real-time	"H18_en.03" on page 1161
H18.04	2018-05h	Current position as zero	0: Disable 1: Enable (rising edge-triggered)	0	-	Real-time	"H18_en.04" on page 1161
H18.05	2018-06h	Position comparison output width	0.1 ms–204.7 ms	0.1	ms	Real-time	"H18_en.05" on page 1161
H18.06	2018-07h	Position comparison output ABZ port polarity	Bit 0: OCZ output logic 0: Positive, output high level upon active logic 1: Negative, output low level upon active logic Bit 1: Z port output logic 0: Positive, output high level upon active logic 1: Negative, output low level upon active logic bit2: A/B output logic 0: Positive, output high level upon active logic 1: Negative, output low level upon active logic	0	-	Real-time	"H18_en.06" on page 1162

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H18.07	2018-08h	Position comparison start point	1–40	1	-	Real-time	"H18_en.07" on page 1162
H18.08	2018-09h	Position comparison end point	1–40	1	-	Real-time	"H18_en.08" on page 1163
H18.09	2018-0Ah	Current state of position comparison	0–1024	0	-	Unchangeable	"H18_en.09" on page 1163
H18.10	2018-0Bh	Real-time position of position comparison	-2147483648–2147483647	0	-	Unchangeable	"H18_en.10" on page 1163
H18.12	2018-0Dh	Zero offset of position comparison	-2147483648–2147483647	0	-	Real-time	"H18_en.12" on page 1163
H18.14	2018-0Fh	Position comparison output delay compensation	-12.00μs to 12.00μs	0.00	μs	Real-time	"H18_en.14" on page 1164
H18.15	2018-10h	Fixed cyclic comparison	1–65535	1	-	Real-time	"H18_en.15" on page 1164
H18.16	2018-11h	ABZ output function setting	bit0: OCZ output function 0: Frequency-division output 1: Position comparison bit1: Z port output function 0: Frequency-division output 1: Position comparison bit2: A/B port output function 0: Frequency-division output 1: Position comparison	0	-	Real-time	"H18_en.16" on page 1164
H18.17	2018-12h	Number of fixed mode cycles	0–65535	0	-	Unchangeable	"H18_en.17" on page 1165

3.23 H19 Target Position Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.00	2019-01h	Target value of position comparison 1	-2147483648~2147483647	0	-	Real-time	"H19_en.00" on page 1165
H19.02	2019-03h	Attribute value of position comparison 1	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.02" on page 1166
H19.03	2019-04h	Target value of position comparison 2	-2147483648~2147483647	0	-	Real-time	"H19_en.03" on page 1167

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.05	2019-06h	Attribute value of position comparison 2	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.05" on page 1167
H19.06	2019-07h	Target value of position comparison 3	-2147483648–2147483647	0	-	Real-time	"H19_en.06" on page 1167

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.08	2019-09h	Attribute value of position comparison 3	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.08" on page 1168
H19.09	2019-0Ah	Target value of position comparison 4	-2147483648–2147483647	0	-	Real-time	"H19_en.09" on page 1168

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.11	2019-0Ch	Attribute value of position comparison 4	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.11" on page 1169
H19.12	2019-0Dh	Target value of position comparison 5	-2147483648–2147483647	0	-	Real-time	"H19_en.12" on page 1169

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.14	2019-0Fh	Attribute value of position comparison 5	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.14" on page 1170
H19.15	2019-10h	Target value of position comparison 6	-2147483648–2147483647	0	-	Real-time	"H19_en.15" on page 1170

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.17	2019-12h	Attribute value of position comparison 6	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.17" on page 1171
H19.18	2019-13h	Target value of position comparison 7	-2147483648–2147483647	0	-	Real-time	"H19_en.18" on page 1171

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.20	2019-15h	Attribute value of position comparison 7	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.20" on page 1171
H19.21	2019-16h	Target value of position comparison 8	-2147483648–2147483647	0	-	Real-time	"H19_en.21" on page 1172

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.23	2019-18h	Attribute value of position comparison 8	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.23" on page 1172
H19.24	2019-19h	Target value of position comparison 9	-2147483648–2147483647	0	-	Real-time	"H19_en.24" on page 1173

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.26	2019-1Bh	Attribute value of position comparison 9	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.26" on page 1173
H19.27	2019-1Ch	Target value of position comparison 10	-2147483648–2147483647	0	-	Real-time	"H19_en.27" on page 1174

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.29	2019-1Eh	Attribute value of position comparison 10	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.29" on page 1174
H19.30	2019-1Fh	Target value of position comparison 11	-2147483648–2147483647	0	-	Real-time	"H19_en.30" on page 1175

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.32	2019-21h	Attribute value of position comparison 11	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.32" on page 1175
H19.33	2019-22h	Target value of position comparison 12	-2147483648–2147483647	0	-	Real-time	"H19_en.33" on page 1176

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.35	2019-24h	Attribute value of position comparison 12	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.35" on page 1176
H19.36	2019-25h	Target value of position comparison 13	-2147483648–2147483647	0	-	Real-time	"H19_en.36" on page 1177

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.38	2019-27h	Attribute value of position comparison 13	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.38" on page 1177
H19.39	2019-28h	Target value of position comparison 14	-2147483648–2147483647	0	-	Real-time	"H19_en.39" on page 1178

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.41	2019-2Ah	Attribute value of position comparison 14	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.41" on page 1178
H19.42	2019-2Bh	Target value of position comparison 15	-2147483648–2147483647	0	-	Real-time	"H19_en.42" on page 1179

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.44	2019-2Dh	Attribute value of position comparison 15	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.44" on page 1179
H19.45	2019-2Eh	Target value of position comparison 16	-2147483648–2147483647	0	-	Real-time	"H19_en.45" on page 1180

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.47	2019-30h	Attribute value of position comparison 16	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.47" on page 1180
H19.48	2019-31h	Target value of position comparison 17	-2147483648–2147483647	0	-	Real-time	"H19_en.48" on page 1181

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.50	2019-33h	Attribute value of position comparison 17	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.50" on page 1181
H19.51	2019-34h	Target value of position comparison 18	-2147483648–2147483647	0	-	Real-time	"H19_en.51" on page 1182

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.53	2019-36h	Attribute value of position comparison 18	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.53" on page 1182
H19.54	2019-37h	Target value of position comparison 19	-2147483648–2147483647	0	-	Real-time	"H19_en.54" on page 1183

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.56	2019-39h	Attribute value of position comparison 19	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.56" on page 1183
H19.57	2019-3Ah	Target value of position comparison 20	-2147483648–2147483647	0	-	Real-time	"H19_en.57" on page 1184

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.59	2019-3Ch	Attribute value of position comparison 20	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.59" on page 1184
H19.60	2019-3Dh	Target value of position comparison 21	-2147483648–2147483647	0	-	Real-time	"H19_en.60" on page 1185

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.62	2019-3Fh	Attribute value of position comparison 21	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.62" on page 1185
H19.63	2019-40h	Target value of position comparison 22	-2147483648–2147483647	0	-	Real-time	"H19_en.63" on page 1186

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.65	2019-42h	Attribute value of position comparison 22	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.65" on page 1186
H19.66	2019-43h	Target value of position comparison 23	-2147483648–2147483647	0	-	Real-time	"H19_en.66" on page 1187

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.68	2019-45h	Attribute value of position comparison 23	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.68" on page 1187
H19.69	2019-46h	Target value of position comparison 24	-2147483648–2147483647	0	-	Real-time	"H19_en.69" on page 1188

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.71	2019-48h	Attribute value of position comparison 24	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.71" on page 1188
H19.72	2019-49h	Target value of position comparison 25	-2147483648–2147483647	0	-	Real-time	"H19_en.72" on page 1189

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.74	2019-4Bh	Attribute value of position comparison 25	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.74" on page 1189
H19.75	2019-4Ch	Target value of position comparison 26	-2147483648–2147483647	0	-	Real-time	"H19_en.75" on page 1190

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.77	2019-4Eh	Attribute value of position comparison 26	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.77" on page 1190
H19.78	2019-4Fh	Target value of position comparison 27	-2147483648–2147483647	0	-	Real-time	"H19_en.78" on page 1191

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.80	2019-51h	Attribute value of position comparison 27	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.80" on page 1191
H19.81	2019-52h	Target value of position comparison 28	-2147483648–2147483647	0	-	Real-time	"H19_en.81" on page 1192

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.83	2019-54h	Attribute value of position comparison 28	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.83" on page 1192
H19.84	2019-55h	Target value of position comparison 29	-2147483648–2147483647	0	-	Real-time	"H19_en.84" on page 1193

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.86	2019-57h	Attribute value of position comparison 29	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.86" on page 1193
H19.87	2019-58h	Target value of position comparison 30	-2147483648–2147483647	0	-	Real-time	"H19_en.87" on page 1194

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.89	2019-5Ah	Attribute value of position comparison 30	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.89" on page 1194
H19.90	2019-5Bh	Target value of position comparison 31	-2147483648–2147483647	0	-	Real-time	"H19_en.90" on page 1195

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.92	2019-5Dh	Attribute value of position comparison 31	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.92" on page 1195
H19.93	2019-5Eh	Target value of position comparison 32	-2147483648–2147483647	0	-	Real-time	"H19_en.93" on page 1196

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.95	2019-60h	Attribute value of position comparison 32	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.95" on page 1196
H19.96	2019-61h	Target value of position comparison 33	-2147483648–2147483647	0	-	Real-time	"H19_en.96" on page 1197

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.98	2019-63h	Attribute value of position comparison 33	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.98" on page 1197
H19.99	2019-64h	Target value of position comparison 34	-2147483648–2147483647	0	-	Real-time	"H19_en.99" on page 1198

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.101	2019-66h	Attribute value of position comparison 34	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.101" on page 1198
H19.102	2019-67h	Target value of position comparison 35	-2147483648–2147483647	0	-	Real-time	"H19_en.102" on page 1199

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.104	2019-69h	Attribute value of position comparison 35	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.104" on page 1199
H19.105	2019-6Ah	Target value of position comparison 36	-2147483648–2147483647	0	-	Real-time	"H19_en.105" on page 1200

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.107	2019-6Ch	Attribute value of position comparison 36	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.107" on page 1200
H19.108	2019-6Dh	Target value of position comparison 37	-2147483648–2147483647	0	-	Real-time	"H19_en.108" on page 1201

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.110	2019-6Fh	Attribute value of position comparison 37	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.110" on page 1201
H19.111	2019-70h	Target value of position comparison 38	-2147483648–2147483647	0	-	Real-time	"H19_en.111" on page 1202

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.113	2019-72h	Attribute value of position comparison 38	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.113" on page 1202
H19.114	2019-73h	Target value of position comparison 39	-2147483648–2147483647	0	-	Real-time	"H19_en.114" on page 1203

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.116	2019-75h	Attribute value of position comparison 39	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.116" on page 1203
H19.117	2019-76h	Target value of position comparison 40	-2147483648–2147483647	0	-	Real-time	"H19_en.117" on page 1204

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H19.119	2019-78h	Attribute value of position comparison 40	Bit0: Current position changes from "less than" to "more than" the comparison point bit1: Current position changes from "more than" to "less than" the comparison point bit2: N/A bit3: N/A bit4: N/A bit5: N/A bit6: N/A bit7: DO1 output bit8: DO2 output bit9: Nabit10: bit10: N/A bit11: N/A bit12: Frequency-division A output bit13: Frequency-division B output bit14: Frequency-division Z output bit15: Frequency-division OCZ output	0	-	Real-time	"H19_en.119" on page 1204

3.24 H1F Software Tool Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H1F.90	201F-5Bh	DI function status 1 read through communication	0-65535	0	-	Unchangeable	"H1F_en.90" on page 1205
H1F.91	201F-5Ch	DI function status 2 read through communication	0-65535	0	-	Unchangeable	"H1F_en.91" on page 1205
H1F.92	201F-5Dh	DI function status 3 read through communication	0-65535	0	-	Unchangeable	"H1F_en.92" on page 1206

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H1F.93	201F-5Eh	DI function status 4 read through communication	0-65535	0	-	Unchangeable	"H1F_en.93" on page 1206
H1F.94	201F-5Fh	DO function status 1 read through communication	0-65535	0	-	Unchangeable	"H1F_en.94" on page 1207
H1F.95	201F-60h	DO function status 2 read through communication	0-65535	0	-	Unchangeable	"H1F_en.95" on page 1207

3.25 H21 Current Loop Gain Switchover Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H21.00	2021-01h	Current loop gain switchover	0: No operation 1: Enabled	0	-	Real-time	"H21_en.00" on page 1207

3.26 H22 Process Segment Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H22.00	2022-01h	Process segment command trigger	0-1000	0	-	Real-time	"H22_en.00" on page 1208
H22.01	2022-02h	Process segment triggered by the event rising edge	0-65535	0	-	Real-time	"H22_en.01" on page 1208
H22.02	2022-03h	Process segment triggered by the event falling edge	0-65535	0	-	Real-time	"H22_en.02" on page 1209

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H22.03	2022-04h	Acceleration/Deceleration time upon technology segment pause	0: Acceleration/Deceleration time 1: Acceleration/Deceleration time 1 2: Acceleration/Deceleration time 2 3: Acceleration/Deceleration time 3 4: Acceleration/Deceleration time 4 5: Acceleration/Deceleration time 5 6: Acceleration/Deceleration time 6 7: Acceleration/Deceleration time 7	0	-	Real-time	"H22_en.03" on page 1209
H22.04	2022-05h	Positive software position limit	-2147483648 to 2147483647	2147483647	Reference unit	Real-time	"H22_en.04" on page 1210
H22.06	2022-07h	Negative software position limit	-2147483648 to 2147483647	-2147483648	Reference unit	Real-time	"H22_en.06" on page 1210
H22.08	2022-09h	Process segment number	0–65535	0	-	Unchangeable	"H22_en.08" on page 1211
H22.09	2022-0Ah	Process segment function switch	0–65535	0	-	At stop	"H22_en.09" on page 1211
H22.10	2022-0Bh	Process segment state	0–65535	0	-	Unchangeable	"H22_en.10" on page 1211
H22.19	2022-14h	Target speed	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	50.0	[mm/s]/[rpm]	Real-time	"H22_en.19" on page 1212
H22.20	2022-15h	Target speed 1	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	200.0	[mm/s]/[rpm]	Real-time	"H22_en.20" on page 1212
H22.21	2022-16h	Target speed 2	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	500.0	[mm/s]/[rpm]	Real-time	"H22_en.21" on page 1212
H22.22	2022-17h	Target speed 3	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	1000.0	[mm/s]/[rpm]	Real-time	"H22_en.22" on page 1212
H22.23	2022-18h	Target speed 4	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	1500.0	[mm/s]/[rpm]	Real-time	"H22_en.23" on page 1213

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H22.24	2022-19h	Target speed 5	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	2000.0	[mm/s]/[rpm]	Real-time	"H22_en.24" on page 1213
H22.25	2022-1Ah	Target speed 6	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	2500.0	[mm/s]/[rpm]	Real-time	"H22_en.25" on page 1213
H22.26	2022-1Bh	Target speed 7	0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]	3000.0	[mm/s]/[rpm]	Real-time	"H22_en.26" on page 1214
H22.35	2022-24h	Accel/Decel time	0 ms–65535 ms	50	ms	Real-time	"H22_en.35" on page 1214
H22.36	2022-25h	Acceleration/Deceleration time 1	0 ms–65535 ms	200	ms	Real-time	"H22_en.36" on page 1214
H22.37	2022-26h	Acceleration/Deceleration time 2	0 ms–65535 ms	500	ms	Real-time	"H22_en.37" on page 1214
H22.38	2022-27h	Acceleration/Deceleration time 3	0 ms–65535 ms	1000	ms	Real-time	"H22_en.38" on page 1215
H22.39	2022-28h	Acceleration/Deceleration time 4	0 ms–65535 ms	1500	ms	Real-time	"H22_en.39" on page 1215
H22.40	2022-29h	Acceleration/Deceleration time 5	0 ms–65535 ms	2000	ms	Real-time	"H22_en.40" on page 1215
H22.41	2022-2Ah	Acceleration/Deceleration time 6	0 ms–65535 ms	2500	ms	Real-time	"H22_en.41" on page 1215
H22.42	2022-2Bh	Acceleration/Deceleration time 7	0 ms–65535 ms	3000	ms	Real-time	"H22_en.42" on page 1216
H22.51	2022-34h	Delay after completion of the process segment	0 ms–65535 ms	0	ms	Real-time	"H22_en.51" on page 1216
H22.52	2022-35h	Delay time 1 after completion of the process segment	0 ms–65535 ms	50	ms	Real-time	"H22_en.52" on page 1216
H22.53	2022-36h	Delay time 2 after completion of the process segment	0 ms–65535 ms	200	ms	Real-time	"H22_en.53" on page 1217

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H22.54	2022-37h	Delay time 3 after completion of the process segment	0 ms–65535 ms	500	ms	Real-time	"H22_en.54" on page 1217
H22.55	2022-38h	Delay time 4 after completion of the process segment	0 ms–65535 ms	1000	ms	Real-time	"H22_en.55" on page 1217
H22.56	2022-39h	Delay time 5 after completion of the process segment	0 ms–65535 ms	1500	ms	Real-time	"H22_en.56" on page 1217
H22.57	2022-3Ah	Delay time 6 after completion of the process segment	0 ms–65535 ms	2000	ms	Real-time	"H22_en.57" on page 1218
H22.58	2022-3Bh	Delay time 7 after completion of the process segment	0 ms–65535 ms	3000	ms	Real-time	"H22_en.58" on page 1218
H22.70	2022-47h	Process segment homing mode	-32768–32767	-2	-	Real-time	"H22_en.70" on page 1218
H22.71	2022-48h	Speed of high-speed search for home switch signal	0[mm/s]/[rpm]–3000[mm/s]/[rpm]	100	[mm/s]/[rpm]	Real-time	"H22_en.71" on page 1219
H22.72	2022-49h	Speed of low-speed search for home switch signal	0[mm/s]/[rpm]–1000[mm/s]/[rpm]	10	[mm/s]/[rpm]	Real-time	"H22_en.72" on page 1219
H22.73	2022-4Ah	Acceleration/Deceleration time during homing	0 ms–1000 ms	1000	ms	Real-time	"H22_en.73" on page 1219
H22.74	2022-4Bh	Home search time limit	0 ms–65535 ms	10000	ms	Real-time	"H22_en.74" on page 1220
H22.75	2022-4Ch	Mechanical home offset	-2147483648 to 2147483647	0	Reference unit	Real-time	"H22_en.75" on page 1220

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H22.79	2022-50h	Relative/Absolute homing	0-65535	0	-	Real-time	"H22_en.79" on page 1220
H22.83	2022-54h	Jump count threshold	0-65534	0	-	Real-time	"H22_en.83" on page 1220
H22.84	2022-55h	Jump count threshold 1	0-65534	20	-	Real-time	"H22_en.84" on page 1221
H22.85	2022-56h	Jump count threshold 2	0-65534	40	-	Real-time	"H22_en.85" on page 1221
H22.86	2022-57h	Jump count threshold 3	0-65534	80	-	Real-time	"H22_en.86" on page 1221
H22.87	2022-58h	Jump count threshold 4	0-65534	160	-	Real-time	"H22_en.87" on page 1222
H22.88	2022-59h	Jump count threshold 5	0-65534	320	-	Real-time	"H22_en.88" on page 1222
H22.89	2022-5Ah	Jump count threshold 6	0-65534	640	-	Real-time	"H22_en.89" on page 1222
H22.90	2022-5Bh	Jump count threshold 7	0-65534	1280	-	Real-time	"H22_en.90" on page 1222

3.27 H23 Process Segment Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H23.00	2023-01h	Definition of homing	0-4294967295	0	-	Real-time	"H23_en.00" on page 1223
H23.02	2023-03h	Homing data	-2147483648-2147483647	0	-	Real-time	"H23_en.02" on page 1223
H23.04	2023-05h	Definition of process segment 1	0-4294967295	0	-	Real-time	"H23_en.04" on page 1223
H23.06	2023-07h	Data of process segment 1	-2147483648-2147483647	0	-	Real-time	"H23_en.06" on page 1224
H23.08	2023-09h	Definition of process segment 2	0-4294967295	0	-	Real-time	"H23_en.08" on page 1224
H23.10	2023-0Bh	Data of process segment 2	-2147483648-2147483647	0	-	Real-time	"H23_en.10" on page 1224
H23.12	2023-0Dh	Definition of process segment 3	0-4294967295	0	-	Real-time	"H23_en.12" on page 1225

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H23.14	2023-0Fh	Data of process segment 3	-2147483648–2147483647	0	-	Real-time	"H23_en.14" on page 1225
H23.16	2023-11h	Definition of process segment 4	0–4294967295	0	-	Real-time	"H23_en.16" on page 1225
H23.18	2023-13h	Data of process segment 4	-2147483648–2147483647	0	-	Real-time	"H23_en.18" on page 1225
H23.20	2023-15h	Definition of process segment 5	0–4294967295	0	-	Real-time	"H23_en.20" on page 1226
H23.22	2023-17h	Data of process segment 5	-2147483648–2147483647	0	-	Real-time	"H23_en.22" on page 1226
H23.24	2023-19h	Definition of process segment 6	0–4294967295	0	-	Real-time	"H23_en.24" on page 1226
H23.26	2023-1Bh	Data of process segment 6	-2147483648–2147483647	0	-	Real-time	"H23_en.26" on page 1227
H23.28	2023-1Dh	Definition of process segment 7	0–4294967295	0	-	Real-time	"H23_en.28" on page 1227
H23.30	2023-1Fh	Data of process segment 7	-2147483648–2147483647	0	-	Real-time	"H23_en.30" on page 1227
H23.32	2023-21h	Definition of process segment 8	0–4294967295	0	-	Real-time	"H23_en.32" on page 1227
H23.34	2023-23h	Data of process segment 8	-2147483648–2147483647	0	-	Real-time	"H23_en.34" on page 1228
H23.36	2023-25h	Definition of process segment 9	0–4294967295	0	-	Real-time	"H23_en.36" on page 1228
H23.38	2023-27h	Data of process segment 9	-2147483648–2147483647	0	-	Real-time	"H23_en.38" on page 1228
H23.40	2023-29h	Definition of process segment 10	0–4294967295	0	-	Real-time	"H23_en.40" on page 1228
H23.42	2023-2Bh	Data of process segment 10	-2147483648–2147483647	0	-	Real-time	"H23_en.42" on page 1229
H23.44	2023-2Dh	Definition of process segment 11	0–4294967295	0	-	Real-time	"H23_en.44" on page 1229
H23.46	2023-2Fh	Data of process segment 11	-2147483648–2147483647	0	-	Real-time	"H23_en.46" on page 1229

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H23.48	2023-31h	Definition of process segment 12	0-4294967295	0	-	Real-time	"H23_en.48" on page 1230
H23.50	2023-33h	Data of process segment 12	-2147483648-2147483647	0	-	Real-time	"H23_en.50" on page 1230
H23.52	2023-35h	Definition of process segment 13	0-4294967295	0	-	Real-time	"H23_en.52" on page 1230
H23.54	2023-37h	Data of process segment 13	-2147483648-2147483647	0	-	Real-time	"H23_en.54" on page 1230
H23.56	2023-39h	Definition of process segment 14	0-4294967295	0	-	Real-time	"H23_en.56" on page 1231
H23.58	2023-3Bh	Data of process segment 14	-2147483648-2147483647	0	-	Real-time	"H23_en.58" on page 1231
H23.60	2023-3Dh	Definition of process segment 15	0-4294967295	0	-	Real-time	"H23_en.60" on page 1231
H23.62	2023-3Fh	Data of process segment 15	-2147483648-2147483647	0	-	Real-time	"H23_en.62" on page 1231

3.28 H30 Related Variables Read through Communication

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H30.00	2030-01h	Servo state read via communication	0-65535	0	-	Unchangeable	"H30_en.00" on page 1232
H30.01	2030-02h	DO function status 1 read through communication	0-65535	0	-	Unchangeable	"H30_en.01" on page 1232
H30.02	2030-03h	DO function status 2 read through communication	0-65535	0	-	Unchangeable	"H30_en.02" on page 1232
H30.16	2030-11h	1st encoder communication timeout count	0-65535	0	-	Unchangeable	"H30_en.16" on page 1233

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H30.17	2030-12h	1st encoder communication CRC error count	0–65535	0	-	Unchangeable	"H30_en.17" on page 1233
H30.18	2030-13h	1st encoder communication frame stop bit error count	0–65535	0	-	Unchangeable	"H30_en.18" on page 1233

3.29 H31 References Set through Communication

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H31.00	2031-01h	VDI virtual level set through communication	0–65535	0	-	Real-time	"H31_en.00" on page 1234
H31.01	2031-02h	Frequency-division output frequency set through communication	0 Hz–16000000 Hz	0	Hz	Real-time	"H31_en.01" on page 1234
H31.04	2031-05h	DO status set through communication	0–65535	0	-	Real-time	"H31_en.04" on page 1234
H31.05	2031-06h	AO status set through communication	-10000 mV–10000 mV	0	mV	Real-time	"H31_en.05" on page 1235
H31.09	2031-0Ah	Speed reference set through communication	-9999.000[mm/s]/[rpm]–9999.000[mm/s]/[rpm]	0.000	[mm/s]/[rpm]	Real-time	"H31_en.09" on page 1235
H31.11	2031-0Ch	Torque reference set through communication	-100.000% to 100.000%	0.000	%	Real-time	"H31_en.11" on page 1235

3.30 H32 Direct Drive Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H32.00	2032-01h	Encoder interpolator mismatch alarm (E124)	0: Disabled 1: Enabled	1	-	At stop	"H32_en.00" on page 1236
H32.01	2032-02h	Encoder interface switchover switch	0: Default encoder interface 1: Switching encoder interface	0	-	At stop	"H32_en.01" on page 1236
H32.02	2032-03h	Angle auto-tuning upon power-on	0: Disabled 1: Enabled	0	-	At stop	"H32_en.02" on page 1236
H32.03	2032-04h	Angle auto-tuning switch controlled by control word	0: Disabled 1: Control word 6 2: Control word 7	0	-	At stop	"H32_en.03" on page 1237
H32.04	2032-05h	Angle auto-tuning state	bit0: bit7 of 6041 bit1: E602.9	0	-	At stop	"H32_en.04" on page 1237
H32.05	2032-06h	Pre-positioning retract selection	0: Disabled 1: Enabled	0	-	At stop	"H32_en.05" on page 1237
H32.06	2032-07h	Position feedback	0: Disabled 1: Enabled	0	-	At stop	"H32_en.06" on page 1238
H32.07	2032-08h	Incremental homing method	0: Z Signal short circuit 1: Only first short circuit	1	-	At stop	"H32_en.07" on page 1238
H32.08	2032-09h	Homing signal width	100–65535	800	-	At stop	"H32_en.08" on page 1239
H32.10	2032-0Bh	Max. reference current in angle auto-tuning through inching	10.0% to 300.0%	100.0	%	At stop	"H32_en.10" on page 1239
H32.13	2032-0Eh	Motor operation threshold (ROT/DDR) in angle auto-tuning through inching	0.001deg to 20.000deg	0.200	deg	At stop	"H32_en.13" on page 1239
H32.14	2032-0Fh	Motor standstill threshold (ROT/DDR) in angle auto-tuning through inching	0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]	1.0	[mm/s]/[rpm]	At stop	"H32_en.14" on page 1239

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H32.15	2032-10h	Motor operation threshold (DDL) in angle auto-tuning through inching	0.001 millimeters–20.000 millimeters	0.200	mm	At stop	"H32_en.15" on page 1240
H32.16	2032-11h	Motor standstill threshold (DDL) in angle auto-tuning through inching	0.1 mm/s–100.0 mm/s	1.0	mm/s	At stop	"H32_en.16" on page 1240
H32.18	2032-13h	Motor standstill threshold for inching angle auto-tuning	0.1s to 10.0s	0.5	s	At stop	"H32_en.18" on page 1240
H32.20	2032-15h	Max. reference current in angle auto-tuning through pre-positioning (closed-loop)	10.0% to 300.0%	100.0	%	At stop	"H32_en.20" on page 1241
H32.22	2032-17h	Electrical angle reference in angle auto-tuning through pre-positioning (closed-loop)	0.0deg to 360.0deg	0.0	deg	At stop	"H32_en.22" on page 1241
H32.23	2032-18h	Electrical angle reference change range in angle auto-tuning through pre-positioning (closed-loop)	10.0deg to 170.0deg	90.0	deg	At stop	"H32_en.23" on page 1241
H32.24	2032-19h	Motor stop threshold (ROT/DDR) in angle auto-tuning through pre-positioning (closed-loop)	0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]	1.0	[mm/s]/[rpm]	At stop	"H32_en.24" on page 1242

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H32.25	2032-1Ah	Motor stop threshold (DDL) in angle auto-tuning through pre-positioning (closed-loop)	0.1 mm/s–100.0 mm/s	1.0	mm/s	At stop	"H32_en.25" on page 1242
H32.26	2032-1Bh	Damping in angle auto-tuning through pre-positioning (closed-loop)	0.00[N/(m/s)]/[N·m/rpm]–655.35[N/(m/s)]/[N·m/rpm]	0.00	[N/(m/s)]/[N·m/rpm]	At stop	"H32_en.26" on page 1242
H32.29	2032-1Eh	Motor standstill threshold for close-loop pre-positioning angle auto-tuning	0.1s to 10.0s	0.5	s	At stop	"H32_en.29" on page 1243
H32.30	2032-1Fh	Max. reference current in angle auto-tuning through position lock	10.0% to 300.0%	100.0	%	At stop	"H32_en.30" on page 1243
H32.33	2032-22h	Motor operation threshold (ROT/DDR) in angle auto-tuning through position lock	0.001deg to 20.000deg	0.200	deg	At stop	"H32_en.33" on page 1243
H32.34	2032-23h	Motor standstill threshold (ROT/DDR) in angle auto-tuning through position lock	0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]	1.0	[mm/s]/[rpm]	At stop	"H32_en.34" on page 1244
H32.35	2032-24h	Motor operation threshold (DDL) in angle auto-tuning through position lock	0.001 millimeters–20.000 millimeters	0.200	mm	At stop	"H32_en.35" on page 1244
H32.36	2032-25h	Motor standstill threshold (DDL) in angle auto-tuning through position lock	0.1 mm/s–100.0 mm/s	1.0	mm/s	At stop	"H32_en.36" on page 1244

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H32.37	2032-26h	Angle gain in angle auto-tuning through position lock	0deg/(p/s)–10000deg/(p/s)	1000	deg/(p/s)	At stop	"H32_en.37" on page 1245
H32.38	2032-27h	Inertia ratio in angle auto-tuning through position lock	0.00–120.00	0.00	-	At stop	"H32_en.38" on page 1245
H32.39	2032-28h	Gain class in angle auto-tuning through position lock	4level to 31level	16	level	At stop	"H32_en.39" on page 1245
H32.40	2032-29h	Left/Right limit function	1. Left limit being positive 2. Left limit being negative	0	-	Real-time	"H32_en.40" on page 1246
H32.41	2032-2Ah	Angle auto-tuning delay after power-on	0s to 65535s	3	s	Real-time	"H32_en.41" on page 1246
H32.45	2032-2Eh	Black box channel 26 function	0: Real-time target speed (60Ffh) 1: Electric angle	0	-	At stop	"H32_en.45" on page 1246
H32.50	2032-33h	32-bit range compatibility	0–99	1	-	At stop	"H32_en.50" on page 1246
H32.53	2032-36h	Motor standstill threshold for position lock angle auto-tuning	0.1s to 10.0s	0.5	s	At stop	"H32_en.53" on page 1247
H32.54	2032-37h	Hall auto-tuning selection	0–65535	0	-	At stop	"H32_en.54" on page 1247
H32.55	2032-38h	Hall signal UVW manual adjustment	0–7	0	-	At stop	"H32_en.55" on page 1247
H32.56	2032-39h	UVW filter time of Hall signal	0 ms–10 ms	5	ms	Real-time	"H32_en.56" on page 1248
H32.57	2032-3Ah	Hall closed-loop locked-rotor speed	0[mm/s]/[rpm]–65535[mm/s]/[rpm]	2	[mm/s]/[rpm]	At stop	"H32_en.57" on page 1248
H32.58	2032-3Bh	Hall closed-loop locked-rotor current	0.0% to 300.0%	120.0	%	At stop	"H32_en.58" on page 1248
H32.59	2032-3Ch	Hall closed-loop locked-rotor window time	0 ms–2000 ms	10	ms	At stop	"H32_en.59" on page 1248

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H32.60	2032-3Dh	Hall closed-loop inertia ratio	0.00–120.00	0.00	-	At stop	"H32_en.60" on page 1249
H32.61	2032-3Eh	Hall closed-loop rigidity	4–31	16	-	At stop	"H32_en.61" on page 1249
H32.62	2032-3Fh	Electrical angle save flag	0–65535	0	-	Real-time	"H32_en.62" on page 1249
H32.63	2032-40h	Hall1 electric angle	0–65535	0	-	At stop	"H32_en.63" on page 1249
H32.64	2032-41h	Hall2 electric angle	0–65535	0	-	At stop	"H32_en.64" on page 1250
H32.65	2032-42h	Hall3 electric angle	0–65535	0	-	At stop	"H32_en.65" on page 1250
H32.66	2032-43h	Hall4 electric angle	0–65535	0	-	At stop	"H32_en.66" on page 1250
H32.67	2032-44h	Hall5 electric angle	0–65535	0	-	At stop	"H32_en.67" on page 1251
H32.68	2032-45h	Hall6 electric angle	0–65535	0	-	At stop	"H32_en.68" on page 1251
H32.70	2032-47h	Motor overload protection mode	0: Internal motor overload curve 1: External motor overload curve 2: Current limit overload protection 3: Hide motor overload protection	0	-	At stop	"H32_en.70" on page 1251
H32.73	2032-4Ah	Thermal threshold current of overload current limit	10.0% to 750.0%	115.0	%	At stop	"H32_en.73" on page 1252
H32.74	2032-4Bh	Peak current of overload current limit	100.0% to 750.0%	300.0	%	At stop	"H32_en.74" on page 1252
H32.75	2032-4Ch	Max. current duration of overload protection	0.01s to 655.35s	1.00	s	At stop	"H32_en.75" on page 1252
H32.76	2032-4Dh	Current limit time constant of overload protection	0.01–655.35	1.00	-	At stop	"H32_en.76" on page 1253

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H32.77	2032-4Eh	Current limit alarm threshold of overload protection	0.0% to 750.0%	0.0	%	At stop	"H32_en.77" on page 1253
H32.78	2032-4Fh	Current limit fault threshold of overload protection	0.0% to 750.0%	0.0	%	At stop	"H32_en.78" on page 1253
H32.79	2032-50h	Thermal threshold current of overload	10.0% to 750.0%	115.0	%	At stop	"H32_en.79" on page 1254
H32.80	2032-51h	Thermal current interval of overload	0.1% to 204.8%	6.4	%	At stop	"H32_en.80" on page 1254
H32.81	2032-52h	Overload heat dissipation current interval	0.1% to 204.8%	6.4	%	At stop	"H32_en.81" on page 1254
H32.82	2032-53h	Length of overload heat dissipation curve	1–200	1	-	At stop	"H32_en.82" on page 1254
H32.83	2032-54h	Length of overload heat dissipation curve	1–200	1	-	At stop	"H32_en.83" on page 1255

3.31 H33 Compensation Parameters

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H33.00	2033-01h	Compensation data BUFFER0	0–65535	0	-	At stop	"H33_en.00" on page 1255
H33.01	2033-02h	Compensation data BUFFER1	0–65535	0	-	At stop	"H33_en.01" on page 1255
H33.02	2033-03h	Compensation data BUFFER2	0–65535	0	-	At stop	"H33_en.02" on page 1256
H33.03	2033-04h	Compensation data BUFFER3	0–65535	0	-	At stop	"H33_en.03" on page 1256
H33.04	2033-05h	Compensation data BUFFER4	0–65535	0	-	At stop	"H33_en.04" on page 1256

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H33.05	2033-06h	Compensation data BUFFER5	0-65535	0	-	At stop	"H33_en.05" on page 1256
H33.06	2033-07h	Compensation data BUFFER6	0-65535	0	-	At stop	"H33_en.06" on page 1257
H33.07	2033-08h	Compensation data BUFFER7	0-65535	0	-	At stop	"H33_en.07" on page 1257
H33.08	2033-09h	Compensation data BUFFER8	0-65535	0	-	At stop	"H33_en.08" on page 1257
H33.09	2033-0Ah	Compensation data BUFFER9	0-65535	0	-	At stop	"H33_en.09" on page 1257
H33.10	2033-0Bh	Compensation data BUFFER10	0-65535	0	-	At stop	"H33_en.10" on page 1258
H33.11	2033-0Ch	Compensation data BUFFER11	0-65535	0	-	At stop	"H33_en.11" on page 1258
H33.12	2033-0Dh	Compensation data BUFFER12	0-65535	0	-	At stop	"H33_en.12" on page 1258
H33.13	2033-0Eh	Compensation data BUFFER13	0-65535	0	-	At stop	"H33_en.13" on page 1259
H33.14	2033-0Fh	Compensation data BUFFER14	0-65535	0	-	At stop	"H33_en.14" on page 1259
H33.15	2033-10h	Compensation data BUFFER15	0-65535	0	-	At stop	"H33_en.15" on page 1259
H33.16	2033-11h	Compensation data BUFFER16	0-65535	0	-	At stop	"H33_en.16" on page 1259
H33.17	2033-12h	Compensation data BUFFER17	0-65535	0	-	At stop	"H33_en.17" on page 1260
H33.18	2033-13h	Compensation data BUFFER18	0-65535	0	-	At stop	"H33_en.18" on page 1260
H33.19	2033-14h	Compensation data BUFFER19	0-65535	0	-	At stop	"H33_en.19" on page 1260
H33.20	2033-15h	Compensation data BUFFER20	0-65535	0	-	At stop	"H33_en.20" on page 1260
H33.21	2033-16h	Compensation data BUFFER21	0-65535	0	-	At stop	"H33_en.21" on page 1261
H33.22	2033-17h	Compensation data BUFFER22	0-65535	0	-	At stop	"H33_en.22" on page 1261
H33.23	2033-18h	Compensation data BUFFER23	0-65535	0	-	At stop	"H33_en.23" on page 1261
H33.24	2033-19h	Compensation data BUFFER24	0-65535	0	-	At stop	"H33_en.24" on page 1262
H33.25	2033-1Ah	Compensation data BUFFER25	0-65535	0	-	At stop	"H33_en.25" on page 1262

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H33.26	2033-1Bh	Compensation data BUFFER26	0-65535	0	-	At stop	"H33_en.26" on page 1262
H33.27	2033-1Ch	Compensation data BUFFER27	0-65535	0	-	At stop	"H33_en.27" on page 1262
H33.28	2033-1Dh	Compensation data BUFFER28	0-65535	0	-	At stop	"H33_en.28" on page 1263
H33.29	2033-1Eh	Compensation data BUFFER29	0-65535	0	-	At stop	"H33_en.29" on page 1263
H33.30	2033-1Fh	Compensation data BUFFER30	0-65535	0	-	At stop	"H33_en.30" on page 1263
H33.31	2033-20h	Compensation data BUFFER31	0-65535	0	-	At stop	"H33_en.31" on page 1263
H33.32	2033-21h	Compensation data BUFFER32	0-65535	0	-	At stop	"H33_en.32" on page 1264
H33.33	2033-22h	Compensation data BUFFER33	0-65535	0	-	At stop	"H33_en.33" on page 1264
H33.34	2033-23h	Compensation data BUFFER34	0-65535	0	-	At stop	"H33_en.34" on page 1264
H33.35	2033-24h	Compensation data BUFFER35	0-65535	0	-	At stop	"H33_en.35" on page 1265
H33.36	2033-25h	Compensation data BUFFER36	0-65535	0	-	At stop	"H33_en.36" on page 1265
H33.37	2033-26h	Compensation data BUFFER37	0-65535	0	-	At stop	"H33_en.37" on page 1265
H33.38	2033-27h	Compensation data BUFFER38	0-65535	0	-	At stop	"H33_en.38" on page 1265
H33.39	2033-28h	Compensation data BUFFER39	0-65535	0	-	At stop	"H33_en.39" on page 1266
H33.40	2033-29h	Current Compensation BUFFER group number	0-65535	0	-	At stop	"H33_en.40" on page 1266
H33.41	2033-2Ah	Compensation data sum	0-32767	0	-	At stop	"H33_en.41" on page 1266
H33.44	2033-2Dh	Data command	0-1	1	-	At stop	"H33_en.44" on page 1266
H33.45	2033-2Eh	Data storage position	0: Servo RAM 1: Servo FLASH 2: Encoder FLASH	1	-	At stop	"H33_en.45" on page 1267
H33.46	2033-2Fh	Data clear	0-3	0	-	At stop	"H33_en.46" on page 1267
H33.47	2033-30h	Software tool write status	0-2	0	-	At stop	"H33_en.47" on page 1267

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H33.48	2033-31h	Servo read status	0-65535	0	-	Unchangeable	"H33_en.48" on page 1268
H33.49	2033-32h	Software tool read status	0-2	0	-	At stop	"H33_en.49" on page 1268
H33.50	2033-33h	Servo write status	0-65535	0	-	Unchangeable	"H33_en.50" on page 1268
H33.51	2033-34h	Data transmission completed flag	0-1	0	-	At stop	"H33_en.51" on page 1269
H33.52	2033-35h	Servo data transfer completed flag	0-65535	0	-	Unchangeable	"H33_en.52" on page 1269
H33.60	2033-3Dh	Accuracy compensation function	0-1	0	-	At stop	"H33_en.60" on page 1269
H33.61	2033-3Eh	Accuracy compensation sum	0count to 2048count	0	count	At stop	"H33_en.61" on page 1269
H33.62	2033-3Fh	Starting offset address of accuracy compensation	-21474836.48[mm]/[deg]-21474836.47[mm]/[deg]	0.00	[mm]/[deg]	At stop	"H33_en.62" on page 1270
H33.64	2033-41h	Accuracy compensation data interval	-327.67[mm]/[deg]-327.67[mm]/[deg]	0.00	[mm]/[deg]	At stop	"H33_en.64" on page 1270
H33.65	2033-42h	Accuracy compensation dial phase sequence	0x0 to 0xFFFF	0x0	-	At stop	"H33_en.65" on page 1270
H33.66	2033-43h	Accuracy compensation dial reference direction	0-1	0	-	At stop	"H33_en.66" on page 1270
H33.67	2033-44h	Servo homing completed	0-65535	0	-	Unchangeable	"H33_en.67" on page 1271
H33.68	2033-45h	Current acting index of accuracy compensation	0-65535	0	-	Unchangeable	"H33_en.68" on page 1271
H33.69	2033-46h	Forced homing start	0-1	0	-	At stop	"H33_en.69" on page 1271

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H33.70	2033-47h	Forced homing mode	-32768~32767	-2	-	At stop	"H33_en.70" on page 1272
H33.71	2033-48h	Forced homing at low speed	0[mm/s]/[rpm]~1000[mm/s]/[rpm]	10	[mm/s]/[rpm]	At stop	"H33_en.71" on page 1272
H33.72	2033-49h	Single-turn absolute position of accuracy compensation home of absolute encoder	0 to 4294967295	0	Encoder unit	At stop	"H33_en.72" on page 1272
H33.74	2033-4Bh	Min.pulse width of frequency-division output accuracy compensation	2count to 7count	3	count	At stop	"H33_en.74" on page 1272
H33.75	2033-4Ch	Accuracy compensation data unit	0: [um]/[arcsec] 1: [mm]/[mrad]	0	-	At stop	"H33_en.75" on page 1273
H33.81	2033-52h	Motor cogging torque ripple compensation sum	0count to 65535count	2000	count	At stop	"H33_en.81" on page 1273

3.32 H34 Servo Motor Parameters 2

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H34.12	2034-0Dh	Error type supported by EnDat2.2 encoder	0x0 to 0xFFFF	0x0	-	Unchangeable	"H34_en.12" on page 1273
H34.13	2034-0Eh	Alarm types supported by EnDat2.2 encoders	0x0 to 0xFFFF	0x0	-	Unchangeable	"H34_en.13" on page 1274

Parameter	Communication Address	Name	Value	Default	Unit	Change Mode	Page
H34.14	2034-0Fh	Error value output by EnDat2.2 encoder	0x0 to 0xFFFF	0x0	-	Unchangeable	"H34_en.14" on page 1274
H34.15	2034-10h	Alarm value output by EnDat2.2 encoder	0x0 to 0xFFFF	0x0	-	Unchangeable	"H34_en.15" on page 1274

3.33 List of 1000h Object Dictionary

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
1000.00h	1000-00h	Device type	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1000_en.00h" on page 1275
1001.00h	1001-00h	Error Register	0x0 to 0xFF	0x0	-	Unchangeable	"1001_en.00h" on page 1275
1018.01h	1018-01h	Vendor ID	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1018_en.01h" on page 1275
1018.02h	1018-02h	Product Code	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1018_en.02h" on page 1276
1018.03h	1018-03h	Revision	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1018_en.03h" on page 1276
1018.04h	1018-04h	Serial number	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1018_en.04h" on page 1276
1600.00h	1600-00h	Number of valid mapped objects in RPDO1	0–20	0	-	Unchangeable	"1600_en.00h" on page 1276
1600.01h	1600-01h	Mapped object 1 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.01h" on page 1277
1600.02h	1600-02h	Mapped object 2 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.02h" on page 1277

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
1600.03h	1600-03h	Mapped object 3 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.03h" on page 1277
1600.04h	1600-04h	Mapped object 4 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.04h" on page 1278
1600.05h	1600-05h	Mapped object 5 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.05h" on page 1278
1600.06h	1600-06h	Mapped object 6 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.06h" on page 1278
1600.07h	1600-07h	Mapped object 7 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.07h" on page 1278
1600.08h	1600-08h	Mapped object 8 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.08h" on page 1279
1600.09h	1600-09h	Mapped object 9 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.09h" on page 1279
1600.0Ah	1600-0Ah	Mapped object 10 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.0Ah" on page 1279
1600.0Bh	1600-0Bh	Mapped object 11 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.0Bh" on page 1280
1600.0Ch	1600-0Ch	Mapped object 12 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.0Ch" on page 1280
1600.0Dh	1600-0Dh	Mapped object 13 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.0Dh" on page 1280
1600.0Eh	1600-0Eh	Mapped object 14 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.0Eh" on page 1280
1600.0Fh	1600-0Fh	Mapped object 15 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.0Fh" on page 1281
1600.10h	1600-10h	Mapped object 16 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.10h" on page 1281
1600.11h	1600-11h	Mapped object 17 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.11h" on page 1281

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
1600.12h	1600-12h	Mapped object 18 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.12h" on page 1281
1600.13h	1600-13h	Mapped object 19 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.13h" on page 1282
1600.14h	1600-14h	Mapped object 20 in RPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1600_en.14h" on page 1282
1A00.00h	1A00-00h	Number of valid mapped objects in TPDO1	0–20	0	-	Unchangeable	"1A00_en.00h" on page 1282
1A00.01h	1A00-01h	Mapped object 1 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.01h" on page 1283
1A00.02h	1A00-02h	Mapped object 2 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.02h" on page 1283
1A00.03h	1A00-03h	Mapped object 3 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.03h" on page 1283
1A00.04h	1A00-04h	Mapped object 4 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.04h" on page 1284
1A00.05h	1A00-05h	Mapped object 5 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.05h" on page 1284
1A00.06h	1A00-06h	Mapped object 6 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.06h" on page 1284
1A00.07h	1A00-07h	Mapped object 7 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.07h" on page 1284
1A00.08h	1A00-08h	Mapped object 8 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.08h" on page 1285
1A00.09h	1A00-09h	Mapped object 9 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.09h" on page 1285
1A00.0Ah	1A00-0Ah	Mapped object 10 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.0Ah" on page 1285

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
1A00.0Bh	1A00-0Bh	Mapped object 11 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.0Bh" on page 1285
1A00.0Ch	1A00-0Ch	Mapped object 12 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.0Ch" on page 1286
1A00.0Dh	1A00-0Dh	Mapped object 13 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.0Dh" on page 1286
1A00.0Eh	1A00-0Eh	Mapped object 14 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.0Eh" on page 1286
1A00.0Fh	1A00-0Fh	Mapped object 15 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.0Fh" on page 1286
1A00.10h	1A00-10h	Mapped object 16 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.10h" on page 1287
1A00.11h	1A00-11h	Mapped object 17 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.11h" on page 1287
1A00.12h	1A00-12h	Mapped object 18 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.12h" on page 1287
1A00.13h	1A00-13h	Mapped object 19 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.13h" on page 1288
1A00.14h	1A00-14h	Mapped object 20 in TPDO1	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1A00_en.14h" on page 1288
1C12.00h	1C12-00h	Number of assigned PDOs	0x0 to 0x2	0x2	-	Unchangeable	"1C12_en.00h" on page 1288
1C12.01h	1C12-01h	PDO mapping object index of assigned RxPDO1	0x1600 to 0x17FF	0x1701	-	Unchangeable	"1C12_en.01h" on page 1288
1C12.02h	1C12-02h	PDO mapping object index of assigned RxPDO2	0x1600 to 0x17FF	0x170A	-	Unchangeable	"1C12_en.02h" on page 1289
1C13.00h	1C13-00h	Number of assigned PDOs	0x0 to 0x2	0x2	-	Unchangeable	"1C13_en.00h" on page 1289

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
1C13.01h	1C13-01h	PDO mapping object index of assigned TxPDO1	0x1A00 to 0x1BFF	0x1B01	-	Unchangeable	"1C13_en.01h" on page 1289
1C13.02h	1C13-02h	PDO mapping object index of assigned TxPDO2	0x1A00 to 0x1BFF	0x1B0A	-	Unchangeable	"1C13_en.02h" on page 1289
1C32.01h	1C32-01h	Sync mode	0x0 to 0xFFFF	0x0	-	Unchangeable	"1C32_en.01h" on page 1290
1C32.02h	1C32-02h	Cycle time	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1C32_en.02h" on page 1290
1C32.04h	1C32-04h	Sync modes supported	0x0 to 0xFFFF	0x0	-	Unchangeable	"1C32_en.04h" on page 1290
1C32.05h	1C32-05h	Minimum cycle time	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1C32_en.05h" on page 1291
1C33.01h	1C33-01h	Sync mode	0x0 to 0xFFFF	0x0	-	Unchangeable	"1C33_en.01h" on page 1291
1C33.02h	1C33-02h	Cycle time	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1C33_en.02h" on page 1291
1C33.04h	1C33-04h	Sync modes supported	0x0 to 0xFFFF	0x0	-	Unchangeable	"1C33_en.04h" on page 1291
1C33.05h	1C33-05h	Minimum cycle time	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"1C33_en.05h" on page 1292

3.34 List of 6000h Object Dictionary

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
603Fh	603Fh	Error code	0x0 to 0xFFFF	0x0	-	Unchangeable	"603Fh" on page 1292
6040h	6040h	Control word	0x0 to 0xFFFF	0x0	-	Real-time	"6040h" on page 1292

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
6041h	6041h	Status word	0x0 to 0xFFFF	0x0	-	Unchangeable	"6041h" on page 1293
605Ah	605Ah	Quick stop mode	0: Coast to stop, keeping de-energized state 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state 2: Ramp to stop as defined by 6085h, keeping de-energized state 3: Stop at emergency stop torque, keeping de-energized state 5: Ramp to stop as defined by 6084h/609Ah (HM), keeping position lock state 6: Ramp to stop as defined by 6085h, keeping position lock state 7: Stop at emergency stop torque, keeping position lock state	2	-	Real-time	"605Ah" on page 1293
605Ch	605Ch	Stop mode at S-OFF	-4: Ramp to stop as defined by 6085h, keeping dynamic braking state -3: at zero speed, keeping dynamic braking state -2: Ramp to stop as defined by 6084h/609Ah (HM), keeping dynamic braking state -1: Dynamic braking stop, keeping dynamic braking state 0: Coast to stop, keeping de-energized state 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state 2: Dynamic braking stop, keeping de-energized state	0	-	Real-time	"605Ch" on page 1294

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
605Dh	605Dh	Halt mode	1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping position lock state 2: Ramp to stop as defined by 6085h, keeping position lock state 3: Stop at emergency stop torque, keeping position lock state	1	-	Real-time	"605Dh" on page 1295
605Eh	605Eh	Stop mode at No. 2 fault	-5: Stop at zero speed, keeping dynamic braking state -4: Stop at emergency stop torque, keeping dynamic braking state -3: Ramp to stop as defined by 6085h, keeping dynamic braking state -2: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping dynamic braking state -1: Dynamic braking stop, keeping dynamic braking state 0: Coast to stop, keeping de-energized state 1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping de-energized state 2: Ramp to stop as defined by 6085h, keeping de-energized state 3: Stop at emergency stop torque, keeping de-energized state 4: Dynamic braking stop, keeping de-energized state	2	-	Real-time	"605Eh" on page 1295
6060h	6060h	Servo drive mode	1: Profile position (PP) mode 3: Profile velocity (PV) mode 4: Profile torque (PT) mode 6: Homing (HM) mode 8: CSP mode 9: CSV mode 10: CST mode	0	-	Real-time	"6060h" on page 1296

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
6061h	6061h	Operation mode display	1: Profile position (PP) mode 3: Profile velocity (PV) mode 4: Profile torque (PT) mode 6: Homing (HM) mode 8: CSP mode 9: CSV mode 10: CST mode	0	-	Unchangeable	"6061h" on page 1296
6062h	6062h	Position reference	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"6062h" on page 1297
6063h	6063h	Position actual value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"6063h" on page 1297
6064h	6064h	Position actual value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"6064h" on page 1298
6065h	6065h	Following error window	0 to 4294967295	219895614	Reference unit	Real-time	"6065h" on page 1298
6066h	6066h	Defines the time lapse to trigger excessive position deviation (EB00.0).	0 ms–65535 ms	0	ms	Real-time	"6066h" on page 1298
6067h	6067h	Position window	0 to 4294967295	46976	Reference unit	Real-time	"6067h" on page 1299
6068h	6068h	Position window time	0 ms–65535 ms	0	ms	Real-time	"6068h" on page 1299
606Ch	606Ch	Actual speed	–2147483648 to +2147483647	0	Reference unit/s	Unchangeable	"606Ch" on page 1299
606Dh	606Dh	Velocity window	0[mm/s]/[rpm]–65535[mm/s]/[rpm]	10	[mm/s]/[rpm]	Real-time	"606Dh" on page 1299
606Eh	606Eh	Velocity window time	0 ms–65535 ms	0	ms	Real-time	"606Eh" on page 1300
606Fh	606Fh	Zero speed signal threshold	0[mm/s]/[rpm]–65535[mm/s]/[rpm]	10	[mm/s]/[rpm]	Real-time	"606Fh" on page 1300
6070h	6070h	Velocity threshold time	0 ms–65535 ms	0	ms	Real-time	"6070h" on page 1301
6071h	6071h	Target torque	–4000.%–4000.%	0	0.10%	Real-time	"6071h" on page 1301

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
6072h	6072h	Max. torque reference	0.%–4000.%	3500	0.10%	Real-time	"6072h" on page 1301
6074h	6074h	Torque reference	–4000.%–4000.%	0	0.10%	Unchangeable	"6074h" on page 1301
6077h	6077h	Actual torque	–4000.%–4000.%	0	0.10%	Unchangeable	"6077h" on page 1302
607Ah	607Ah	Target position	–2147483648 to 2147483647	0	Reference unit	Real-time	"607Ah" on page 1302
607Ch	607Ch	Home offset	–2147483648 to 2147483647	0	Reference unit	Real-time	"607Ch" on page 1302
607D.01h	607D-01h	Min. position limit	–2147483648 to 2147483647	–2147483648	Reference unit	Real-time	"607D_en.01h" on page 1303
607D.02h	607D-02h	Max. position limit	–2147483648 to 2147483647	2147483647	Reference unit	Real-time	"607D_en.02h" on page 1303
607Eh	607Eh	Reference polarity	0x0 to 0xFF	0x0	-	Real-time	"607Eh" on page 1304
607Fh	607Fh	Max. speed	0 to 4294967295	4294967295	Reference unit/s	Real-time	"607Fh" on page 1304
6081h	6081h	Profile velocity	0 to 4294967295	111848106	Reference unit/s	Real-time	"6081h" on page 1304
6083h	6083h	Profile acceleration	0 to 4294967295	4294967295	Reference unit/s ²	Real-time	"6083h" on page 1305
6084h	6084h	Profile deceleration	0 to 4294967295	4294967295	Reference unit/s ²	Real-time	"6084h" on page 1305
6085h	6085h	Quick stop deceleration	0 to 4294967295	2147483647	Reference unit/s ²	Real-time	"6085h" on page 1306
6087h	6087h	Torque slope	0.%/s–4294967295.%/s	4294967295	0.1%/s	Real-time	"6087h" on page 1306
6091.01h	6091-01h	Motor resolution	1–4294967295	1	-	At stop	"6091_en.01h" on page 1306
6091.02h	6091-02h	Shaft resolution	1–4294967295	1	-	At stop	"6091_en.02h" on page 1307

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
6098h	6098h	Homing method	-3~35	1	-	Real-time	"6098h" on page 1307
6099.01h	6099-01h	Speed during search for switch	0 to 4294967295	11184810 6	Reference unit/s	At stop	"6099_en.01h" on page 1309
6099.02h	6099-02h	Speed during search for zero	0 to 4294967295	11184810	Reference unit/s	At stop	"6099_en.02h" on page 1309
609Ah	609Ah	Homing acceleration	0 to 4294967295	42949672 95	Reference unit/s ²	Real-time	"609Ah" on page 1309
60B0h	60B0h	Position offset	-2147483648 to 2147483647	0	Reference unit	Real-time	"60B0h" on page 1309
60B1h	60B1h	Velocity offset	-2147483648 to +2147483647	0	Reference unit/s	Real-time	"60B1h" on page 1310
60B2h	60B2h	Torque offset	-4000.%~4000.%	0	0.10%	Real-time	"60B2h" on page 1310
60B8h	60B8h	Touch probe function	0x0 to 0xFFFF	0x0	-	Real-time	"60B8h" on page 1310
60B9h	60B9h	Touch probe status	0x0 to 0xFFFF	0x0	-	Unchangeable	"60B9h" on page 1311
60BAh	60BAh	Touch probe 1 positive edge position value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"60BAh" on page 1312
60BBh	60BBh	Touch probe 1 negative edge position value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"60BBh" on page 1313
60BCh	60BCh	Touch probe 2 positive edge position value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"60BCh" on page 1313
60BDh	60BDh	Touch probe 2 negative edge position value	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"60BDh" on page 1313
60C5h	60C5h	Max. acceleration	0 to 4294967295	42949672 95	Reference unit/s ²	Real-time	"60C5h" on page 1314
60C6h	60C6h	Max. deceleration	0 to 4294967295	42949672 95	Reference unit/s ²	Real-time	"60C6h" on page 1314
60D5h	60D5h	Touch probe 1 positive edge counter	0x0 to 0xFFFF	0x0	-	Unchangeable	"60D5h" on page 1314

Parameter	Comm. Add.	Name	Value	Default	Unit	Change Mode	Page
60D6h	60D6h	Touch probe 1 negative edge counter	0x0 to 0xFFFF	0x0	-	Unchangeable	"60D6h" on page 1314
60D7h	60D7h	Touch probe 2 positive edge counter	0x0 to 0xFFFF	0x0	-	Unchangeable	"60D7h" on page 1315
60D8h	60D8h	Touch probe 2 negative edge counter	0x0 to 0xFFFF	0x0	-	Unchangeable	"60D8h" on page 1315
60E0h	60E0h	Positive torque limit	0.%–4000.%	3000	0.10%	Real-time	"60E0h" on page 1315
60E1h	60E1h	Negative torque limit	0.%–4000.%	3000	0.10%	Real-time	"60E1h" on page 1316
60F4h	60F4h	Position deviation	-2147483648 to 2147483647	0	Reference unit	Unchangeable	"60F4h" on page 1316
60FCh	60FCh	Position reference	-2147483648–2147483647	0	-	Unchangeable	"60FCh" on page 1316
60FDh	60FDh	DI state	0x0 to 0xFFFFFFFF	0x0	-	Unchangeable	"60FDh" on page 1316
60FFh	60FFh	PV, CSV mode speed reference	–2147483648 to +2147483647	0	Reference unit/s	Real-time	"60FFh" on page 1317
60FE.01h	60FE-01h	Physical output	0x0 to 0xFFFFFFFF	0x0	-	Real-time	"60FE_en.01h" on page 1317
60FE.02h	60FE-02h	Bitmask	0x0 to 0xFFFFFFFF	0x0	-	Real-time	"60FE_en.02h" on page 1318

4 Description of Parameters [N]

4.1 H00 Servo Motor Parameters

H00.00	Motor SN		
	Address:	2000-01h	Effective mode: Upon the next power-on
	Min.:	0	Unit: -
	Max.:	65535	Data Type: UInt16
	Default:	14102	Change: At stop
	Value Range:		
	20000: linear motor-pulse encoder		
	14203: linear motor-BiSS-C encoder		
	14206: linear motor-SSI encoder		
	14207: linear motor-EnDat2.2 encoder		
	14202: linear motor-Inovance communication 23-bit encoder		
	14205: linear motor-Inovance interpolator 23-bit encoder		
	20001: DDR motor-pulse encoder		
	14210: DDR motor-Inovance interpolator 23-bit encoder		
	14201: DDR motor-Inovance communication 23-bit encoder		
	14211: DDR motor-BiSS-C encoder		
	14212: DDR motor-EnDat2.2 encoder		
	14213: DDR motor-SSI encoder		
	20002: rotary motor-pulse encoder		
	14000: rotary motor-Inovance communication 20-bit encoder		
	14101: rotary motor-Inovance communication 23-bit encoder		
	14102: rotary motor-Inovance communication 26-bit encoder		
	14020: rotary motor-Harmonic 20-bit encoder-2.5M baud rate		
	14021: rotary motor-Harmonic 17-bit encoder-2.5M baud rate		
	14022: rotary motor-Harmonic 17-bit encoder-4M baud rate		
	14120: rotary motor-Nikon 20-bit encoder-2.5M baud rate		
	14121: rotary motor-Nikon 17-bit encoder-2.5M baud rate		
	14122: rotary motor-Nikon 17-bit encoder-4M baud rate		
	14130: rotary motor-TAMAGAWA 17-bit encoder		
	14131: rotary motor-TAMAGAWA 23-bit encoder		
	14140: rotary motor-EnDat2.2 encoder		
	14150: rotary motor-SSI encoder		
	14160: rotary motor-BiSS-C encoder		

Description

20000: linear motor-pulse encoder
 14203: linear motor-BiSS-C encoder
 14206: linear motor-SSI encoder
 14207: linear motor-EnDat2.2 encoder
 14202: linear motor-Inovance communication 23-bit encoder
 14205: linear motor-Inovance interpolator 23-bit encoder
 20001: DDR motor-pulse encoder
 14210: DDR motor-Inovance interpolator 23-bit encoder
 14201: DDR motor-Inovance communication 23-bit encoder
 14211: DDR motor-BiSS-C encoder
 14212: DDR motor-EnDat2.2 encoder
 14213: DDR motor-SSI encoder
 20002: rotary motor-pulse encoder
 14000: rotary motor-Inovance communication 20-bit encoder
 14101: rotary motor-Inovance communication 23-bit encoder
 14102: rotary motor-Inovance communication 26-bit encoder
 14020: rotary motor-Harmonic 20-bit encoder-2.5M baud rate
 14021: rotary motor-Harmonic 17-bit encoder-2.5M baud rate
 14022: rotary motor-Harmonic 17-bit encoder-4M baud rate
 14120: rotary motor-Nikon 20-bit encoder-2.5M baud rate
 14121: rotary motor-Nikon 17-bit encoder-2.5M baud rate
 14122: rotary motor-Nikon 17-bit encoder-4M baud rate
 14130: rotary motor-TAMAGAWA 17-bit encoder
 14131: rotary motor-TAMAGAWA 23-bit encoder
 14140: rotary motor-EnDat2.2 encoder
 14150: rotary motor-SSI encoder
 14160: rotary motor-BiSS-C encoder

H00.02**Customized No.**

Address:	2000-03h	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	42949672.95	Data Type:	UInt32
Default:	0.00	Change:	Unchangeable

Value Range:

0.00–42949672.95

Description

Differentiates the customized MCU software version, which is not applicable to standard models.

H00.04**Encoder version**

Address: 2000-05h

Effective -

mode:

Min.: 0.0

Unit: -

Max.: 6553.5

Data Type: UInt16

Default: 0.0

Change: Unchangeable

Value Range:

0.0–6553.5

Description

Saved in the encoder and used to differentiate the encoder software version.

H00.05**Encoder version**

Address: 2000-06h

Effective -

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: Unchangeable

Value Range:

0–65535

Description

Displays the code of the serial-type motor, which is determined by the motor model and unchangeable.

H00.06**FPGA customized SN**

Address: 2000-07h

Effective -

mode:

Min.: 0.00

Unit: -

Max.: 655.35

Data Type: UInt16

Default: 0.00

Change: Unchangeable

Value Range:

0.00–655.35

Description

Differentiates the customized FPGA software version, which is not applicable to standard models.

H00.07**STO version**

Address: 2000-08h

Effective -

mode:

Min.: 0.0

Unit: -

Max.: 6553.5

Data Type: UInt16

Default: 0.0

Change: Unchangeable

Value Range:

0.0–6553.5

Description

Display the software version number of STO function.

H00.08**Bus encoder type**

Address: 2000-09h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

14100: Multi-turn absolute encoder

Others: Single-turn absolute encoder

H00.14**Rated speed**

Address: 2000-0Fh

Effective mode: Upon the next power-on

Min.: 50

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: UInt16

Default: 3000

Change: At stop

Value Range:

50[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Set the motor rated speed.

H00.15**Maximum speed**

Address: 2000-10h

Effective mode: Upon the next power-on

Min.: 50

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: UInt16

Default: 6000

Change: At stop

Value Range:

50[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Set the maximum motor speed.

H00.18**Stator resistance**

Address: 2000-13h

Effective mode: Upon the next power-on

Min.:	0.001	Unit:	Ω
Max.:	65.535	Data Type:	UInt16
Default:	0.500	Change:	At stop

Value Range:0.001 Ω to 65.535 Ω **Description**

Set the motor stator resistance.

H00.19 Stator inductance Lq

Address:	2000-14h	Effective mode:	Upon the next power-on
Min.:	0.01	Unit:	mH
Max.:	655.35	Data Type:	UInt16
Default:	3.27	Change:	At stop

Value Range:

0.01mH to 655.35mH

Description

Set the motor stator inductance Lq.

H00.20 Stator inductance Ld

Address:	2000-15h	Effective mode:	Upon the next power-on
Min.:	0.01	Unit:	mH
Max.:	655.35	Data Type:	UInt16
Default:	3.87	Change:	At stop

Value Range:

0.01mH to 655.35mH

Description

Set the motor stator inductance Ld.

H00.22 Torque coefficient Kt

Address:	2000-17h	Effective mode:	Upon the next power-on
Min.:	0.01	Unit:	[N/Arms]/[N·m/Arms]
Max.:	655.35	Data Type:	UInt16
Default:	0.51	Change:	At stop

Value Range:

0.01[N/Arms]/[N·m/Arms]–655.35[N/Arms]/[N·m/Arms]

Description

Set the motor torque coefficient Kt.

H00.40

Motor control type

Address:	2000-29h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

- 0: General-purpose rotary motor (ROT)
- 1: Direct drive rotary motor (DDR)
- 2: Direct drive linear motor (DDL)
- 3: Voice coil motor (VOL)

Description

The motor type supported by the drive.

- 0: General-purpose rotary motor (ROT)
- 1: Direct drive rotary motor (DDR)
- 2: Direct drive linear motor (DDL)
- 3: Voice coil motor (VOL)

H00.41

Master encoder configuration

Address:	2000-2Ah	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Unchangeable

Value Range:

- 0: CN2
- 1: CN7

Description

Set the terminal for the master encoder.

H00.43

Number of BiSS-C/SSI/EnDat2.2 data bits

Address:	2000-2Ch	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	40	Data Type:	UInt16
Default:	32	Change:	At stop

Value Range:

0–40

Description

Defines the length of the data configured based on BiSS-C/SSI/EnDat2.2 protocol.

H00.44 Number of BiSS-C/SSI fault bits

Address:	2000-2Dh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	31	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0–31

Description

Defines the length of the fault configured based on BiSS-C/SSI protocol.

H00.45 Encoder pitch 1

Address:	2000-2Eh	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	[mm]/[deg]
Max.:	655.35	Data Type:	UInt16
Default:	2.00	Change:	At stop

Value Range:

0.00[mm]/[deg]–655.35[mm]/[deg]

Description

Defines the encoder pitch characteristics, which should be used together with encoder pitch fluctuation suppressor 1 (see details in H08.90).

H00.46 Encoder pitch 2

Address:	2000-2Fh	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	[mm]/[deg]
Max.:	655.35	Data Type:	UInt16
Default:	0.50	Change:	At stop

Value Range:

0.00[mm]/[deg]–655.35[mm]/[deg]

Description

Defines the encoder pitch characteristics, which should be used together with encoder pitch fluctuation suppressor 2 (see details in H08.90).

H00.47 Encoder Type

Address:	2000-30h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Optical scale

1: Magnetic scale

Description

Pulse Encoder type:

0: Optical scale

1: Magnetic scale

H00.48 Linear motor pole pitch (N-S)

Address:	2000-31h	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	mm
Max.:	655.35	Data Type:	UInt16
Default:	16.00	Change:	At stop

Value Range:

0.00 millimeters–655.35 millimeters

Description

Linear motor pole pitch.

H00.49 Direct drive motor encoder resolution

Address:	2000-32h	Effective mode:	Upon the next power-on
Min.:	0.000	Unit:	um/p
Max.:	65.535	Data Type:	UInt16
Default:	1.000	Change:	At stop

Value Range:

0.000um/p–65.535um/p

Description

Direct drive motor encoder resolution.

H00.54 BiSS-C/SSI CRC

Address:	2000-37h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0–1

Description

Defines the CRC polarity of the BiSS-C/SSI protocol.

0: Positive

1: Negative

H00.55 Rated torque (UInt32)

Address:	2000-38h	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	[N]/[N·m]
Max.:	42949672.95	Data Type:	UInt32
Default:	2.00	Change:	At stop

Value Range:

0.00[N]/[N·m]–42949672.95[N]/[N·m]

Description

Set the motor rated torque.

H00.57 Max. torque (UInt32)

Address:	2000-3Ah	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	[N]/[N·m]
Max.:	42949672.95	Data Type:	UInt32
Default:	7.00	Change:	At stop

Value Range:

0.00[N]/[N·m]–42949672.95[N]/[N·m]

Description

Set the maximum motor torque.

H00.59 Encoder counting direction

Address:	2000-3Ch	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Forward

1: Reverse

Description

Motor phase sequence:

0: Forward

1: Reverse

H00.63 Max. current (UInt32)

Address:	2000-40h	Effective mode:	Upon the next power-on
Min.:	0.00	Unit:	A
Max.:	42949672.95	Data Type:	UInt32

Default: 3.00

Change: At stop

Value Range:

0.00A–42949672.95A

Description

Set the maximum current.

H00.65 Rated current (Uint32)

Address: 2000-42h

Effective Upon the next power-on
mode:

Min.: 0.00

Unit: A

Max.: 42949672.95

Data Type: Uint32

Default: 1.00

Change: At stop

Value Range:

0.00A–42949672.95A

Description

Set the rated current.

H00.67 Moment of inertia (Uint32)

Address: 2000-44h

Effective Upon the next power-on
mode:

Min.: 0.00000

Unit: $[g]/[0.00001\text{kg} \cdot \text{cm}^2]$

Max.: 42949.67295

Data Type: Uint32

Default: 0.00001

Change: At stop

Value Range:0.00000 $[g]/[0.00001\text{kg} \cdot \text{cm}^2]$ –42949.67295 $[g]/[0.00001\text{kg} \cdot \text{cm}^2]$ **Description**

Set the moment of inertia.

H00.69 Linear back EMF coefficient (Uint32)

Address: 2000-46h

Effective Upon the next power-on
mode:

Min.: 0.00

Unit: $[V/(m/s)]/[100\text{mV/rpm}]$

Max.: 42949672.95

Data Type: Uint32

Default: 33.00

Change: At stop

Value Range:0.00 $[V/(m/s)]/[100\text{mV/rpm}]$ –42949672.95 $[V/(m/s)]/[100\text{mV/rpm}]$ **Description**

Set the Linear back EMF coefficient.

4.2 H01 Servo Drive Parameters

H01.00 MCU software version

Address:	2001-01h	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable
Value Range:			
0.0–6553.5			
Description			
Displays the MCU software version.			

H01.01 FPGA software version

Address:	2001-02h	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable
Value Range:			
0.0–6553.5			
Description			
Display the FPGA software version.			

H01.02 Servo drive series No.

Address:	2001-03h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable
Value Range:			
0–65535			
Description			
Display servo drive series number.			

H01.06 Board software version

Address:	2001-07h	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable
Value Range:			

0.0–6553.5

Description

Display board software version.

H01.10

Drive series No.

Address: 2001-0Bh

Effective Upon the next power-on
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 3

Change: At stop

Value Range:

2: S1R6

3: S2R8

5: S5R5

6: S7R6

7: S012

8: S018

9: S022

10: S027

10001: T3R5

10002: T5R4

10003: T8R4

10004: T012

10005: T017

10006: T021

10007: T026

Description

Display the serial number of the drive.

2: S1R6

3: S2R8

5: S5R5

6: S7R6

7: S012

8: S018

9: S022

10: S027

10001: T3R5

10002: T5R4

10003: T8R4

10004: T012

10005: T017

10006: T021

10007: T026

H01.11 DC-AC voltage class

Address: 2001-0Ch

Effective -

mode:

Min.: 0

Unit: V

Max.: 65535

Data Type: UInt16

Default: 220

Change: Unchangeable

Value Range:

0 V–65535 V

Description

Display DC-AC voltage class.

H01.12 Drive rated power

Address: 2001-0Dh

Effective -

mode:

Min.: 0.00

Unit: kW

Max.: 42949672.95

Data Type: UInt32

Default: 0.40

Change: Unchangeable

Value Range:

0.00 kW–42949672.95kW

Description

Display drive rated power.

H01.14 Max. output power of the drive

Address: 2001-0Fh

Effective -

mode:

Min.:	0.00	Unit:	kW
Max.:	42949672.95	Data Type:	UInt32
Default:	0.40	Change:	Unchangeable

Value Range:

0.00 kW–42949672.95kW

Description

Display the maximum output power of the drive.

H01.16 Rated output current of the drive

Address:	2001-11h	Effective mode:	-
Min.:	0.00	Unit:	A
Max.:	42949672.95	Data Type:	UInt32
Default:	2.80	Change:	Unchangeable

Value Range:

0.00 A–42949672.95 A

Description

Display the rated output current of the drive.

H01.18 Max. output current of the drive

Address:	2001-13h	Effective mode:	-
Min.:	0.00	Unit:	A
Max.:	42949672.95	Data Type:	UInt32
Default:	10.10	Change:	Unchangeable

Value Range:

0.00 A–42949672.95 A

Description

Display the maximum output current of the drive.

H01.40 DC bus overvoltage protection threshold

Address:	2001-29h	Effective mode:	Real time
Min.:	0	Unit:	V
Max.:	2000	Data Type:	UInt16
Default:	420	Change:	Real-time

Value Range:

0 V–2000 V

Description

Display the DC bus overvoltage protection threshold.

H01.75 Current loop amplification factor

Address:	2001-4Ch	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	655.35	Data Type:	UInt16
Default:	1.00	Change:	Real-time

Value Range:

0.00–655.35

Description

Display current loop amplification factor.

H01.88 Junction temperature parameter version 1

Address:	2001-59h	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0–6553.5

Description

Displays version 1 of the junction temperature parameter.

H01.89 Junction temperature parameter version 2

Address:	2001-5Ah	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Displays version 2 of the junction temperature parameter.

H01.90 Motor property mask

Address:	2001-5Bh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The setpoint 1 indicates the bit function of H0060 is being masked.

4.3 H02 Basic Control Parameters

H02.00 Control mode

Address:	2002-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	9	Data Type:	UInt16
Default:	9	Change:	At stop

Value Range:

- 0: Velocity mode
- 1: Position mode
- 2: Torque mode
- 7: Technology segment
- 9: EtherCAT mode

Description

- 0: Velocity mode
- 1: Position mode
- 2: Torque mode
- 7: Technology segment
- 9: EtherCAT mode

H02.01 Absolute system selection

Address:	2002-02h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: Incremental mode
- 1: Absolute position linear mode
- 2: Absolute position rotation mode
- 3: Absolute position linear mode (without encoder overflow alarm)
- 4: Absolute position single-turn mode

Description

Absolute system mode selection

0: Incremental mode

1: Absolute position linear mode

2: Absolute position rotation mode

3: Absolute position linear mode (without encoder overflow alarm)

4: Absolute position single-turn mode

H02.02 **Rotation direction selection**

Address:	2002-03h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Counterclockwise (CCW) as forward direction

1: Clockwise (CW) as forward direction

Description

Defines the forward direction of the motor when viewed from the motor shaft side.

0: Counterclockwise (CCW) as forward direction

1: Clockwise (CW) as forward direction

H02.03 **Output pulse phase**

Address:	2002-04h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Phase A leads phase B

1: Phase A lags behind phase B

Description

Defines the relationship between phase A and phase B on the condition that the motor direction of rotation remains unchanged when pulse output is enabled.

0: Phase A leads phase B

1: Phase A lags behind phase B

H02.05 **Stop mode at S-ON OFF**

Address:	2002-06h	Effective mode:	At stop
Min.:	-4	Unit:	-

Max.:	2	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

- 4: Ramp to stop as defined by 6085h, keeping dynamic braking state
- 3: at zero speed, keeping dynamic braking state
- 2: Ramp to stop as defined by 6084h/609Ah (HM), keeping dynamic braking state
- 1: Dynamic braking stop, keeping dynamic braking state
- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state
- 2: Dynamic braking stop, keeping de-energized state

Description

Defines the deceleration mode of the motor for stopping rotating upon S-ON OFF and the motor status after stop.

- 4: Ramp to stop as defined by 6085h, keeping dynamic braking state
- 3: Stop at zero speed, keeping dynamic braking state
- 2: Ramp to stop as defined by 6084h/609Ah (HM), keeping dynamic braking state
- 1: Dynamic braking stop, keeping dynamic braking state
- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized status
- 2: Dynamic braking stop, keeping de-energized state

Note: After the brake is enabled, H02.05 is forced to "4: Ramp to stop as defined by 6085h, keeping dynamic braking state".

H02.06 Stop mode at No. 2 fault

Address:	2002-07h	Effective mode:	At stop
Min.:	-5	Unit:	-
Max.:	4	Data Type:	Int16
Default:	2	Change:	Real-time

Value Range:

- 5: Stop at zero speed, keeping dynamic braking state
- 4: Stop at emergency stop torque, keeping dynamic braking state
- 3: Ramp to stop as defined by 6085h, keeping dynamic braking state
- 2: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping dynamic braking state
- 1: Dynamic braking stop, keeping dynamic braking state
- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping de-energized state
- 2: Ramp to stop as defined by 6085h, keeping de-energized state
- 3: Stop at emergency stop torque, keeping de-energized state
- 4: Dynamic braking stop, keeping de-energized state

Description

Defines the deceleration mode of the servo motor for stopping rotating and the servo motor status when a No. 2 fault occurs.

- 5: Stop at zero speed, keeping dynamic braking state
- 4: Stop at emergency stop torque, keeping dynamic braking state
- 3: Ramp to stop as defined by 6085h, keeping dynamic braking state
- 2: Ramp to stop as defined by 6084h/609Ah (HM), keeping dynamic braking state
- 1: Dynamic braking stop, keeping dynamic braking state
- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state
- 2: Ramp to stop as defined by 6085h, keeping de-energized stat
- 3: Stop at emergency stop torque, keeping de-energized state
- 4: Dynamic braking stop, keeping de-energized state

Note: If the brake is enabled, H02.06 is forced to "3: Ramp to stop as defined by 6085h, keeping dynamic braking state".

H02.07 Stop mode at overtravel

Address:	2002-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

- 0: Coast to stop, keeping de-energized state
- 1: Stop at zero speed, keeping position lock state
- 2: Stop at zero speed, keeping de-energized state
- 3: Stop based on ramp, keeping de-energized state
- 4: Stop based on ramp, keeping position lock state
- 5: Dynamic braking stop, keeping de-energized state
- 6: Dynamic braking stop, keeping dynamic braking state
- 7: Not responding to overtravel

Description

Defines the deceleration mode of the servo motor for stopping rotating and the servo motor status when overtravel occurs.

- 0: Coast to stop, keeping de-energized state
- 1: Stop at zero speed, keeping position lock state
- 2: Stop at zero speed, keeping de-energized state
- 3: Stop based on ramp, keeping de-energized state
- 4: Stop based on ramp, keeping position lock state
- 5: Dynamic braking stop, keeping de-energized state
- 6: Dynamic braking stop, keeping dynamic braking state
- 7: Not responding to overtravel

When H02.07 is set to 7 (Not responding to overtravel), some PLC may stop sending position references to stop the drive.

Note: After the brake function is enabled, H02.07 will be forcibly set to "4: Ramp to stop as defined by 6085h, keeping position lock state".

H02.08 Stop mode at No.1 fault

Address:	2002-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

- 0: Coast to stop, keeping de-energized state
- 1: Dynamic braking stop, keeping de-energized state
- 2: Dynamic braking stop, keeping dynamic braking state

Description

Defines the deceleration mode of the servo motor for stopping rotating and the servo motor status when a No. 1 fault occurs.

- 0: Coast to stop, keeping de-energized state
- 1: Dynamic braking stop, keeping de-energized status
- 2: Dynamic braking stop, keeping de-energized state

Note: After the brake is enabled, H02.08 is forced to "2: Dynamic braking stop, keeping dynamic braking state".

H02.09 Delay from brake output ON to command received

Address:	2002-0Ah	Effective	At stop
		mode:	
Min.:	0	Unit:	ms
Max.:	500	Data Type:	UInt16
Default:	250	Change:	Real-time

Value Range:

0 ms–500 ms

Description

Defines the delay from the moment the brake output signal is ON to the moment the servo drive starts to receive commands after power-on.

H02.10 Delay from brake output OFF to motor de-energized

Address:	2002-0Bh	Effective	Real time
		mode:	
Min.:	50	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	150	Change:	Real-time

Value Range:

50 ms–1000 ms

Description

Defines the delay from the moment brake output is OFF to the moment when the motor at standstill enters the de-energized status.

H02.11 Motor speed threshold at brake output OFF in rotation state

Address:	2002-0Ch	Effective	Real time
		mode:	
Min.:	20	Unit:	[mm/s]/[rpm]
Max.:	3000	Data Type:	UInt16
Default:	30	Change:	Real-time

Value Range:

20[mm/s]/[rpm]–3000[mm/s]/[rpm]

Description

Defines the motor speed threshold when brake (BK) output is OFF in the rotating state.

H02.12 Delay from S-ON OFF to brake output OFF in rotation state

Address:	2002-0Dh	Effective	Real time
		mode:	
Min.:	1	Unit:	ms
Max.:	65535	Data Type:	UInt16

Default: 500

Change: Real-time

Value Range:

1 ms–65535 ms

Description

Sets the delay time from BK OFF to S-ON OFF when the motor is in rotating state.

H02.15 LED Alarm Display

Address: 2002-10h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Output alarm information immediately

1: Not output alarm information

Description

Defines whether to switch the keypad to the fault display mode when a No. 3 fault occurs.

0: Output alarm information immediately

1: Not output alarm information

H02.16 Brake enable switch

Address: 2002-11h

Effective mode: At stop

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: OFF

1: ON

Description

Turn on or off the brake function.

0: OFF

1: ON

H02.17 Stop mode upon main circuit power failure

Address: 2002-12h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 3

Data Type: UInt16

Default: 2

Change: Real-time

Value Range:

- 0: Keep current action
- 1: Stop upon fault as defined by H02.06
- 2: Stop at S-ON OFF as defined by H02.05
- 3: Stop quickly as defined by H02.18

Description

Defines the stop mode of the motor for stopping rotating upon main circuit power failure.

- 0: Keep current action
- 1: Stop upon fault as defined by H02.06
- 2: Stop at S-ON OFF as defined by H02.05
- 3: Stop quickly as defined by H02.18

H02.18**Quick stop mode**

Address:	2002-13h	Effective mode:	At stop
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state
- 2: Ramp to stop as defined by 6085h, keeping de-energized state
- 3: Stop at emergency stop torque, keeping de-energized state
- 5: Ramp to stop as defined by 6084h/609Ah (HM), keeping position lock state
- 6: Ramp to stop as defined by 6085h, keeping position lock state
- 7: Stop at emergency stop torque, keeping position lock state

Description

Defines the deceleration mode of the motor for stopping rotating upon quick stop and the motor status after stop.

- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state

- 2: Ramp to stop as defined by 6085h, keeping de-energized state
- 3: Stop at emergency stop torque, keeping de-energized state
- 5: Ramp to stop as defined by 6084h/609Ah (HM), keeping position lock state
- 6: Ramp to stop as defined by 6085h, keeping position lock state
- 7: Stop at emergency stop torque, keeping position lock state

Note: When the brake function is enabled and the value of H02.18 is lower than 4, the stop mode is forcibly set to "2: Ramp to stop as defined by 6085h, keeping de-energized state".

H02.21 Permissible minimum resistance of braking resistor

Address:	2002-16h	Effective	-
		mode:	
Min.:	1	Unit:	Ω
Max.:	1000	Data Type:	UInt16
Default:	40	Change:	Unchangeable

Value Range:1 Ω to 1000 Ω **Description**

The permissible minimum resistance of the braking resistor is only related to the servo drive model.

H02.22 Power of built-in braking resistor

Address:	2002-17h	Effective	-
		mode:	
Min.:	0	Unit:	W
Max.:	65535	Data Type:	UInt16
Default:	50	Change:	Unchangeable

Value Range:

0W–65535W

Description

The power of the built-in braking resistor is only related to the servo drive model, which is unmodifiable.

H02.23 Resistance of built-in braking resistor

Address:	2002-18h	Effective	-
		mode:	
Min.:	0	Unit:	Ω
Max.:	65535	Data Type:	UInt16
Default:	50	Change:	Unchangeable

Value Range:0 Ω to 65535 Ω **Description**

The resistance of the built-in braking resistor is only related to the servo drive model, which is unmodifiable.

H02.24 Resistor heat dissipation coefficient

Address:	2002-19h	Effective	Real time
		mode:	
Min.:	10	Unit:	%
Max.:	100	Data Type:	UInt16
Default:	30	Change:	Real-time

Value Range:

10% to 100%

Description

Defines the heat dissipation coefficient of the braking resistor, which is applicable to both external and built-in braking resistors.

Set this parameter properly according to actual heat dissipation conditions of the resistor.

Recommendations:

Generally, the value of H02.24 cannot exceed 30% for natural cooling.

The value of H02.24 cannot exceed 50% for forced air cooling.

H02.25**Braking resistor type**

Address:	2002-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	3	Change:	Real-time

Value Range:

0: Built-in

1: External, natural cooling

2: External, forced air cooling

3: No resistor needed

Description

Defines the resistor type and the mode of absorbing and releasing the braking energy.

0: Built-in

1: External, natural cooling

2: External, forced air cooling

3: No resistor needed

H02.26**Power of external braking resistor**

Address:	2002-1Bh	Effective mode:	Real time
Min.:	1	Unit:	W
Max.:	65535	Data Type:	UInt16
Default:	40	Change:	Real-time

Value Range:

1 W–65535W

Description

Defines the power of external braking resistor.

H02.27 Resistance of external braking resistor

Address:	2002-1Ch	Effective mode:	Real time
Min.:	15	Unit:	Ω
Max.:	1000	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:15 Ω to 1000 Ω **Description**

Defines the resistance of the external braking resistor.

H02.28 Parameters Initialization

Address:	2002-1Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Parameters in group H02 and above initialized

1: Parameters in group H00, H02 and above initialized

2: All parameters initialized (default values used for model-related parameters)

Description

Settings of factory restore.

0: Parameters in group H02 and above initialized

1: Parameters in group H00, H02 and above initialized

2: All parameters initialized (default values used for model-related parameters)

H02.30 User password

Address:	2002-1Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

Set the user password.

H02.31 System parameter initialization

Address:	2002-20h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Restore default settings

2: Clear fault records

Description

Used to restore default values or clear fault records.

0: No operation

1: Restore default settings

2: Clear fault records

H02.32 Selection of parameters in group H0b

Address:	2002-21h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

0–99

Description

Sets the offset of H0b parameters to be displayed on the operating panel.

For example, the setpoint 0 indicates the value of H0b.00 (Motor speed actual value) is displayed on the keypad.

The setpoint 1 indicates the value of H0b.01 is displayed on the operating panel.

H02.35 Keypad data update frequency

Address:	2002-24h	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	20	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 Hz–20 Hz

Description

Set the keypad data update frequency.

H02.38 Overload time of external resistor

Address:	2002-27h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	s

Max.:	200	Data Type:	UInt16
Default:	40	Change:	Real-time

Value Range:

0s to 200s

Description

Set the overload time threshold of the external braking resistor.

H02.41 Manufacturer password

Address:	2002-2Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

You need to input this manufacturer password to enable the access to protected manufacturer parameters.

H02.47 Delay time from power cable breakage to brake OFF

Address:	2002-30h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–1000 ms

Description

Sets the delay time from power cable breakage to brake OFF.

4.4 H03 Terminal Input Parameters

H03.02 DI1 function

Address:	2003-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	14	Change:	Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 38: Touch probe 1
- 39: Touch probe 2
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of DI1.

H03.03

DI1 logic selection

Address: 2003-04h

Effective
mode:

Real time

Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Used to set the level logic of DI1 when the function assigned to DI is active.

H03.04 DI2 function

Address:	2003-05h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	15	Change:	Real-time

Value Range:

See H03.02.

Description

Defines the function of DI2.

H03.05 DI2 logic selection

Address:	2003-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI2 logic when the DI function allocated to DI2 is enabled.

H03.06 DI3 function

Address:	2003-07h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	31	Change:	Real-time

Value Range:

See H03.02.

Description

Defines the function of DI3.

H03.07 DI3 logic selection

Address:	2003-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI3 logic when the DI function allocated to DI3 is enabled.

H03.08 DI4 function

Address:	2003-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	34	Change:	Real-time

Value Range:

See H03.02.

Description

Defines the function of DI4.

H03.09 DI4 logic selection

Address:	2003-0Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI4 logic when the DI function allocated to DI4 is enabled.

H03.10 DI5 function

Address:	2003-0Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	38	Change:	Real-time

Value Range:

See H03.02.

Description

Defines the function of DI5. The touch probe is only available for high speed DI.

H03.11 DI5 logic selection

Address:	2003-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Normally open

1: Closed

Description

Set the DI5 logic when the DI function allocated to DI5 is enabled.

H03.50 Voltage-type AI1 offset

Address:	2003-33h	Effective mode:	Real time
Min.:	-5000	Unit:	mV
Max.:	5000	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-5000 mV–5000 mV

Description

Defines the actual AI1 input voltage when the drive sampling voltage is 0 after zero drift correction.

H03.51 Voltage-type AI1 input filter time constant

Address:	2003-34h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	655.35	Data Type:	UInt16
Default:	2.00	Change:	Real-time

Value Range:

0.00 ms–655.35 ms

Description

It sets the filter time constant of voltage signal input from AI1.

Set this parameter properly to avoid motor reference fluctuation caused by unstable analog voltage input and reduce motor misoperation caused by interference signals.

The filter function cannot eliminate or suppress zero drift or dead zone.

H03.53 Voltage-type AI1 dead zone

Address:	2003-36h	Effective mode:	Real time
Min.:	0.0	Unit:	mV
Max.:	1000.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0 mV–1000.0 mV

Description

Defines the AI1 input voltage range when the drive sampling voltage is 0.

H03.54 Voltage-type AI1 zero drift

Address:	2003-37h	Effective mode:	Real time
Min.:	-500.0	Unit:	mV
Max.:	500.0	Data Type:	Int16
Default:	0.0	Change:	Real-time

Value Range:

-500.0 mV–500.0 mV

Description

Zero drift refers to the value of the drive o sampling voltage relative to GND upon zero AI voltage.

Set H0d.10 (Automatic adjustment of analog channels) to 1 (AI2 adjustment) to perform automatic adjustment on AI2 zero drift. The AI1 zero drift after adjustment will be saved into H03.54.

H03.55 Voltage-type AI2 offset

Address:	2003-38h	Effective mode:	Real time
Min.:	-5000	Unit:	mV
Max.:	5000	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-5000 mV–5000 mV

Description

Defines the actual AI2 input voltage when the drive sampling voltage is 0 after zero drift correction.

H03.56 Voltage-type AI2 input filter time constant

Address:	2003-39h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	655.35	Data Type:	UInt16
Default:	2.00	Change:	Real-time

Value Range:

0.00 ms–655.35 ms

Description

It sets the filter time constant of voltage signal input from AI2.

Set this parameter properly to avoid motor reference fluctuation caused by unstable analog voltage input and reduce motor misoperation caused by interference signals.

The filter function cannot eliminate or suppress zero drift or dead zone.

H03.58 Voltage-type AI2 dead zone

Address:	2003-3Bh	Effective mode:	Real time
Min.:	0.0	Unit:	mV
Max.:	1000.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0 mV–1000.0 mV

Description

Defines the AI2 input voltage range when the drive sampling voltage is 0.

H03.59 Voltage-type AI2 zero drift

Address:	2003-3Ch	Effective mode:	Real time
Min.:	-500.0	Unit:	mV
Max.:	500.0	Data Type:	Int16
Default:	0.0	Change:	Real-time

Value Range:

-500.0 mV–500.0 mV

Description

Zero drift refers to the value of the drive o sampling voltage relative to GND upon zero AI voltage.

Set H0d.10 (Automatic adjustment of analog channels) to 2 (AI2 adjustment) to perform automatic adjustment on AI2 zero drift. The AI1 zero drift after adjustment will be saved into H03.59.

H03.60	DI1 filter time		
	Address:	2003-3Dh	Effective Real time
			mode:
	Min.:	0.00	Unit: ms
	Max.:	500.00	Data Type: UInt16
	Default:	3.00	Change: Real-time
	Value Range:		
	0.00 ms–500.00 ms		
	Description		
	Defines the filter time of DI1. The DI function is active only after the effective level is kept within the time defined by H03.60.		
H03.61	DI2 filter time		
	Address:	2003-3Eh	Effective Real time
			mode:
	Min.:	0.00	Unit: ms
	Max.:	500.00	Data Type: UInt16
	Default:	3.00	Change: Real-time
	Value Range:		
	0.00 ms–500.00 ms		
	Description		
	Defines the filter time of DI2. The DI function is active only after the effective level is kept within the time defined by H03.61.		
H03.62	DI3 filter time		
	Address:	2003-3Fh	Effective Real time
			mode:
	Min.:	0.00	Unit: ms
	Max.:	500.00	Data Type: UInt16
	Default:	3.00	Change: Real-time
	Value Range:		
	0.00 ms–500.00 ms		
	Description		
	Defines the filter time of DI3. The DI function is active only after the effective level is kept within the time defined by H03.62.		
H03.63	DI4 filter time		
	Address:	2003-40h	Effective Real time
			mode:
	Min.:	0.00	Unit: ms
	Max.:	500.00	Data Type: UInt16
	Default:	3.00	Change: Real-time

Value Range:

0.00 ms–500.00 ms

Description

Defines the filter time of DI4. The DI function is active only after the effective level is kept within the time defined by H03.63.

H03.64**DI5 filter time**

Address: 2003-41h

Effective Real time
mode:

Min.: 0.00

Unit: ms

Max.: 500.00

Data Type: UInt16

Default: 3.00

Change: Real-time

Value Range:

0.00 ms–500.00 ms

Description

Defines the filter time of DI5. The DI function is active only after the effective level is kept within the time defined by H03.64.

H03.80**Speed corresponding to analog 10 V**

Address: 2003-51h

Effective Real time
mode:

Min.: 0

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: UInt16

Default: 3000

Change: At stop

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the corresponding motor speed when the sampling voltage is 10 V.
Speed reference value = Sampling voltage/10 x H03.80

H03.81**Torque corresponding to analog 10 V**

Address: 2003-52h

Effective Real time
mode:

Min.: 0.00

Unit: Multiplier

Max.: 8.00

Data Type: UInt16

Default: 1.00

Change: At stop

Value Range:

0.00 to 8.00

Description

Defines the motor torque corresponding to a sampling voltage of 10 V.
Torque reference value = Sampling voltage/10 × H03.81

4.5 H04 Terminal Output Parameters

H04.00 DO1 function

Address:	2004-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking
- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 25: Comparison output DO
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 31: Forced communication DO
- 32: EDM output
- 33: Gantry alignment

Description

Defines the function of DO1.

H04.01 DO1 logic selection

Address:	2004-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Normally open
- 1: Closed

Description

Defines the level logic of DO1 when the function assigned to DO1 is active.

H04.02**DO2 function**

Address: 2004-03h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 33

Data Type: UInt16

Default: 11

Change: Real-time

Value Range:

0: Undefined

1: Servo ready

2: Motor rotation signal

5: Positioning completed

6: Positioning near

9: Braking

10: Warning

11: Failure

22: Internal command completed

24: Internal motion completed

25: Comparison output DO

26: Closed-loop state

27: Left limit

28: Right limit

31: Forced communication DO

32: EDM output

33: Gantry alignment

Description

Defines the function of DO2.

H04.03**DO2 logic selection**

Address: 2004-04h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Normally open

1: Closed

Description

Defines the level logic of DO2 when the function assigned to DO2 is active.

H04.22 DO source selection

Address:	2004-17h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: DO1 output source

0: DO1 function output

1: Bit0 of H31.04

Bit1: DO2 output source

0: DO2 function output

1: Bit1 of H31.04

Description

Defines whether the logic of a physical DO terminal is defined by the actual state of the drive or by communication.

H04.23 EtherCAT communication-forced DO logic in non-OP status

Address:	2004-18h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: DO1

0: Maintain output

1: No output

Bit1: DO2

0: Maintain output

1: No output

Description

Set DO state upon EtherCAT communication failure.

H04.24 DO brake enable

Address:	2004-19h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

0: You can only control the motor brake through the built-in brake terminal even if the DO brake function is available.

1: The DO brake function must be available.

Note: This function is not available for functional safety models.

H04.50**AO1 signal selection**

Address:	2004-33h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	10	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Motor speed (1 V/1000 [mm/s]/[rpm])

1: Speed reference (1 V/1000 [mm/s]/[rpm])

2: Torque reference (1 V/100 x rated torque)

3: Position deviation (0.5 mV/1 reference unit)

4: Position deviation (0.5 mV/1 encoder unit)

5: Position reference speed (1 V/1000 [mm/s]/[rpm])

6: Positioning completed

8: AI1 voltage

9: AI2 voltage

10: Defined by H31.05

Description

Set the signal source of AO1.

H04.51**AO1 offset voltage**

Address:	2004-34h	Effective mode:	Real time
Min.:	-10000	Unit:	mV
Max.:	10000	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-10000 mV–10000 mV

Description

Defines the actual AO1 output voltage after offset when the output voltage is 0 V in theory.

H04.52**AO1 ratio**

Address:	2004-35h	Effective mode:	Real time

Min.:	-99.99	Unit:	-
Max.:	99.99	Data Type:	Int16
Default:	1.00	Change:	Real-time

Value Range:

-99.99–99.99

Description

Defines the actual AO1 output voltage after amplification when the output voltage is 1V in theory.

4.6 H05 Position Control Parameters

H05.00 Primary position reference source

Address:	2005-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

2: Multi-position reference

Description

Defines the position reference source in position control mode.

H05.02 Pulses per revolution

Address:	2005-03h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	[P/N-N]/[P/Rev]
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	At stop

Value Range:

0–4294967295

Description

Defines the number of pulses required per revolution of the motor.

H05.04 First-order low-pass filter time constant

Address:	2005-05h	Effective mode:	Real time
Min.:	0.0	Unit:	ms
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0 ms–6553.5 ms

Description

Defines the first-order low pass filter time constant of position references.

H05.06 Moving average filter time constant 1

Address:	2005-07h	Effective mode:	Real time
Min.:	0.0	Unit:	ms
Max.:	128.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0 ms–128.0 ms

Description

Defines the moving average filter time constant of position references.

H05.07 Electronic gear ratio 1 (numerator)

Address:	2005-08h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	1073741824	Data Type:	UInt32
Default:	1	Change:	Real-time

Value Range:

1–1073741824

Description

Defines the numerator of electronic gear ratio 1.

H05.09 Electronic gear ratio 1 (denominator)

Address:	2005-0Ah	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	1073741824	Data Type:	UInt32
Default:	1	Change:	Real-time

Value Range:

1–1073741824

Description

Defines the denominator of electronic gear ratio 1.

H05.11 Electronic gear ratio 2 (numerator)

Address:	2005-0Ch	Effective mode:	Real time
Min.:	1	Unit:	-

Max.:	1073741824	Data Type:	UInt32
Default:	1	Change:	Real-time

Value Range:

1–1073741824

Description

Defines the numerator of electronic gear ratio 2.

H05.13 Electronic gear ratio 2 (denominator)

Address:	2005-0Eh	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	1073741824	Data Type:	UInt32
Default:	1	Change:	Real-time

Value Range:

1–1073741824

Description

Defines the denominator of electronic gear ratio 2.

H05.17 Number of encoder frequency-division pulses

Address:	2005-12h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	[P/N-N]/[P/Rev]
Max.:	4194303	Data Type:	UInt32
Default:	2500	Change:	At stop

Value Range:

0–4194303

Description

Defines the number of pulses output by PAO or PBO per revolution.

Pulse output resolution per revolution = (H05.17) x 4

H05.19 Speed feedforward control

Address:	2005-14h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: No speed feedforward

1: Internal speed feedforward

2: H05.72

3: Zero phase

Description

Defines the source of the speed loop feedforward signal.

0: No speed feedforward

1: Internal speed feedforward

2: H05.72

3: Zero phase

Note: If you select external speed feedforward, you must set the feedforward source through H05.72.

H05.20 Condition for positioning completed signal output

Address:	2005-15h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	10	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: When absolute value of position deviation is smaller than the value of H05.21, a positioning completion ON signal is output.

1: When filtered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

2: When unfiltered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

3: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the unfiltered position command and the absolute value of the position deviation.

4: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the filtered position command and the absolute value of the position deviation.

5: When the unfiltered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

6: When the filtered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

7: When the unfiltered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

8: When the filtered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

9: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.10: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

Description

Defines the condition for outputting positioning completed/proximity signal. In the position control mode, if the absolute value of the position deviation during operation is within the setpoint of H05.21, the drive outputs the positioning completed/proximity signal. You can set the condition for outputting the positioning completed/proximity signal in H05.20.

0: When absolute value of position deviation is smaller than the value of H05.21, a positioning completion ON signal is output.

1: When filtered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

2: When unfiltered position command is 0 and absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

3: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the unfiltered position command and the absolute value of the position deviation.

4: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output. Thereafter, when the position command is 0, a positioning completion ON signal is output within the positioning holding time H05.60. After the positioning holding time H05.60 elapsed, the output of the positioning completion signal is determined according to the filtered position command and the absolute value of the position deviation.

5: When the unfiltered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

6: When the filtered position command is 0, the zero-speed signal is ON and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

7: When the unfiltered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

8: When the filtered position command is 0, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

9: When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the unfiltered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

10: When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, positioning completion evaluation starts after the delay time H05.60 elapses. When the filtered position command is 0 and the absolute value of the position deviation is less than H05.21, a positioning completion ON signal is output.

Note: The parameter takes effect when H02.00 is not 9.

H05.21 Threshold of positioning completed

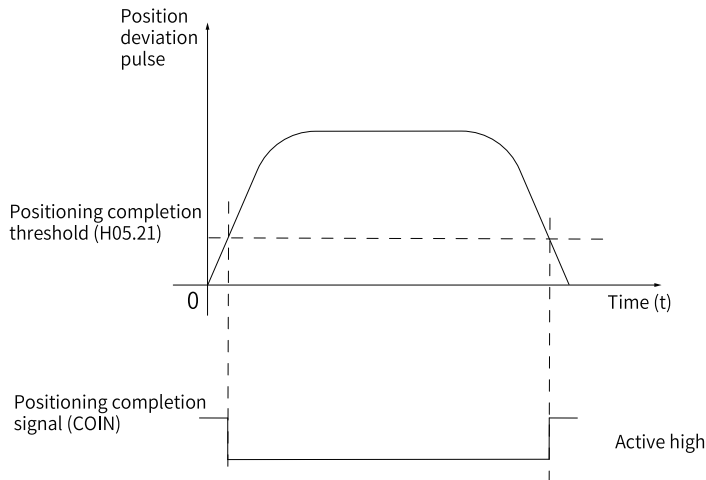
Address:	2005-16h	Effective mode:	Real time
Min.:	1	Unit:	Encoder unit
Max.:	65535	Data Type:	UInt16
Default:	46976	Change:	Real-time

Value Range:

1 to 65535

Description

Defines the threshold of the absolute value of position deviation when the drive outputs the positioning completed signal.
Positioning completed signal: DO function 5 (FunOUT.5: COIN).



Note: The parameter takes effect when H02.00 is not 9.

H05.22 Proximity threshold

Address:	2005-17h	Effective mode:	Real time
Min.:	1	Unit:	Encoder unit
Max.:	65535	Data Type:	UInt16
Default:	65535	Change:	Real-time

Value Range:

1 to 65535

Description

Defines the threshold of the absolute value of position deviation when the drive outputs the proximity signal.

Note: The parameter takes effect when H02.00 is not 9.

H05.30 Homing enable selection

Address:	2005-1Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	6	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled
6: Current position as home

Description

Defines the homing mode and the trigger signal source.

When H05.30 = 6, position feedback is the setpoint of H05.36 regardless of the value of H05.40.

H05.35 Home search time limit

Address:	2005-24h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10000	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the maximum homing time.

H05.36 Mechanical home offset

Address:	2005-25h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the absolute position of the motor after homing.

H05.38 Frequency-division output source

Address:	2005-27h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Encoder frequency-division output
2: Frequency-division output inhibited
3: Second encoder frequency-division output
4: H31-01 reference frequency output

Description

Defines the output source of the pulse output terminal.

0: Encoder frequency-division output

2: Frequency-division output inhibited

3: Second encoder frequency-division output

4: H31.01 reference frequency output

H05.39 Electronic gear ratio switchover condition

Address:	2005-28h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Switchover after position reference is kept 0 for 2.5 ms

1: Switched in real time

Description

Defines the condition for switching the electronic gear ratio. After the fully closed-loop function is enabled and H0F.00 is set to 2, the setpoint is forcibly set to 0.

When its value is 0: when H0F.00 = 2, the switching condition is that the position command is 0 and positioning is completed and lasts for 2.5 ms; when H0F.00 is not 2, the switching condition is that the position command keeps at 0 for 2.5 ms.

H05.40 Mechanical home offset and action upon overtravel

Address:	2005-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: H05.36 as the coordinate after homing, reverse homing applied after homing triggered again on overtravel

1: H05.36 as the relative offset after homing, reverse homing applied after homing triggered again on overtravel

2: H05.36 as the coordinate after homing, reverse homing auto-applied on overtravel

3: H05.36 as the relative offset after homing, reverse homing auto-applied on overtravel

Description

Defines the offset relationship between the mechanical home and mechanical zero point, and the action upon overtravel during homing.

0: H05.36 as the coordinate after homing, reverse homing applied after homing triggered again on overtravel

1: H05.36 as the relative offset after homing, reverse homing applied after homing triggered again on overtravel

2: H05.36 as the coordinate after homing, reverse homing auto-applied on overtravel

3: H05.36 as the relative offset after homing, reverse homing auto-applied on overtravel

H05.41

Z pulse output polarity

Address:	2005-2Ah	Effective mode:	Upon the next power-on
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x1	Change:	At stop

Value Range:

bit0: Frequency-division Z output polarity

0: Positive (high level upon active Z pulse)

1: Negative (low level upon active Z pulse)

bit1: OCZ output polarity

0: Positive (high level upon active Z pulse)

1: Negative (low level upon active Z pulse)

bit2: Inner loop probe Z signal source

0: Motor Z signal

1: Frequency-division output Z signal

Description

Defines the output level when the Z pulse of pulse output terminal is active.

bit0: Frequency division Z output polarity

0: Positive (high level upon valid Z pulse)

1: Negative (low level upon valid Z pulse) bit1: OCZ output polarity

0: Positive (high level upon valid Z pulse)

1: Negative (low level upon valid Z pulse) Bit2: Inner loop probe Z signal source

0: Motor Z signal

1: Frequency-division output Z signal

H05.44

Numerator of frequency-division output reduction ratio

Address:	2005-2Dh	Effective mode:	Real time
Min.:	1	Unit:	-

Max.:	16383	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–16383

Description

Defines the numerator of frequency-division output reduction ratio.

H05.45 Denominator of frequency-division output reduction ratio

Address:	2005-2Eh	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	8191	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–8191

Description

Defines the denominator of frequency-division output reduction ratio.

H05.46 DI selection of multi-turn frequency-division Z starting point

Address:	2005-2Fh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	5	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No operation

1: DI1

2: DI2

3: DI3

4: DI4

5: DI5

Description

Sets the start point for frequency-division output. It is only effective when the frequency division ratio is greater than 1.

0: No operation

1: DI1

2: DI2

3: DI3

4: DI4

5: DI5

H05.47 Frequency-division Z pulse width

Address:	2005-30h	Effective	Real time
		mode:	
Min.:	0	Unit:	μs
Max.:	400	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0μs to 400μs

Description

Defines the minimum output width (μs) of frequency-division output PZ. When the pulse signal is used as master encoder and fully closed-loop encoder, the setpoint 0 indicates the original Z signal will be outputted. Other setpoints indicate the frequency-division Z signal will be output.

H05.48 Frequency-division output dead zone setting threshold

Address:	2005-31h	Effective	Real time
		mode:	
Min.:	0	Unit:	Encoder unit
Max.:	255	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 to 255

Description

Defines the dead zone threshold of frequency-division output to prevent frequency-division output caused by encoder jitter.

Note: After this function is enabled, during uniform low-speed operation, intermittent frequency-division pulse output may occur. Set this parameter with caution.

H05.50 Mechanical gear ratio in absolute position rotation mode (numerator)

Address:	2005-33h	Effective	Real time
		mode:	
Min.:	1	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–65535

Description

Defines the numerator of the transmission ratio between the mechanical rotary load and the motor in the absolute position rotation mode.

H05.51 Mechanical gear ratio in absolute position rotation mode (denominator)

Address:	2005-34h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–65535

Description

Defines the denominator of the transmission ratio between the mechanical rotary load and the motor in the absolute position rotation mode.

H05.52 Pulses per revolution of the load in absolute position rotation mode (low 32 bits)

Address:	2005-35h	Effective mode:	Real time
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	At stop

Value Range:

0 to 4294967295

Description

Defines the number of pulses per revolution of the rotary load in the absolute position rotation mode (low 32 bits).

H05.54 Pulses per revolution of the load in absolute position rotation mode (high 32 bits)

Address:	2005-37h	Effective mode:	Real time
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	At stop

Value Range:

0 to 4294967295

Description

Defines the number of pulses per revolution of the rotary load in the absolute position rotation mode (high 32 bits).

H05.58 Torque threshold in homing upon hit-and-stop

Address:	2005-3Bh	Effective mode:	Real time

Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	100.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Defines the maximum positive/negative torque limit in homing upon hit-and-stop.

H05.59 Positioning window time

Address:	2005-3Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	30000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–30000 ms

Description

If the positioning deviation is less than the time threshold of positioning completed, the positioning completed signal is active only if the set time threshold is exceeded.

H05.60 Hold time of positioning completed

Address:	2005-3Dh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	30000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–30000 ms

Description

Defines the hold time of an active positioning completed signal.

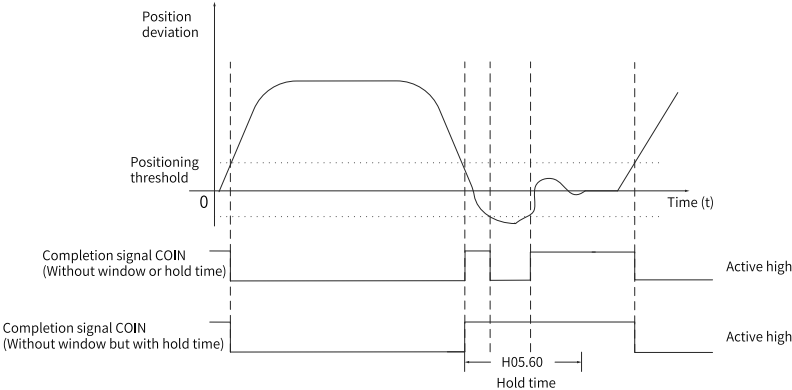


Figure 4-1 Schematic diagram for the window time (H05.59) and hold time (H05.60) of positioning completed signal

When the COIN (positioning completed) signal has a hold time of 0, it remains active until the next position reference is received.

H05.66 Homing time unit

Address:	2005-43h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

- 0: 1 ms
- 1: 10 ms
- 2: 100 ms

Description

Select the unit of homing time.

- 0: 1ms
- 1: 10ms
- 2: 100ms

Note: The actual timeout is $H05.35 \times H05.66 \text{ms}$

H05.67 Offset between zero point and single-turn absolute position

Address:	2005-44h	Effective mode:	Real time
		mode:	

Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	At stop

Value Range:

-2147483648 to 2147483647

Description

Display or set the offset position relative to the home when the servo system is in absolute single-turn mode (H0201=4).

H05.71 Motor Z signal width

Address:	2005-48h	Effective mode:	Real time
Min.:	1	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	4	Change:	Real-time

Value Range:

1 ms–100 ms

Description

Output pulse width when motor Z signal is active.

H05.72 External speed feedforward source selection

Address:	2005-49h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: 60B1

1: AI1

2: AI2

Description

External speed feedforward source selection

0: 60B1

1: AI1

2: AI2

4.7 H06 Speed Control Parameters**H06.00 Source of main speed reference A**

Address:	2006-01h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Digital setting (H06.03)

1: AI1

2: AI2

Description

Defines the source of main speed reference A.

0: Digital setting (H06.03)

1: AI1

2: AI2

H06.01 Source of auxiliary speed reference B

Address:	2006-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	5	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Digital setting (H06.03)

1: AI1

2: AI2

5: Multi-speed reference

Description

Defines the source of auxiliary speed reference B.

0: Digital setting (H06.03)

1: AI1

2: AI2

5: Multi-speed reference

H06.02 Speed reference source

Address:	2006-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: Source of main speed reference A
- 1: Source of auxiliary speed reference B
- 2: A+B
- 3: Switched between A and B
- 4: Communication

Description

Defines the source of speed references.

- 0: Source of main speed reference A
- 1: Source of auxiliary speed reference B
- 2: A+B
- 3: Switched between A and B
- 4: Communication

H06.03 Speed reference set through keypad

Address:	2006-04h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	200	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the speed reference value set through the keypad.

H06.04 DI jog speed reference

Address:	2006-05h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	150	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the DI jog speed reference.

H06.05 Acc. ramp time of speed reference

Address:	2006-06h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Sets acceleration ramp time of speed reference.

H06.05 defines the time for the speed reference to change from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm].

The formulas for calculating the actual acceleration and deceleration time are as follows:

Actual acceleration time $t = \text{Speed reference} \div 1000 \times \text{Acceleration ramp time of speed reference}$

H06.06 Dec. ramp time of speed reference

Address:	2006-07h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Sets deceleration ramp time of speed reference.

H06.06 defines the time for the speed reference to change from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm].

The formulas for calculating the actual acceleration and deceleration time are as follows:

Actual deceleration time $t = \text{Speed reference} \div 1000 \times \text{Deceleration ramp time of speed reference}$

H06.07 Maximum speed limit

Address:	2006-08h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	7000	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the maximum speed limit.

H06.08 Forward speed threshold

Address:	2006-09h	Effective mode:	Real time

Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	7000	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the forward speed threshold.

H06.09 Reverse speed threshold

Address:	2006-0Ah	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	7000	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the reverse speed threshold.

H06.10 Deceleration unit in emergency stop

Address:	2006-0Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Multiplied by 1

1: Multiplied by 10

2: Multiplied by 100

Description

Sets the deceleration unit in emergency stop.

0: Multiplied by 1

1: Multiplied by 10

2: Multiplied by 100

H06.11 Torque feedforward control

Address:	2006-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

- 0: No torque feedforward
- 1: Internal torque feedforward
- 2: 60B2h as external torque feedforward
- 3: STune mode 5

Description

Defines the source for torque feedforward control.

- 0: No torque feedforward
- 1: Internal torque feedforward
- 3: STune mode 5

H06.12 Acc./dec. ramp time of speed jog

Address:	2006-0Dh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Set the acceleration/deceleration ramp time of speed jog.

The time is that for the speed reference to accelerate from 0 to 1000 [mm/s]/[rpm] or to decelerate from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm].

The formulas for calculating the actual acceleration and deceleration time are as follows:

Actual acc./dec. time $t = \text{Speed reference} \div 1000 \times \text{Acceleration ramp time of speed reference}$

H06.13 Speed feedforward smoothing filter

Address:	2006-0Eh	Effective mode:	Real time
Min.:	0	Unit:	μs
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0μs to 65535μs

Description

Defines the speed feedforward smoothing filter time.

H06.15 Zero clamp speed threshold

Address:	2006-10h	Effective mode:	Real time

Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the zero clamp speed threshold.

H06.16 Threshold of TGON (motor rotation) signal

Address:	2006-11h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	20	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Sets the threshold of TGON (motor rotation) signal.

H06.17 Threshold of V-Cmp (speed matching) signal

Address:	2006-12h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	100	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–100[mm/s]/[rpm]

Description

Defines the threshold of speed match signal.

H06.18 Threshold of speed reach signal

Address:	2006-13h	Effective mode:	Real time
Min.:	20	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	1000	Change:	Real-time

Value Range:

20[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the threshold of speed reached signal.

H06.19 Threshold of zero speed output signal

Address:	2006-14h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the threshold of zero speed output signal.

H06.50 Speed S-curve enable switch

Address:	2006-33h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

0: Accelerate/Decelerate at fixed acceleration rate

1: Accelerate/Decelerate based on the S-curve

H06.51 Increasing acceleration 1 of speed S-curve acceleration segment

Address:	2006-34h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference. Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.52 Decreasing acceleration 1 of speed S-curve acceleration segment

Address:	2006-35h	Effective mode:	Real time
Min.:	0.0	Unit:	%

Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
 Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.53 Decreasing deceleration 1 of speed S-curve deceleration segment

Address:	2006-36h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
 Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.54 Decreasing acceleration 1 of speed S-curve deceleration segment

Address:	2006-37h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
 Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.55 Increasing acceleration 2 of speed S-curve acceleration segment

Address:	2006-38h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.56 Decreasing acceleration 2 of speed S-curve acceleration segment

Address:	2006-39h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.57 Decreasing deceleration 2 of speed S-curve deceleration segment

Address:	2006-3Ah	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.58 Decreasing acceleration 2 of speed S-curve deceleration segment

Address:	2006-3Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.59 Increasing acceleration 3 of speed S-curve acceleration segment

Address:	2006-3Ch	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.60 Decreasing acceleration 3 of speed S-curve acceleration segment

Address:	2006-3Dh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.61 Decreasing deceleration 3 of speed S-curve deceleration segment

Address:	2006-3Eh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.62 Decreasing acceleration 3 of speed S-curve deceleration segment

Address:	2006-3Fh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.63 Increasing acceleration 4 of speed S-curve acceleration segment

Address:	2006-40h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.64 Decreasing acceleration 4 of speed S-curve acceleration segment

Address:	2006-41h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.65 Decreasing deceleration 4 of speed S-curve deceleration segment

Address:	2006-42h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.66 Decreasing acceleration 4 of speed S-curve deceleration segment

Address:	2006-43h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.67 Increasing acceleration 5 of speed S-curve acceleration segment

Address:	2006-44h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.68 Decreasing acceleration 5 of speed S-curve acceleration segment

Address:	2006-45h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.69 Decreasing deceleration 5 of speed S-curve deceleration segment

Address:	2006-46h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.70 Decreasing acceleration 5 of speed S-curve deceleration segment

Address:	2006-47h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.71 Increasing acceleration 6 of speed S-curve acceleration segment

Address:	2006-48h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.72 Decreasing acceleration 6 of speed S-curve acceleration segment

Address:	2006-49h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.73 Decreasing deceleration 6 of speed S-curve deceleration segment

Address:	2006-4Ah	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.74 Decreasing acceleration 6 of speed S-curve deceleration segment

Address:	2006-4Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.75 Increasing acceleration 7 of speed S-curve acceleration segment

Address:	2006-4Ch	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.76 Decreasing acceleration 7 of speed S-curve acceleration segment

Address:	2006-4Dh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.77 Decreasing deceleration 7 of speed S-curve deceleration segment

Address:	2006-4Eh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.78 Decreasing acceleration 7 of speed S-curve deceleration segment

Address:	2006-4Fh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

H06.79 Increasing acceleration 8 of speed S-curve acceleration segment

Address:	2006-50h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Increasing acceleration time at acceleration segment: The percentage of motor increasing acceleration time in the selected acceleration time.

H06.80 Decreasing acceleration 8 of speed S-curve acceleration segment

Address:	2006-51h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at acceleration segment: The percentage of motor decreasing acceleration time in the selected acceleration time.

H06.81 Decreasing deceleration 8 of speed S-curve deceleration segment

Address:	2006-52h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
Decreasing acceleration time at deceleration segment: The percentage of motor decreasing deceleration time in the selected deceleration time.

H06.82 Decreasing acceleration 8 of speed S-curve deceleration segment

Address:	2006-53h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

8 groups of S curve smoothing parameters can be set for each speed reference.
 Decreasing acceleration time at deceleration segment: The percentage of motor decreasing acceleration time in the selected deceleration time.

4.8 H07 Torque Control Parameters

H07.00 Source of main torque reference A

Address:	2007-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Keypad (H07.03)

1: AI1

2: AI2

Description

Defines the source of the main torque reference A.

0: Keypad (H07.03)

1: AI1

2: AI2

H07.01 Source of auxiliary torque reference B

Address:	2007-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Keypad (H07.03)

1: AI1

2: AI2

Description

Defines the source of auxiliary torque references.

0: Keypad (H07.03)

1: AI1

2: AI2

H07.02 Torque reference source

Address:	2007-03h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Source of main torque reference A
1: Source of auxiliary torque reference B
2: Source of A+B
3: Switched between A and B
4: Communication

Description

Selects torque reference.
0: Source of main torque reference A
1: Source of auxiliary torque reference B
2: Source of A+B
3: Switched between A and B
4: Communication

H07.03 Torque reference set through keypad

Address:	2007-04h	Effective mode:	Real time
Min.:	-400.0	Unit:	%
Max.:	400.0	Data Type:	Int16
Default:	0.0	Change:	Real-time

Value Range:

-400.0% to 400.0%

Description

Set torque reference.

H07.05 Torque reference filter time constant 1

Address:	2007-06h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	30.00	Data Type:	UInt16
Default:	0.50	Change:	Real-time

Value Range:

0.00 ms–30.00 ms

Description

Defines the torque reference filter time constant 1.

H07.06 Torque reference filter time constant 2

Address:	2007-07h	Effective mode:	Real time

Min.:	0.00	Unit:	ms
Max.:	30.00	Data Type:	UInt16
Default:	0.27	Change:	Real-time

Value Range:

0.00 ms–30.00 ms

Description

Defines the torque reference filter time constant 2.

H07.07 Torque Limit source

Address:	2007-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Positive/Negative internal torque limit

1: Internal or external limit as defined by DI

2: T_LMT

3: T_LMT or external limit as defined by DI (FunIN.16 or FunIN.17)

4: T_LMT or internal limit (FunIN.16 or FunIN.17) as defined by DI

Description

Defines the torque limit source.

0: Positive/Negative internal torque limit

1: Internal or external limit as defined by DI

2: T_LMT

3: T_LMT or external limit as defined by DI (FunIN.16 or FunIN.17)

4: T_LMT or internal limit (FunIN.16 or FunIN.17) as defined by DI

H07.08 T-LMT selection

Address:	2007-09h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1: AI1

2: AI2

Description

Set the AI as the torque limit source.

1: AI1

2: AI2

H07.09 Positive internal torque limit

Address:	2007-0Ah	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	350.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Sets the forward run internal torque limit.

H07.10 Negative internal torque limit

Address:	2007-0Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	350.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Sets the reverse run internal torque limit.

H07.11 Positive external torque limit

Address:	2007-0Ch	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	350.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set the forward external torque limit.

H07.12 Negative external torque limit

Address:	2007-0Dh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	350.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set the reverse external torque limit.

H07.15 Emergency-stop torque

Address:	2007-10h	Effective mode:	At stop
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	100.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set the torque for emergency stop.

H07.17 Speed limit source

Address:	2007-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Internal speed limit

1: V-LMT

2: H07.19 or H07.20 as defined by DI

Description

Select the speed limit source

0: Internal speed limit

1: V-LMT

2: H07.19 or H07.20 as defined by DI

Note: This parameter takes effect when H02.00 is not 9.

H07.18 V-LMT selection

Address:	2007-13h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1: AI1

2: AI2

Description

Set the AI as the speed limit source.

1: AI1

2: AI2

H07.19 Positive speed limit/Speed limit 1 in torque control

Address:	2007-14h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	3000	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Set the positive speed limit/Speed limit 1 in torque control.

H07.20 Negative speed limit/Speed limit 2 in torque control

Address:	2007-15h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	3000	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Set the negative speed limit/Speed limit 2 in torque control.

H07.21 Torque reach base value

Address:	2007-16h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set torque reach base value.

H07.22 Torque reach valid value

Address:	2007-17h	Effective mode:	Real time
Min.:	0.0	Unit:	%

Max.:	400.0	Data Type:	UInt16
Default:	20.0	Change:	Real-time

Value Range:
0.0% to 400.0%

Description
Set torque reach valid value.

H07.23 Torque reach invalid value

Address:	2007-18h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:
0.0% to 400.0%

Description
Set torque reach invalid value.

H07.24 Field weakening depth

Address:	2007-19h	Effective mode:	Real time
Min.:	60	Unit:	%
Max.:	115	Data Type:	UInt16
Default:	115	Change:	Real-time

Value Range:
60% to 115%

Description
Set the flux weakening depth.

H07.25 Max. permissible demagnetizing current

Address:	2007-1Ah	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	300	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:
0% to 300%

Description
Set the maximum allowable demagnetization current value.

H07.26 Field weakening selection

Address:	2007-1Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Enable/disable field weakening.

0: Disabled

1: Enabled

H07.27 Flux weakening gain

Address:	2007-1Ch	Effective mode:	Real time
Min.:	0.001	Unit:	kHz
Max.:	1.000	Data Type:	UInt16
Default:	0.030	Change:	Real-time

Value Range:

0.001 kHz–1.000 kHz

Description

Set the gain of flux weakening.

H07.28 Speed of flux weakening point

Address:	2007-1Dh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Set the speed of flux weakening point.

H07.35 Torque non-standard feature enable

Address:	2007-24h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

bit0: Motor output correction enable

bit1: Shield compensation data enable

Description

Torque non-standard feature enable switch.

Bit0: motor torque output correction enable

Bit1: Shield compensation data enable

H07.36 Time constant of low-pass filter 2

Address:	2007-25h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	10.00	Data Type:	UInt16
Default:	0.00	Change:	Real-time

Value Range:

0.00 ms–10.00 ms

Description

Set the time constant of low-pass filter 2.

H07.37 Torque reference filter selection

Address:	2007-26h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: First-order filter

1: Biquad filter

Description

Select the torque reference filter.

0: First-order filter

1: Biquad filter

When second-order filter is selected, the filter structure is biquad filter for ROT motors, and the filter parameters are set through H07.38. For DDR/DDI motors, the filter structure is biquad low-pass filter, and the filter parameters are set through H07.42.

H07.38 Biquad filter attenuation ratio

Address:	2007-27h	Effective mode:	Real time
Min.:	0	Unit:	-

Max.:	50	Data Type:	UInt16
Default:	16	Change:	Real-time

Value Range:

0–50

Description

Defines the attenuation ratio of biquad filter.

H07.40 Speed limit threshold in torque control mode

Address:	2007-29h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	300	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–300 ms

Description

Sets speed limit time window in the torque control mode.

H07.42 Biquad low pass filter damping coefficient

Address:	2007-2Bh	Effective mode:	Real time
Min.:	0.001	Unit:	-
Max.:	10.000	Data Type:	UInt16
Default:	1.000	Change:	Real-time

Value Range:

0.001–10.000

Description

Defines the damping coefficient of biquad low-pass filter.

4.9 H08 Gain Parameters

H08.00 Speed loop gain

Address:	2008-01h	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	2000.0	Data Type:	UInt16
Default:	40.0	Change:	Real-time

Value Range:

0.0 Hz–2000.0 Hz

Description

Defines the responsiveness of the speed loop. The higher the setpoint, the faster the speed loop response is. Note that an excessively high setpoint may cause vibration.

In the position control mode, the position loop gain must be increased together with the speed loop gain.

H08.01 Speed loop integral time constant

Address:	2008-02h	Effective mode:	Real time
Min.:	0.15	Unit:	ms
Max.:	512.00	Data Type:	UInt16
Default:	19.89	Change:	Real-time

Value Range:

0.15 ms–512.00 ms

Description

Defines the integral time constant of the speed loop.

The lower the setpoint, the better the integral action, and the quicker will the deviation value be close to 0.

Note:

There is no integral action when H08.01 is set to 512.00.

H08.02 Position loop gain

Address:	2008-03h	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	2000.0	Data Type:	UInt16
Default:	64.0	Change:	Real-time

Value Range:

0.0 Hz–2000.0 Hz

Description

Defines the proportional gain of the position loop.

Defines the responsiveness of the position loop. A high setpoint shortens the positioning time. Note that an excessively high setpoint may cause vibration.

The 1st group of gain parameters include H08.00 (Speed loop gain), H08.01 (Speed loop integral time constant), H08.02, and H07.05 (Filter time constant 1 of torque reference).

H08.03 2nd speed loop gain

Address:	2008-04h	Effective mode:	Real time
Min.:	0.1	Unit:	Hz

Max.:	2000.0	Data Type:	UInt16
Default:	75.0	Change:	Real-time

Value Range:

0.1 Hz–2000.0 Hz

Description

Set 2nd speed loop gain.

H08.04 2nd speed loop integral time constant

Address:	2008-05h	Effective mode:	Real time
Min.:	0.15	Unit:	ms
Max.:	512.00	Data Type:	UInt16
Default:	10.61	Change:	Real-time

Value Range:

0.15 ms–512.00 ms

Description

Set the 2nd speed loop integral time constant.

H08.05 2nd position loop gain

Address:	2008-06h	Effective mode:	Real time
Min.:	0.1	Unit:	Hz
Max.:	2000.0	Data Type:	UInt16
Default:	120.0	Change:	Real-time

Value Range:

0.1 Hz–2000.0 Hz

Description

Defines the second gain set of the position loop and speed loop. The 2nd group of gain parameters include H08.03 (Speed loop gain), H08.04 (Speed loop integral time constant), H08.05, and H07.06 (Torque reference filter time constant 2).

H08.08 2nd gain mode setting

Address:	2008-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Fixed to the 1st gain, switched between P and PI as defined by bit26 of external 60FEh

1: Switched between the 1st and 2nd gain sets as defined by H08.09

Description

Defines the mode for switching to the 2nd gain set.

0: Fixed to the 1st gain, switched between P and PI as defined by bit26 of external 60FEh

1: Switched between the 1st and 2nd gain sets as defined by H08.09

H08.09**Gain switchover condition**

Address:	2008-0Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	10	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Fixed to the 1st gain set (PS)

1: Switched as defined by bit26 of 60FEh

2: Torque reference too large (PS)

3: Speed reference too large (PS)

4: Speed reference change rate too large (PS)

5: Speed reference low/high speed threshold (PS)

6: Position deviation too large (P)

7: Position reference available (P)

8: Positioning unfinished (P)

9: Actual speed (P)

10: Position reference + Actual speed (P)

Description

Defines the gain switchover condition.

0: Fixed to the 1st gain set (PS)

1: Switched as defined by bit26 of 60FEh

2: Torque reference too large (PS)

3: Speed reference too large (PS)

4: Speed reference change rate too large (PS)

5: Speed reference low/high speed threshold (PS)

6: Position deviation too large (P)

7: Position reference available (P)

8: Positioning unfinished (P)

9: Actual speed (P)

10: Position reference + Actual speed (P)

H08.10**Gain switchover delay**

Address:	2008-0Bh	Effective mode:	Real time

Min.:	0.0	Unit:	ms
Max.:	1000.0	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0 ms–1000.0 ms

Description

Defines the delay when the drive switches from the 2nd gain set to the 1st gain set.

H08.11 Gain switchover level

Address:	2008-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20000	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

0–20000

Description

Defines the gain switchover level.

Gain switchover is affected by both the level and the dead time, as defined by H08.09. The unit of gain switchover level varies with the switchover condition.

H08.12 Gain switchover hysteresis

Address:	2008-0Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20000	Data Type:	UInt16
Default:	30	Change:	Real-time

Value Range:

0–20000

Description

Defines the dead time for gain switchover.

Gain switchover is affected by both the level and the dead time, as defined by H08.09. The unit of gain switchover hysteresis varies with the switchover condition.

Note:

The set value of H08.11 (Gain switchover level) must be no less than that of H08.12; otherwise, the H08.11 will be set to a value equal to H08.12 automatically.

H08.13 Position gain switchover time

Address:	2008-0Eh	Effective mode:	Real time
Min.:	0.0	Unit:	ms
Max.:	1000.0	Data Type:	UInt16
Default:	3.0	Change:	Real-time

Value Range:

0.0 ms–1000.0 ms

Description

In position control, if H08.05 (2nd position loop gain) is much higher than H08.02 (Position loop gain), set the time for switching from H08.02 to H08.05. This parameter can be used to reduce the impact caused by an increase in the position loop gain.

H08.15 Load moment of inertia ratio

Address:	2008-10h	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	120.00	Data Type:	UInt16
Default:	1.00	Change:	Real-time

Value Range:

0.00–120.00

Description

Defines the mechanical load inertia ratio relative to the motor moment of inertia.

When H08.15 is set to 0, it indicates the motor carries no load; if it is set to 1.00, it indicates the mechanical load inertia is the same as the motor moment of inertia.

H08.17 Zero phase delay

Address:	2008-12h	Effective mode:	Real time
Min.:	0.0	Unit:	ms
Max.:	4.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0 ms–4.0 ms

Description

Set zero phase delay.

H08.18 Time constant of speed feedforward filter

Address:	2008-13h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	64.00	Data Type:	UInt16
Default:	0.50	Change:	Real-time

Value Range:

0.00 ms–64.00 ms

Description

Defines the filter time constant of speed feedforward.

H08.19 Speed feedforward gain

Address:	2008-14h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 100.0%

Description

In position control and full closed-loop control, speed feedforward is the product of speed feedforward signal multiplied by H08.19 and is part of the speed reference.

Increasing the setpoint improves the responsiveness to position references and reduces the position deviation during operation at a constant speed.

Set H08.18 to a fixed value first, and then increase the value of H08.19 gradually from 0 to a certain value at which speed feedforward achieves the desired effect.

Adjust H08.18 and H08.19 repeatedly until a balanced performance is achieved.

Note:

For how to enable the speed feedforward function and select the speed feedforward signal, see H05.19 (Speed feedforward control).

H08.20 Torque feedforward filter time constant

Address:	2008-15h	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	64.00	Data Type:	UInt16
Default:	0.50	Change:	Real-time

Value Range:

0.00 ms–64.00 ms

Description

Defines the filter time constant of torque feedforward.

H08.21 Torque feedforward gain

Address:	2008-16h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 300.0%

Description

In control modes other than torque control, torque feedforward is the product of torque feedforward signal multiplied by H08.21 and is part of the torque reference.

Increasing the setpoint improves the responsiveness to variable speed references.

Increasing the setpoint improves the responsiveness to position references and reduces the position deviation during operation at a constant speed.

During parameter adjustment, set H08.20 (Torque feedforward filter time constant) to the default value first, and then increase H08.21 gradually to enhance the effect of torque feedforward. When speed overshoot occurs, keep H08.21 unchanged and increase the value of H08.20. Adjust H08.20 and H08.21 repeatedly until a balanced performance is achieved.

Note:

For how to enable the torque feedforward function and select the torque feedforward signal, see H06.11 (Torque feedforward control).

H08.22 Speed feedback filtering option

Address:	2008-17h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Inhibited

1: 2 times

2: 4 times

3: 8 times

4: 16 times

Description

Defines the moving average filtering times for speed feedback.

0: Inhibited

1: 2 times

2: 4 times

3: 8 times

4: 16 times

Note: The larger the parameter value, the smaller the speed feedback ripple, but the larger the feedback delay.

H08.23 Cutoff frequency of speed feedback low-pass filter

Address:	2008-18h	Effective mode:	Real time
Min.:	100	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

100 Hz–8000 Hz

Description

Defines the cutoff frequency for first-order low-pass filtering on the speed feedback.

Note:

The lower the setpoint, the weaker the speed feedback fluctuation, and the longer the feedback delay will be.

Setting this parameter to 8000 Hz negates the filtering effect.

H08.24 PDFF control coefficient

Address:	2008-19h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	200.0	Data Type:	UInt16
Default:	100.0	Change:	Real-time

Value Range:

0.0% to 200.0%

Description

Defines the control mode of the speed loop.

When this parameter is set to 100.0, the speed loop adopts PI control (default) with quick dynamic response.

When this parameter is set to 0.0, speed loop integral action is enhanced, which filters out low-frequency interference but also slows down the dynamic response.

H08.24 can be used to keep a good responsiveness of the speed loop, with the anti-interference capacity in low-frequency bands improved and the speed feedback overshoot unaffected.

H08.25 **Speed measurement method**

Address:	2008-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: M-method

1: MT-method

Description

Speed measurement method

Activated only when it is set to 1 and a pulse encoder is used.

H08.27 **Speed observer cutoff frequency**

Address:	2008-1Ch	Effective mode:	Real time
Min.:	50	Unit:	Hz
Max.:	600	Data Type:	UInt16
Default:	170	Change:	Real-time

Value Range:

50 Hz–600 Hz

Description

Defines the cutoff frequency of the speed observer. Note that an excessively high setpoint may incur resonance. Decrease the setpoint properly in case of large speed feedback noise.

H08.28 **Speed observer inertia correction coefficient**

Address:	2008-1Dh	Effective mode:	Real time
Min.:	1	Unit:	%
Max.:	1600	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

1% to 1600%

Description

Defines the speed observer inertia correction coefficient. If H08.15 is set based on the actual inertia, there is no need to adjust this parameter.

H08.29 Speed observer filter time

Address:	2008-1Eh	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	10.00	Data Type:	UInt16
Default:	0.80	Change:	Real-time

Value Range:

0.00 ms–10.00 ms

Description

Defines the speed observer filter time. It is recommended to set this parameter to a value equal to the sum of H07.05 plus 0.2 ms.

H08.31 Disturbance cutoff frequency

Address:	2008-20h	Effective mode:	Real time
Min.:	1	Unit:	Hz
Max.:	4000	Data Type:	UInt16
Default:	600	Change:	Real-time

Value Range:

1 Hz–4000 Hz

Description

Defines the cutoff frequency of the disturbance observer. Increasing the setpoint improves the responsiveness of the disturbance observer and the compensation effect. Note that an excessively high setpoint may incur resonance.

H08.32 Disturbance compensation gain

Address:	2008-21h	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	100	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0% to 100%

Description

Defines the compensation gain of the disturbance observer. The setpoint 100% indicates full compensation.

H08.33 Disturbance observer inertia correction coefficient

Address:	2008-22h	Effective	Real time
		mode:	
Min.:	1	Unit:	%
Max.:	1600	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

1% to 1600%

Description

Defines the disturbance observer inertia correction coefficient. If H08.15 is set based on the actual inertia, there is no need to adjust this parameter.

H08.37 Phase modulation for medium-frequency jitter suppression 2

Address:	2008-26h	Effective	Real time
		mode:	
Min.:	-90	Unit:	°
Max.:	90	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-90° to 90°

Description

Defines the compensation phase of medium-frequency jitter suppression 2.

H08.38 Medium-frequency suppression 2 frequency

Address:	2008-27h	Effective	Real time
		mode:	
Min.:	0	Unit:	Hz
Max.:	1000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 Hz–1000 Hz

Description

Set this parameter based on actual resonance frequency. The valid suppression frequency range for medium-frequency jitter suppression 2 is 100 Hz to 1000 Hz.

H08.39 Compensation gain of medium-frequency jitter suppression 2

Address:	2008-28h	Effective	Real time
		mode:	
Min.:	0	Unit:	%
Max.:	300	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0% to 300%

Description

Defines the compensation gain for medium-frequency jitter suppression 2. Set this parameter to 40%...55% in general cases. Setting this parameter to 0 negates the effect of medium-frequency jitter suppression 2.

H08.40 Speed observer selection

Address:	2008-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Used to set the enable bit for speed observer.

0: Disabled

1: Enabled

H08.42 Model control selection

Address:	2008-2Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

2: Reserved

4: Model tracking B

Description

Used to enable model tracking control.

H08.43 Model gain

Address:	2008-2Ch	Effective mode:	Real time
Min.:	0.1	Unit:	-
Max.:	2000.0	Data Type:	UInt16
Default:	40.0	Change:	Real-time

Value Range:

0.1–2000.0

Description

Defines the single inertia model gain. The higher the gain, the faster the position response. Note that an excessively high setpoint may incur excessive overshoot.

H08.46**Feedforward value**

Address:	2008-2Fh	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	102.4	Data Type:	UInt16
Default:	95.0	Change:	Real-time

Value Range:

0.0–102.4

Description

Defines the speed feedforward gain for single inertia model control. If overshoot occurs, reduce the setpoint properly.

H08.48**Model torque feedforward forward compensation coefficient**

Address:	2008-31h	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	204.8	Data Type:	UInt16
Default:	102.4	Change:	Real-time

Value Range:

0.0–204.8

Description

Defines the speed feedforward gain for single inertia model control. If overshoot occurs, reduce the setpoint properly.

H08.49**Model torque feedforward reverse compensation coefficient**

Address:	2008-32h	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	204.8	Data Type:	UInt16
Default:	102.4	Change:	Real-time

Value Range:

0.0–204.8

Description

Defines the speed feedforward gain for single inertia model control. If overshoot occurs, reduce the setpoint properly.

H08.53 Medium- and low-frequency jitter suppression frequency 3

Address:	2008-36h	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0 Hz–300.0 Hz

Description

Set this parameter based on actual resonance frequency. The resonance suppression range is 100 Hz to 300 Hz.

H08.54 Medium- and low-frequency jitter suppression compensation 3

Address:	2008-37h	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	200	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0% to 200%

Description

Defines the compensation gain for medium- and low-frequency suppression compensation 3. The setpoint 200% indicates full compensation.

H08.56 Medium- and low-frequency jitter suppression phase modulation 3

Address:	2008-39h	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	600	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0% to 600%

Description

Adjust this parameter based on the actual compensation effect.

H08.59 Medium- and low-frequency jitter suppression frequency 4

Address:	2008-3Ch	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0 Hz–300.0 Hz

Description

Set this parameter based on actual resonance frequency. The resonance suppression range is 100 Hz to 300 Hz.

H08.60 Medium- and low-frequency jitter suppression compensation 4

Address:	2008-3Dh	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	200	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0% to 200%

Description

Defines the compensation gain for medium- and low-frequency suppression compensation 4. The setpoint 200% indicates full compensation.

H08.61 Medium- and low-frequency jitter suppression phase modulation 4

Address:	2008-3Eh	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	600	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0% to 600%

Description

Adjust this parameter based on the actual compensation effect.

H08.62 Position loop integral time constant

Address:	2008-3Fh	Effective mode:	Real time
Min.:	0.15	Unit:	-
Max.:	512.00	Data Type:	UInt16
Default:	512.00	Change:	Real-time

Value Range:

0.15–512.00

Description

Defines the position loop integral time constant.

H08.63 2nd position loop integral time constant

Address:	2008-40h	Effective mode:	Real time
Min.:	0.15	Unit:	-
Max.:	512.00	Data Type:	UInt16
Default:	512.00	Change:	Real-time

Value Range:

0.15–512.00

Description

Defines the 2nd position loop integral time constant.

H08.64 Speed observer feedback source

Address:	2008-41h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Observer output speed

1: Observer observed speed

Description

Select the speed observer feedback source.

0: Observer output speed

1: Observer observed speed

H08.65 Zero deviation control selection

Address:	2008-42h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Used to enable/disable zero deviation control.

0: Disabled

1: Enabled

H08.66 Zero deviation control position average filter

Address:	2008-43h	Effective mode:	Real time

Min.:	0.0	Unit:	ms
Max.:	320.0	Data Type:	UInt16
Default:	5.0	Change:	At stop

Value Range:

0.0 ms–320.0 ms

Description

Defines the average filter time of zero deviation control position. It is recommended to increase the setpoint in case of large noise caused by low command resolution.

H08.68 Speed feedforward of zero deviation control

Address:	2008-45h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	100.0	Change:	Real-time

Value Range:

0.0% to 100.0%

Description

Defines the speed feedforward of zero deviation control.

H08.69 Torque feedforward of zero deviation control

Address:	2008-46h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	100.0	Change:	Real-time

Value Range:

0.0% to 100.0%

Description

Defines the torque feedforward of zero deviation control.

H08.90 Encoder scale spacing ripple suppressor enable

Address:	2008-5Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	6	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Disabled
- 1: 1st group activated only-adaptive mode
- 2: 1st group activated only-hysteresis mode
- 3: Two groups activated-adaptive mode
- 4: Two groups activated-hysteresis mode

Description

Sets encoder scale pitch ripple suppression.

- 0: Disabled
- 1: 1st group activated only-adaptive mode. This function is used only to suppress or clear the control loop torque ripple caused by encoder pitch ripple and reduce speed fluctuation and operational noise to some extent.
- 2: 1st group activated only-hysteresis mode. This function is not suitable for applications with frequent speed changes and short travel, but works better for long travel with slow speed changes (for example, digital printing)
- 3: Two groups activated-adaptive mode. This function decides the number of suppressors needed based on the amount of torque ripple caused by encoder pitch ripple.
- 4: Two groups activated-hysteresis mode. Hysteresis mode is only suitable for reciprocating constant speed operation, while adaptive mode is suitable for slow speed change scenarios. Choose the suitable mode as needed.

4.10 H09 Auto-tuning Parameters

H09.00 Auto-adjustment mode

Address:	2009-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	9	Data Type:	UInt16
Default:	4	Change:	Real-time

Value Range:

- 0: Disabled, manual gain tuning required
- 1: Enabled, gain parameters generated automatically based on the stiffness level
- 2: Positioning mode, gain parameters generated automatically based on the stiffness level
- 3: Interpolation mode+Inertia auto-tuning
- 4: Normal mode+Inertia auto-tuning
- 5: Stune mode 5
- 6: Quick positioning mode+Inertia auto-tuning
- 9: Model tracking + Inertia auto-tuning + Friction force compensation

Description

Defines different gain tuning modes. Related gain parameters can be set manually or automatically according to the stiffness level.

0: Disabled, manual gain tuning required

1: Enabled, gain parameters generated automatically based on the stiffness level

2: Positioning mode, gain parameters generated automatically based on the stiffness level

3: Interpolation mode+Inertia auto-tuning

4: Normal mode+Inertia auto-tuning

5: Stune mode 5

6: Quick positioning mode+Inertia auto-tuning

9: Model tracking + Inertia auto-tuning + Friction force compensation

H09.01 Stiffness level selection

Address:	2009-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	41	Data Type:	UInt16
Default:	15	Change:	Real-time

Value Range:

0–41

Description

Defines the stiffness level of the servo system. The higher the stiffness level, the stronger the gains and the quicker the response will be. But an excessively high stiffness level will cause vibration.

The setpoint 0 indicates the weakest stiffness and 41 indicates the strongest stiffness.

H09.02 Mode selection of adaptive notch

Address:	2009-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Adaptive notch no longer updated

1: One adaptive notch activated (3rd notch)

2: Two adaptive notches activated (3rd and 4th notches)

3: Resonance point tested only (displayed in H09.24)

4: Adaptive notch cleared, values of 3rd and 4th notches restored to default

Description

Defines the operation mode of the adaptive notch.

0: Adaptive notch no longer updated

1: One adaptive notch activated (3rd notch)

2: Two adaptive notches activated (3rd and 4th notches)

3: Resonance point tested only (displayed in H09.24)

4: Adaptive notch cleared, values of 3rd and 4th notches restored to default

H09.03 Online inertia auto-tuning mode

Address:	2009-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled, changing slowly

2: Enabled, changing normally

3: Enabled, changing quickly

Description

Defines whether to enable online inertia auto-tuning and the inertia ratio update speed during online inertia auto-tuning.

0: Disabled

1: Enabled, changing slowly

2: Enabled, changing normally

3: Enabled, changing quickly

H09.05 Offline inertia auto-tuning mode

Address:	2009-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Bi-directional

1: Unidirectional

Description

Defines the offline inertia auto-tuning mode. The offline inertia auto-tuning function can be enabled through H0d.02.

0: Bi-directional

1: Unidirectional

H09.06 Max. speed of inertia auto-tuning

Address:	2009-07h	Effective mode:	Real time
Min.:	100	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	500	Change:	At stop

Value Range:

100[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Defines the maximum permissible speed reference in offline inertia auto-tuning mode.

During inertia auto-tuning, the higher the speed, the more accurate the auto-tuned values. Use the default setpoint in general cases.

H09.07 Time constant for accelerating to max. speed during inertia auto-tuning

Address:	2009-08h	Effective mode:	Real time
Min.:	10	Unit:	ms
Max.:	5000	Data Type:	UInt16
Default:	125	Change:	At stop

Value Range:

10 ms–5000 ms

Description

Defines the time for the motor to accelerate from 0 [mm/s]/[rpm] to the maximum speed of inertia auto-tuning (H09.06) during offline inertia auto-tuning.

H09.08 Interval time after an individual inertia auto-tuning

Address:	2009-09h	Effective mode:	Real time
Min.:	50	Unit:	ms
Max.:	10000	Data Type:	UInt16
Default:	800	Change:	At stop

Value Range:

50 ms–10000 ms

Description

Defines the interval time between two consecutive speed references when H09.05 (Offline inertia auto-tuning mode) is set to 1 (Positive/Negative triangular wave mode).

H09.09 Motor rotating distance per inertia auto-tuning

Address:	2009-0Ah	Effective mode:	Real time
Min.:	0.00	Unit:	[mm]/[Rev]
Max.:	100.00	Data Type:	UInt16
Default:	1.00	Change:	Real-time

Value Range:

0.00[mm]/[Rev]–100.00[mm]/[Rev]

Description

Defines the motor revolutions per inertia auto-tuning when H09.05 (Offline inertia auto-tuning mode) is set to 1 (Positive/Negative triangular wave mode).

Note:

When using the offline inertia auto-tuning function, check that the travel distance of the motor at the stop position is larger than the value of H09.09. If not, decrease the value of H09.06 (Maximum speed for inertia auto-tuning) or H09.07 (Time constant of accelerating to max. speed during inertia auto-tuning) properly until the motor travel distance fulfills the requirement.

H09.11 Vibration threshold

Address:	2009-0Ch	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0% to 100.0%

Description

Defines the alarm threshold for current feedback vibration.

H09.12 Frequency of the 1st notch

Address:	2009-0Dh	Effective mode:	Real time
Min.:	50	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

50 Hz–8000 Hz

Description

Defines the center frequency of the notch, which is the mechanical resonance frequency.

In the torque control mode, setting the notch frequency to 8000 Hz deactivates the notch function.

H09.13 Width level of the 1st notch

Address:	2009-0Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0–20

Description

Defines the width level of the notch. Use the default setpoint in general cases. Width level is the ratio of the notch width to the notch center frequency.

H09.14 Depth level of the 1st notch

Address:	2009-0Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–99

Description

Defines the depth level of the notch.

The depth level of the notch is the ratio between the input to the output at the notch center frequency.

The higher the setpoint, the lower the notch depth and the weaker the mechanical resonance suppression will be. Note that an excessively high setpoint may cause system instability.

H09.15 Frequency of the 2nd notch

Address:	2009-10h	Effective mode:	Real time
Min.:	50	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

50 Hz–8000 Hz

Description

Set the frequency of the 2nd notch.

H09.16 Width level of the 2nd notch

Address:	2009-11h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	20	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0–20

Description

Set the width level of the 2nd notch.

H09.17 Depth level of the 2nd notch

Address:	2009-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–99

Description

Set the depth level of the 2nd notch.

H09.18 Frequency of the 3rd notch

Address:	2009-13h	Effective mode:	Real time
Min.:	50	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

50 Hz–8000 Hz

Description

Set the frequency of the 3rd notch.

H09.19 Width level of the 3rd notch

Address:	2009-14h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0–20

Description

Set the width level of the 3rd notch.

H09.20 Depth level of the 3rd notch

Address:	2009-15h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–99

Description

Set the depth level of the 3rd notch.

H09.21 Frequency of the 4th notch

Address:	2009-16h	Effective mode:	Real time
Min.:	50	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

50 Hz–8000 Hz

Description

Set the frequency of the 4th notch.

H09.22 Width level of the 4th notch

Address:	2009-17h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	20	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

0–20

Description

Set the width level of the 4th notch.

H09.23 Depth level of the 4th notch

Address:	2009-18h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–99

Description

Set the depth level of the 4th notch.

H09.24 Auto-tuned resonance frequency

Address:	2009-19h	Effective mode:	-
Min.:	0	Unit:	Hz
Max.:	5000	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 Hz–5000 Hz

Description

When H09.02 (Adaptive notch mode) is set to 3, the current mechanical resonance frequency is displayed.

H09.32 Gravity compensation value

Address:	2009-21h	Effective mode:	Real time
Min.:	-100.0	Unit:	%
Max.:	100.0	Data Type:	Int16
Default:	0.0	Change:	Real-time

Value Range:

-100.0% to 100.0%

Description

Defines the gravity compensation value. Setting this parameter properly in vertical axis applications can reduce the falling amplitude upon start.

H09.33 Positive friction compensation value

Address:	2009-22h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	100.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 100.0%

Description

Defines the forward friction compensation value.

H09.34 Negative friction compensation value

Address:	2009-23h	Effective mode:	Real time

Min.:	-100.0	Unit:	%
Max.:	0.0	Data Type:	Int16
Default:	0.0	Change:	Real-time

Value Range:

-100.0% to 0.0%

Description

Defines the reverse direction friction compensation value.

H09.35 Friction compensation speed

Address:	2009-24h	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	20.0	Data Type:	UInt16
Default:	2.0	Change:	Real-time

Value Range:

0.0–20.0

Description

Defines the friction compensation speed.

H09.36 Friction compensation speed

Address:	2009-25h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x13	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0: Slow mode+Speed reference

1: Slow mode+Model speed

2: Slow mode+Speed feedback

3: Slow mode+Observe speed

16: Quick mode +Speed reference

17: Quick mode +Model speed

18: Quick mode +Speed feedback

19: Quick mode+Observe speed

Description

Friction compensation speed
 0: Slow mode+Speed reference
 1: Slow mode+Model speed
 2: Slow mode+Speed feedback
 3: Slow mode+Observe speed
 16: Quick mode +Speed reference
 17: Quick mode +Model speed
 18: Quick mode +Speed feedback
 19: Quick mode+Observe speed

H09.37 Vibration monitoring time

Address:	2009-26h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	300	Change:	Real-time

Value Range:

0–65535

Description

The resonance detection suppression function is turned off automatically after the time defined by this parameter elapses. To suppress the resonance suppression function, set this parameter to 65536 (in seconds).

H09.38 Frequency of low-frequency resonance suppression 1 at the mechanical end

Address:	2009-27h	Effective mode:	Real time
Min.:	1.0	Unit:	Hz
Max.:	100.0	Data Type:	UInt16
Default:	100.0	Change:	At stop

Value Range:

1.0 Hz–100.0 Hz

Description

Set this parameter based on the actual jitter frequency.

H09.39 Low-frequency resonance suppression 1 at the mechanical end

Address:	2009-28h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0–3

Description

Defines different low-frequency resonance suppression types at the mechanical load. Type 1 features the shortest delay.

H09.44 Frequency of low-frequency resonance suppression 2 at the mechanical end

Address:	2009-2Dh	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	200.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0 Hz–200.0 Hz

Description

Set this parameter based on the actual jitter frequency.

H09.45 Responsiveness of low-frequency resonance suppression 2 at mechanical load end

Address:	2009-2Eh	Effective mode:	Real time
Min.:	0.01	Unit:	-
Max.:	10.00	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.01–10.00

Description

Use the default setpoint in general cases. To increase the setpoint, reduce the delay time.

H09.47 Width of low-frequency resonance suppression 2 at mechanical load end

Address:	2009-30h	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	2.00	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.00–2.00

Description

Use the default setpoint in general cases. To increase the setpoint, increase the delay time.

H09.49 Frequency of low-frequency resonance suppression 3 at the mechanical end

Address:	2009-32h	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	200.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0 Hz–200.0 Hz

Description

Set the frequency of low-frequency resonance suppression 3 at mechanical load end.

H09.50 Responsiveness of low-frequency resonance suppression 3 at mechanical load end

Address:	2009-33h	Effective mode:	Real time
Min.:	0.01	Unit:	-
Max.:	10.00	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.01–10.00

Description

Set the responsiveness of low-frequency resonance suppression 3 at mechanical load end.

H09.52 Width of low-frequency resonance suppression 3 at mechanical load end

Address:	2009-35h	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	2.00	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.00–2.00

Description

Set the width of low-frequency resonance suppression 3 at mechanical load end.

H09.54 Resonance detection torque threshold

Address:	2009-37h	Effective mode:	Real time
Min.:	0.0	Unit:	%

Max.:	300.0	Data Type:	UInt16
Default:	50.0	Change:	Real-time

Value Range:

0.0% to 300.0%

Description

If the torque fluctuation exceeds the setpoint, an error will be reported. Setting this parameter to 0 hides the resonance detection function.

H09.56 Max. overshoot allowed by ETune

Address:	2009-39h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	2936	Change:	Real-time

Value Range:

0–65535

Description

Defines the maximum overshoot value allowed during ETune adjustment.

H09.57 STune resonance suppression switchover frequency

Address:	2009-3Ah	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	4000	Data Type:	UInt16
Default:	650	Change:	Real-time

Value Range:

0 Hz–4000 Hz

Description

If the resonance frequency is lower than the setpoint, use medium-frequency resonance suppression 2 to suppress resonance. Otherwise, use the notch to suppress resonance.

H09.58 STune resonance suppression reset selection

Address:	2009-3Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Used to enable STune resonance suppression reset to clear parameters related to resonance suppression, medium-frequency resonance suppression 2 and notches 3 and 4.

0: Disabled

1: Enabled

H09.62 Stune stop delay judgment

Address:	2009-3Fh	Effective mode:	Real time
Min.:	0.00	Unit:	ms
Max.:	50.00	Data Type:	UInt16
Default:	1.00	Change:	Real-time

Value Range:

0.00 ms–50.00 ms

Description

Set Stune stop delay threshold.

H09.63 STune quick convergence speed

Address:	2009-40h	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	50.00	Data Type:	UInt16
Default:	1.00	Change:	Real-time

Value Range:

0.00–50.00

Description

Set STune quick convergence speed.

H09.71 Starting frequency

Address:	2009-48h	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	15	Change:	Real-time

Value Range:

0 Hz–8000 Hz

Description

Set the starting frequency for high-performance auto-tuning sweep frequency.

H09.72 End frequency

Address:	2009-49h	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

0 Hz–8000 Hz

Description

Set the end frequency for high-performance auto-tuning sweep frequency.

H09.73 Frequency subdivision

Address:	2009-4Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	500	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

0–500

Description

Set the frequency resolution for high-performance auto-tuning low frequency band (start frequency–start frequency 2). The larger the setting, the smaller the resolution.

H09.74 Excitation amplitude

Address:	2009-4Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	15.0	Change:	Real-time

Value Range:

0.0% to 400.0%

Description

Set the excitation amplitude for high-performance auto-tuning sweep frequency.

H09.75 Starting frequency 2

Address:	2009-4Ch	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	8000	Data Type:	UInt16
Default:	500	Change:	Real-time

Value Range:

0 Hz–8000 Hz

Description

Set the starting frequency for medium and high frequency in high-performance auto-tuning.

H09.76 Frequency subdivision 2

Address:	2009-4Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1000	Data Type:	UInt16
Default:	500	Change:	Real-time

Value Range:

0–1000

Description

Set the frequency resolution for high-performance auto-tuning low frequency band (start frequency 2–end frequency). The larger the setting, the smaller the resolution.

H09.77 Biquad filter mode

Address:	2009-4Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	6	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Disabled
- 1: First-order low-pass
- 2: Second-order low-pass
- 3: Notch
- 4: Lead-lag
- 5: User-defined

Description

Used to select biquad filter mode.

- 0: Disabled
- 1: First-order low-pass
- 2: Second-order low-pass
- 3: Notch
- 4: Lead-lag
- 5: User-defined

H09.78 Biquad filter numerator frequency

Address:	2009-4Fh	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	16000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

0 Hz–16000 Hz

Description

Set the biquad filter numerator frequency.

H09.79 Biquad filter numerator damping coefficient

Address:	2009-50h	Effective mode:	Real time
Min.:	0.001	Unit:	-
Max.:	10.000	Data Type:	UInt16
Default:	1.000	Change:	Real-time

Value Range:

0.001–10.000

Description

Set the biquad filter numerator damping coefficient.

H09.80 Biquad filter denominator frequency

Address:	2009-51h	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	16000	Data Type:	UInt16
Default:	8000	Change:	Real-time

Value Range:

0 Hz–16000 Hz

Description

Set the biquad filter denominator frequency.

H09.81 Biquad filter denominator damping coefficient

Address:	2009-52h	Effective mode:	Real time
Min.:	0.001	Unit:	-
Max.:	10.000	Data Type:	UInt16
Default:	1.000	Change:	Real-time

Value Range:

0.001–10.000

Description

Set the biquad filter denominator damping coefficient.

H09.82**Vibration frequency 1**

Address:	2009-53h	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0 Hz–300.0 Hz

Description

Set vibration frequency 1.

H09.83**Resonance frequency 1**

Address:	2009-54h	Effective mode:	Real time
Min.:	0.0	Unit:	Hz
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0 Hz–300.0 Hz

Description

Set resonance frequency 1.

H09.84**Vibration damping 1**

Address:	2009-55h	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	0.50	Data Type:	UInt16
Default:	0.05	Change:	Real-time

Value Range:

0.00–0.50

Description

Set vibration damping 1.

H09.85**Resonance damping 1**

Address:	2009-56h	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	0.50	Data Type:	UInt16

Default: 0.05

Change: Real-time

Value Range:

0.00–0.50

Description

Set resonance damping 1.

H09.86 Vibration frequency 2

Address: 2009-57h

Effective mode: Real time

Min.: 0.0

Unit: Hz

Max.: 300.0

Data Type: UInt16

Default: 0.0

Change: Real-time

Value Range:

0.0 Hz–300.0 Hz

Description

Set vibration frequency 2.

H09.87 Resonance frequency 2

Address: 2009-58h

Effective mode: Real time

Min.: 0.0

Unit: Hz

Max.: 300.0

Data Type: UInt16

Default: 0.0

Change: Real-time

Value Range:

0.0 Hz–300.0 Hz

Description

Set resonance frequency 2.

H09.88 Vibration damping 2

Address: 2009-59h

Effective mode: Real time

Min.: 0.00

Unit: -

Max.: 0.50

Data Type: UInt16

Default: 0.05

Change: Real-time

Value Range:

0.00–0.50

Description

Set vibration damping 2.

H09.89 Resonance damping 2

Address:	2009-5Ah	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	0.50	Data Type:	UInt16
Default:	0.05	Change:	Real-time

Value Range:

0.00–0.50

Description

Set resonance damping 2.

H09.92 Model friction force compensation enable

Address:	2009-5Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Disable/enable model friction force compensation.

H09.93 Model friction force compensation coefficient

Address:	2009-5Eh	Effective mode:	Real time
Min.:	0.00	Unit:	%/1000 rpm
Max.:	50.00	Data Type:	UInt16
Default:	0.00	Change:	Real-time

Value Range:

0.00%/1000 rpm–50.00%/1000 rpm

Description

Set the model friction compensation coefficient.

H09.98 Vibration suppression auto-tuning

Address:	2009-63h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled
 1: Fast auto-tuning
 2: Slow auto-tuning
Description
 0: Disabled
 1: Fast auto-tuning
 2: Slow auto-tuning

4.11 H0A Fault and Protection Parameters

H0A.00 Power input phase loss and failure protection

Address:	200A-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Enable
 1: Disable

Description

Servo drives supporting single-phase/three-phase 220 V and three-phase 380 V power supplies Objects available. When voltage fluctuation or phase loss occurs on the power supply, the drive triggers power input phase loss protection based on H0A.00.

0: Enable
 1: Disable

H0A.01 Absolute position limit

Address:	200A-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled
 1: Enabled
 2: Enabled after homing

Description

Used to set the activation condition for enabling the software position limit function and the software limit.

0: Disabled

1: Enabled

2: Enabled after homing

H0A.04 Motor overload protection gain

Address:	200A-05h	Effective mode:	Real time
Min.:	50	Unit:	-
Max.:	300	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

50–300

Description

Determines the motor overload duration before E620.0 (Motor overload) is reported.

You can change the setpoint to advance or delay the time when overload protection is triggered based on the motor temperature. The setpoint 50% indicates the time is cut by half; 150% indicates the time is increased by 50%. Set this parameter based on the actual temperature of the motor.

H0A.08 Overspeed threshold

Address:	200A-09h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	20000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–20000[mm/s]/[rpm]

Description

Defines the overspeed threshold of the motor.

H0A.10 Threshold of excessive local position deviation

Address:	200A-0Bh	Effective mode:	Real time
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	219895614	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the threshold for excessive position deviation in the position control mode.

When the position deviation exceeds this threshold, the drive reports EB00.0 (Position deviation too large).

H0A.12 Runaway protection enable

Address:	200A-0Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Disabled

1: Runaway protection scheme 1

2: Runaway protection scheme 2

Description

Defines whether to enable runaway protection.

0: Disables E234 detection when the motor drives a vertical axis or is driven by the load

1: Enables runaway protection scheme 1

2: Enable runaway protection scheme 2

4.11.1H0A.13**H0A.17 Reference pulse selection**

Address:	200A-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Pulse unit

1: Reference unit

Description

Used to set the threshold unit for large position deviation, positioning completion, and positioning proximity.

0: Pulse unit

1: Reference unit

H0A.18 IGBT over-temperature threshold

Address:	200A-13h	Effective mode:	Real time
Min.:	120	Unit:	°C
Max.:	175	Data Type:	UInt16
Default:	140	Change:	Real-time

Value Range:

120°C–175°C

Description

Defines the threshold for reporting E640.0 (IGBT overtemperature) and E640.1 (Flywheel diode overtemperature).

H0A.19 Filter time constant of touch probe 1

Address:	200A-14h	Effective mode:	Real time
Min.:	0.00	Unit:	μs
Max.:	6.30	Data Type:	UInt16
Default:	2.00	Change:	Real-time

Value Range:

0.00μs to 6.30μs

Description

Set the filter time constant of touch probe 1.

H0A.20 Filter time constant of touch probe 2

Address:	200A-15h	Effective mode:	Real time
Min.:	0.00	Unit:	μs
Max.:	6.30	Data Type:	UInt16
Default:	2.00	Change:	Real-time

Value Range:

0.00μs to 6.30μs

Description

Set the filter time constant of touch probe 2.

H0A.21 STO function display selection

Address:	200A-16h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–7

Description

Defines whether to display the STO status or report E150.0 after the STO function is triggered.

0: Displays the STO status. The keypad displays "sto_" after the STO function is triggered. In this case, no fault is reported and no output is generated from the fault DO.

1: Displays the STO fault. The keypad displays "E150.0" after the STO function is triggered. In this case, the drive reports the fault and the faulty DO outputs.

H0A.23**TZ signal filter time**

Address:	200A-18h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	25ns
Max.:	31	Data Type:	UInt16
Default:	15	Change:	At stop

Value Range:

0 ns–31 ns

Description

Set TZ signal filter time.

H0A.25**Speed display DO low-pass filter time**

Address:	200A-1Ah	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	5000	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–5000 ms

Description

Defines the low-pass filter time constant of the speed information for speed feedback and position references.

H0A.26**Motor overload detection**

Address:	200A-1Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Show motor overload alarm (E909.0) and fault (E620.0)

1: Hide motor overload alarm (E909.0) and fault (E620.0)

Description

Defines whether to enable motor overload detection.

0: Show motor overload alarm (E909.0) and fault (E620.0)

1: Hide motor overload alarm (E909.0) and fault (E620.0)

H0A.27 Average filter time for speed display DO

Address:	200A-1Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	50	Change:	At stop

Value Range:

0 ms–100 ms

Description

Defines the average filter time constant of the speed information for speed feedback and position references.

H0A.28 Quadrature encoder filter time

Address:	200A-1Dh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	25ns
Max.:	255	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0 ns–255 ns

Description

Defines the quadrature encoder feedback filter time.

H0A.29 Fully closed-loop encoder (ABZ) filter time

Address:	200A-1Eh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	25ns
Max.:	65535	Data Type:	UInt16
Default:	4111	Change:	At stop

Value Range:

bit0–bit7: Fully closed loop encoder (ABZ) pulse signal filtering time

bit8–bit15: Fully closed loop encoder (ABZ) wire breakage filter time

Description

Bit0–bit7: Fully closed-loop encoder (ABZ) pulse signal filter time

Bit8–bit15: Fully closed-loop encoder (ABZ) wire breakage filter time

H0A.32 Time threshold for locked motor overheat protection

Address:	200A-21h	Effective	Real time
		mode:	
Min.:	10	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

10 ms–65535 ms

Description

Defines the overtemperature duration before E630.0 (Motor stall) is detected by the servo drive.

H0A.32 can be used to adjust the sensitivity of motor stall overtemperature detection.

H0A.33 Locked motor overheat protection

Address:	200A-22h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Enables or disables the detection for E630.0 (Motor stall overtemperature protection).

0: Disabled

1: Enabled

H0A.36 Encoder multi-turn overflow fault selection

Address:	200A-25h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Not hide

1: Hide

Description

Defines whether to hide the encoder multi-turn overflow fault in the absolute position linear mode (H02.01 = 1).

0: Not hide

1: Hide

H0A.40 Compensation function selection

Address:	200A-29h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x1F	Data Type:	UInt16
Default:	0x6	Change:	At stop

Value Range:

- bit0: Overtravel compensation
- 0: Enabled
- 1: Disabled
- bit1: Touch probe rising edge compensation
- 0: Disabled
- 1: Enabled
- bit2: Touch probe falling edge compensation
- 0: Disabled
- 1: Enabled
- bit3: Touch probe scheme
- 0: New scheme
- 1: Old scheme (same as SV660N)
- bit4: Probe 2 separate compensation time enable
- 0: Disabled
- 1: Enabled

Description

Select compensation.

Bit0: Overtravel compensation

0: Enabled

1: Disabled

Bit1: Probe rising edge compensation

0: Disabled

1: Enabled Bit2: Probe falling edge compensation

0: Disabled

1: Enabled Bit3: Probe scheme

0: New scheme

1: Old scheme (same as SV660N) Bit4: Probe 2 separate compensation time

0: Disabled

1: Enabled

H0A.41 Forward position of software position limit

Address:	200A-2Ah	Effective mode:	Real time
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32

Default: 2147483647

Change: At stop

Value Range:

-2147483648 to 2147483647

Description

When the absolute position counter (H0b.07) is larger than H0A.41, the servo drive reports E950.0 (Forward limit switch alarm) and executes stop at forward limit.

H0A.43 Reverse position of software position limit

Address: 200A-2Ch

Effective Real time

mode:

Min.: -2147483648

Unit: Encoder unit

Max.: 2147483647

Data Type: Int32

Default: -2147483648

Change: At stop

Value Range:

-2147483648 to 2147483647

Description

When the absolute position counter (H0b.07) is smaller than H0A.43, the servo drive reports alarm E952.0 (Reverse limit switch alarm) and executes stop at reverse limit.

H0A.50 Encoder communication fault tolerance threshold

Address: 200A-33h

Effective Upon the next power-on

mode:

Min.: 0

Unit: -

Max.: 31

Data Type: UInt16

Default: 31

Change: Real-time

Value Range:

0–31

Description

When the communication between the encoder and the drive fails continuously for more than H0A.50 times, it is considered as a communication failure with the encoder. When overspeed point mask is enabled, if the number of consecutive overspeed points exceed H0A.50, it is considered as a communication failure with the encoder.

H0A.51 Phase loss detection filter times

Address: 200A-34h

Effective Real time

mode:

Min.: 3

Unit: 55ms

Max.: 36

Data Type: UInt16

Default: 20

Change: Real-time

Value Range:

3 ms–36 ms

Description

Phase loss fault is reported when phase loss keeps active for a period longer than H0A.51.

H0A.52 Encoder temperature protection threshold

Address:	200A-35h	Effective mode:	Real time
Min.:	0	Unit:	°C
Max.:	175	Data Type:	UInt16
Default:	120	Change:	Real-time

Value Range:

0°C–175°C

Description

Defines the temperature threshold for encoder overtemperature protection.

H0A.53 Probe DI ON compensation time

Address:	200A-36h	Effective mode:	Real time
Min.:	-3000	Unit:	25ns
Max.:	3000	Data Type:	Int16
Default:	200	Change:	Real-time

Value Range:

-3000 ns–3000 ns

Description

Used to compensate for the action time when the touch probe is switched on.

H0A.54 Probe DI OFF compensation time

Address:	200A-37h	Effective mode:	Real time
Min.:	-3000	Unit:	25ns
Max.:	3000	Data Type:	Int16
Default:	1512	Change:	Real-time

Value Range:

-3000 ns–3000 ns

Description

Used to compensate for the action time when the touch probe is switched off.

H0A.55 Runaway current threshold

Address:	200A-38h	Effective mode:	Real time
Min.:	100.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	200.0	Change:	Real-time

Value Range:

100.0% to 400.0%

Description

Defines the current threshold for runaway protection detection.

H0A.56 Fault reset delay

Address:	200A-39h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	60000	Data Type:	UInt16
Default:	10000	Change:	Real-time

Value Range:

0 ms–60000 ms

Description

Set the fault reset delay time.

H0A.57 Runaway speed threshold

Address:	200A-3Ah	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Defines the overspeed threshold for runaway protection detection.

H0A.58 Runaway speed filter time

Address:	200A-3Bh	Effective mode:	Upon the next power-on
Min.:	0.1	Unit:	ms
Max.:	100.0	Data Type:	UInt16
Default:	2.0	Change:	Real-time

Value Range:

0.1 ms–100.0 ms

Description

Defines the speed feedback filter time for runaway protection detection.

H0A.59 Runaway protection detection time

Address:	200A-3Ch	Effective mode:	Real time
Min.:	10	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	30	Change:	Real-time

Value Range:

10 ms–1000 ms

Description

The runaway fault will be reported when runaway keeps active for a period longer than H0A.59.

H0A.60 Black box function mode

Address:	200A-3Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Disable

1: Any fault

2: Designated fault

3: Triggered based on designated condition

Description

Defines the condition for triggering black box sampling.

0: Disable

1: Any fault

2: Designated fault

3: Triggered based on designated condition

H0A.61 Designated fault code

Address:	200A-3Eh	Effective mode:	Real time
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0–6553.5

Description

Defines the fault code for triggering the black box function.

H0A.62**Trigger source**

Address:	200A-3Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	27	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–27

Description

Defines the fault code for triggering the black box function through designated channel.

H0A.63**Trigger level**

Address:	200A-40h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

Defines the trigger level for triggering the black box function through designated channel.

H0A.65**Trigger level**

Address:	200A-42h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Rising edge

1: Equal

2: Falling edge

3: Edge-triggered

Description

Defines the trigger mode for triggering the black box function through H0A.63.

0: Rising edge

1: Equal

2: Falling edge

3: Edge-triggered

H0A.66 Trigger position

Address:	200A-43h	Effective mode:	Real time
Min.:	0	Unit:	%
Max.:	100	Data Type:	UInt16
Default:	75	Change:	Real-time

Value Range:

0% to 100%

Description

Defines the pre-trigger position for triggering black box sampling.

H0A.67 Sampling frequency

Address:	200A-44h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Current loop

1: Position loop

2: Main cycle

Description

Defines the frequency sampling mode during black box sampling.

0: Current loop

1: Position loop

2: Main cycle

H0A.70 Overspeed threshold 2

Address:	200A-47h	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	20000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–20000[mm/s]/[rpm]

Description

Defines the speed threshold for reporting E500.2 (Position feedback pulse overspeed).

H0A.71 Internal function switch

Address: 200A-48h

Effective mode: Upon the next power-on

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 4098

Change: Real-time

Value Range:

0–65535

Description

bit	Function	Description
0	MS1 overload curve selection	0: New 1: Old
1	Power failure bleeder switch	0: Enabled 1: Disabled
2	Forced brake motor stop mode	0: Forced stop 1: Non-forced stop
3	New external characteristics switch of multi-speed DI mode	0: Old characteristics 1: New characteristics
4	E120.3 hide switch	0: Disabled 1: Disabled
5	Prohibit software reading parameters	0: Disabled 1: Enabled
6	E108.4 hide switch	0: Disabled 1: Disabled
7	CSV command interpolation	0: Sync interrupt interpolation 1: IRQ interrupt interpolation
8	Data type of motor rated current, inertia and back EMF coefficient	0: 16-bit 1: 32-bit
9	Wire breakage detection	0: Enabled 1: Disabled
10	Torque limit source	0: Auto switch acc. to H02.00 1: H07.09 and H07.10
11	Ultra-accurate speed feedback switch	0: Disable 1: Enabled
12	Power failure retention of homing completion flag	0: Disabled 1: Enabled
13	STO status word fallback switch	0: Switch on disable 1: Fault

bit	Function	Description
14	Encoder adaptive function switch	0: Enabled 1: Disable
15	Interrupt positioning external characteristics	0: Old external characteristics, follows motor operation direction 1: New external characteristics, direction set by parameter

H0A.72 Maximum stop time in ramp-to-stop

Address: 200A-49h Effective Real time
mode:
Min.: 0 Unit: ms
Max.: 65535 Data Type: UInt16
Default: 10000 Change: At stop

Value Range:

0 ms–65535 ms

Description

Defines the time for the motor to decelerate from the maximum speed to 0 [mm/s]/[rpm] during ramp-to-stop.

H0A.73 STO 24 V disconnection filter time

Address: 200A-4Ah Effective Real time
mode:
Min.: 1 Unit: ms
Max.: 5 Data Type: UInt16
Default: 1 Change: Real-time

Value Range:

1 ms–5 ms

Description

Defines the delay from the moment when 24V is disconnected to the moment when the STO state applies.

H0A.74 Filter time for two inconsistent STO channels

Address: 200A-4Bh Effective Real time
mode:
Min.: 1 Unit: ms
Max.: 1000 Data Type: UInt16
Default: 100 Change: Real-time

Value Range:

1 ms–1000 ms

Description

Defines the delay from the moment the inconsistent 24V is input to the drive through two channels to the moment when the STO state applies.

H0A.75 Servo OFF delay after STO triggered

Address:	200A-4Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	25	Data Type:	UInt16
Default:	20	Change:	Real-time

Value Range:

0 ms–25 ms

Description

Defines the delay from the moment the STO state is triggered to the moment the S-ON signal is switched off.

H0A.87 Hall state fault filtering count

Address:	200A-58h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1000	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0–1000

Description

Set the filtering times for Hall status monitoring. If the Hall status is continuously detected as 0 or 7 for the times set in H0A.57, then alarm A34.0 (abnormal Hall status) is raised.

H0A.88 Alarm enable

Address:	200A-59h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–3

Description

Bit0: Used to enable original BiSS-C data alarm function, which is only applicable to the encoder that adopts BiSS-C protocol.

bit1: Used to mask the undervoltage alarm for voltage drop protection (971.0)

H0A.89 Correct state of DDL BiSS-C data

Address:	200A-5Ah	Effective mode:	Upon the next power-on

Min.:	0	Unit:	-
Max.:	31	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0–31

Description

Defines the fault bit state during normal operation of BiSS-C.

H0A.90 Speed display low-pass filter time

Address:	200A-5Bh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–100 ms

Description

Defines the low-pass filter time constant for displayed speed values.

H0A.91 Moving average filter time for torque display values

Address:	200A-5Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–100 ms

Description

Defines the moving average filter time constant for torque display values.

H0A.92 Moving average filter time for position display values

Address:	200A-5Dh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–100 ms

Description

Defines the moving average filter time constant for position display values.

H0A.93 Low-pass filter time for voltage display values

Address:	200A-5Eh	Effective	Real time
		mode:	
Min.:	0	Unit:	ms
Max.:	250	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–250 ms

Description

Defines the low-pass filter time constant for voltage display values.

H0A.94 Low-pass filter time for thermal display values

Address:	200A-5Fh	Effective	Real time
		mode:	
Min.:	0	Unit:	ms
Max.:	250	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 ms–250 ms

Description

Defines the filter time constant for thermal display values.

4.12 H0B Monitoring Parameters

H0b.00 Motor speed actual value

Address:	200b-01h	Effective	-
		mode:	
Min.:	-32767	Unit:	[mm/s]/[rpm]
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]

Description

Indicates the actual motor speed after round-off, which is accurate to 1 [mm/s]/[rpm].

You can set the filter time constant for H0b.00 through H0A.25 (speed display DO low-pass filter time).

H0b.01 Speed reference

Address:	200b-02h	Effective mode:	-
Min.:	-32767	Unit:	[mm/s]/[rpm]
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]

Description

Indicates the present speed reference (accurate to 1 [mm/s]/[rpm]) of the drive in the position and speed control modes.

H0b.02 Internal torque reference

Address:	200b-03h	Effective mode:	-
Min.:	-3276.7	Unit:	%
Max.:	3276.7	Data Type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

-3276.7% to 3276.7%

Description

Displays present torque reference (accurate to 0.1%). The value 100.0% corresponds to the rated torque of the motor.

H0b.03 Input (DI) signal monitoring

Address:	200b-04h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Displays the level status of 5 DI terminals without filtering.

Upper LED segments ON: high level (indicated by "1") Lower LED segments ON: low level (indicated by "0")

H0b.05 Output (DO) signal monitoring

Address:	200b-06h	Effective mode:	-
Min.:	0	Unit:	-

Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Displays the level status of 2 DO terminals without filtering.

Upper LED segments ON: high level (indicated by "1") Lower LED segments ON: low level (indicated by "0")

H0b.07 Absolute position counter

Address:	200b-08h	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Displays current absolute position of the motor (reference unit).

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

H0b.09 Mechanical angle

Address:	200b-0Ah	Effective mode:	-
Min.:	0.0	Unit:	°
Max.:	360.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0° to 360.0°

Description

Displays present mechanical angle (encoder unit) of the motor. The setpoint 0 indicates the mechanical angle is 0°.

Actual mechanical angle = $360^\circ \times \text{H0b.09} / (\text{Maximum value of H0b.09} + 1)$

Maximum value of H0b.09 for an absolute encoder is 65535.

H0b.10 Electrical angle

Address:	200b-0Bh	Effective mode:	-
Min.:	0.0	Unit:	°

Max.:	360.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0° to 360.0°

Description

Indicates the present electrical angle of the motor, which is accurate to 0.1°.

The electrical angle variation range is $\pm 360.0^\circ$ during rotation. If the motor has four pairs of poles, each revolution generates four rounds of angle change from 0° to 359°. Similarly, if the motor has five pairs of poles, each revolution generates five rounds of angle change from 0° to 359°.

H0b.12 Average load ratio

Address:	200b-0Dh	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	800.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0% to 800.0%

Description

Displays the percentage of the average load torque to the rated torque of the motor, which is accurate to 0.1%. The value 100.0% corresponds to the rated torque of the motor.

H0b.15 Position following error (encoder unit)

Address:	200b-10h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count and display the position deviation value after being divided or multiplied by the electronic gear ratio in the position control mode.

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

Note:

H0b.15 can be clear when the condition defined in H05.16 (Clear action) is met.

H0b.17 Feedback pulse counter

Address:	200b-12h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count the position pulses fed back by the encoder in any control mode. This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

H0b.19 Total power-on time

Address:	200b-14h	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	429496729.5	Data Type:	UInt32
Default:	0.0	Change:	Unchangeable

Value Range:

0.0s–429496729.5s

Description

Used to record the total operating time of the servo drive.

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

Note:

If the servo drive is switched on and off repeatedly within a short period of time, a deviation within 1h may be present in the total power-on time record.

H0b.21 Displayed AI1 voltage

Address:	200b-16h	Effective mode:	-
Min.:	-327.67	Unit:	V
Max.:	327.67	Data Type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

-327.67 V–327.67 V

Description

Displays the actual sampling voltage of AI1.

H0b.22 Displayed AI2 voltage

Address:	200b-17h	Effective	-
		mode:	
Min.:	-327.67	Unit:	V
Max.:	327.67	Data Type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

-327.67 V–327.67 V

Description

Displays the actual sampling voltage of AI2.

H0b.24 Phase current RMS value

Address:	200b-19h	Effective	-
		mode:	
Min.:	0.0	Unit:	A
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 A–6553.5 A

Description

Displays the RMS value of the phase current of the motor, accurate to 0.1 A.

H0b.25 Angle obtained upon voltage injection auto-tuning

Address:	200b-1Ah	Effective	-
		mode:	
Min.:	0.0	Unit:	°
Max.:	360.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0° to 360.0°

Description

Display the angle obtained upon voltage injection auto-tuning.

H0b.26 Bus voltage

Address:	200b-1Bh	Effective	-
		mode:	
Min.:	0.0	Unit:	V
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 V–6553.5 V

Description

Displays the DC bus voltage of the main circuit input voltage after rectification, which is accurate to 0.01 V.

H0b.27 Module temperature

Address:	200b-1Ch	Effective	-
		mode:	
Min.:	-20	Unit:	°C
Max.:	200	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-20°C–200°C

Description

Indicates the temperature of the module inside the servo drive, which can be used as a reference for estimating the actual temperature of the drive.

H0b.28 Absolute encoder fault information given by FPGA

Address:	200b-1Dh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the absolute encoder fault information given by FPGA.

H0b.29 Axis status information given by FPGA

Address:	200b-1Eh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display axis status information given by FPGA.

H0b.30 Axis fault information given by FPGA

Address:	200b-1Fh	Effective	-
		mode:	

Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display axis fault information given by FPGA.

H0b.31 Encoder fault information

Address:	200b-20h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display encoder internal fault information.

H0b.33 Fault log

Address:	200b-22h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	19	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Present fault
- 1: Last fault
- 2: 2nd to last fault
- 3: 3rd to last fault
- 4: 4th to last fault
- 5: 5th to last fault 6: 6th to last fault
- 7: 7th to last fault
- 8: 8th to last fault
- 9: 9th to last fault
- 10: 10th to last fault
- 11: 11th to last fault
- 12: 12th to last fault
- 13: 13th to last fault
- 14: 14th to last fault
- 15: 15th to last fault
- 16: 16th to last fault
- 17: 17th to last fault
- 18: 18th to last fault
- 19: 19th to last fault

Description

Used to view the latest 20 faults of the drive.

- 0: Present fault
- 1: Last fault
- 2: 2nd to last fault
- 3: 3rd to last fault
- 4: 4th to last fault
- 5: 5th to last fault 6: 6th to last fault
- 7: 7th to last fault
- 8: 8th to last fault
- 9: 9th to last fault
- 10: 10th to last fault
- 11: 11th to last fault
- 12: 12th to last fault
- 13: 13th to last fault
- 14: 14th to last fault
- 15: 15th to last fault
- 16: 16th to last fault
- 17: 17th to last fault
- 18: 18th to last fault
- 19: 19th to last fault

H0b.34 Fault code of the selected fault

Address:	200b-23h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the fault code of the selected fault.

H0b.35 Timestamp of the selected fault

Address:	200b-24h	Effective	-
		mode:	
Min.:	0.0	Unit:	s
Max.:	429496729.5	Data Type:	UInt32
Default:	0.0	Change:	Unchangeable

Value Range:

0.0s–429496729.5s

Description

Display timestamp of the selected fault.

H0b.37 Motor speed upon occurrence of the selected fault

Address:	200b-26h	Effective	-
		mode:	
Min.:	-32767	Unit:	[mm/s]/[rpm]
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32767[mm/s]/[rpm]–32767[mm/s]/[rpm]

Description

Display motor speed upon occurrence of the selected fault.

H0b.38 Motor phase U current upon occurrence of the selected fault

Address:	200b-27h	Effective	-
		mode:	
Min.:	-3276.7	Unit:	A
Max.:	3276.7	Data Type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

-3276.7 A–3276.7 A

Description

Display the motor phase U current upon occurrence of the selected fault.

H0b.39 Motor phase V current upon occurrence of the selected fault

Address:	200b-28h	Effective	-
		mode:	
Min.:	-3276.7	Unit:	A
Max.:	3276.7	Data Type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

-3276.7 A–3276.7 A

Description

Display the motor phase V current upon occurrence of the selected fault.

H0b.40 Bus voltage upon occurrence of the selected fault

Address:	200b-29h	Effective	-
		mode:	
Min.:	0.0	Unit:	V
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 V–6553.5 V

Description

Display the bus voltage upon occurrence of the selected fault.

H0b.41 Input terminal state on selected fault

Address:	200b-2Ah	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display input terminal state on selected fault.

H0b.43 Output terminal status upon occurrence of the selected fault

Address:	200b-2Ch	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Default: 0

Change: Unchangeable

Value Range:

0–65535

Description

Display output terminal status upon occurrence of the selected fault.

H0b.45 Internal fault code

Address: 200b-2Eh

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the internal fault code.

H0b.46 Absolute encoder fault information given by FPGA upon occurrence of the selected fault

Address: 200b-2Fh

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the absolute encoder fault information given by FPGA upon occurrence of the selected fault.

H0b.47 System status information given by FPGA upon occurrence of the selected fault

Address: 200b-30h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the system status information given by FPGA upon occurrence of the selected fault.

H0b.48 System fault information given by FPGA upon occurrence of the selected fault

Address:	200b-31h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the system fault information given by FPGA upon occurrence of the selected fault.

H0b.49 Encoder fault information upon occurrence of the selected fault

Address:	200b-32h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the encoder fault information upon occurrence of the selected fault.

H0b.51 Internal fault code upon occurrence of the selected fault

Address:	200b-34h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display internal fault code upon occurrence of the selected fault.

H0b.52 FPGA timeout fault standard bit upon occurrence of the selected fault

Address:	200b-35h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the FPGA timeout fault standard bit upon occurrence of the selected fault.

H0b.53 Position following error (reference unit)

Address:	200b-36h	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position deviation value which has not been divided or multiplied by the electronic gear ratio in the position control mode.

Position deviation (reference unit) is the value obtained after encoder position deviation calculation. The precision is compromised during division.

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

H0b.55 Actual motor speed 2

Address:	200b-38h	Effective mode:	-
Min.:	-214748364.8	Unit:	[mm/s]/[rpm]
Max.:	214748364.7	Data Type:	Int32
Default:	0.0	Change:	Unchangeable

Value Range:

-214748364.8[mm/s]/[rpm]–214748364.7[mm/s]/[rpm]

Description

Displays the actual motor speed, accurate to 0.1 [mm/s]/[rpm].

This parameter is a 32-bit integer, which is displayed as a decimal on the keypad.

H0A.25 (Filter time constant of speed feedback display) can be used to set the filter time constant of the speed feedback.

H0b.57 Control circuit bus voltage

Address:	200b-3Ah	Effective mode:	-
Min.:	0.0	Unit:	V
Max.:	6553.5	Data Type:	UInt16

- 0: Normal
- 1: Control circuit error
- 2: Main circuit power input error
- 3: Bus undervoltage
- 4: Soft start failed
- 5: Encoder initialization undone
- 6: Short circuit to ground failed
- 7: Others
- 9: Fully closed-loop encoder initialization not completed

Description

Displays the reason for the NRD state.

- 0: Normal
- 1: Control circuit error
- 2: Main circuit power input error
- 3: Bus undervoltage
- 4: Soft start failed
- 5: Encoder initialization undone
- 6: Short circuit to ground failed
- 7: Others
- 9: Fully closed-loop encoder initialization not completed

H0b.66 Encoder temperature

Address:	200b-43h	Effective	-
		mode:	
Min.:	-32768	Unit:	°C
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32768°C–32767°C

Description

Indicates the encoder temperature value.

H0b.67 Load rate of braking resistor

Address:	200b-44h	Effective	-
		mode:	
Min.:	0.0	Unit:	%
Max.:	200.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0% to 200.0%

Description

Display load rate of the braking resistor.

H0b.70 Number of absolute encoder revolutions

Address:	200b-47h	Effective	-
		mode:	
Min.:	-32768	Unit:	Rev
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32768Rev to 32767Rev

Description

Indicates the number of revolutions of the absolute encoder.

H0b.71 Single-turn position fed back by the absolute encoder

Address:	200b-48h	Effective	-
		mode:	
Min.:	0	Unit:	Encoder unit
Max.:	2147483647	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0 to 2147483647

Description

Displays the position feedback of the absolute encoder within one turn.

H0b.74 System fault information given by FPGA

Address:	200b-4Bh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display system fault information given by FPGA.

H0b.77 Encoder position (low 32 bits)

Address:	200b-4Eh	Effective	-
		mode:	
Min.:	0	Unit:	Encoder unit

Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0 to 4294967295

Description

Displays the low 32-bit value of the position feedback of the absolute encoder.

H0b.79 Encoder position (high 32 bits)

Address:	200b-50h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Displays the high 32-bit value of the position feedback of the absolute encoder.

H0b.81 Single-turn position of the rotary load (low 32 bits)

Address:	200b-52h	Effective mode:	-
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0 to 4294967295

Description

Displays the low 32-bit value of the position feedback of the rotary load when the absolute system works in the rotation mode.

H0b.83 Single-turn position of the rotary load (high 32 bits)

Address:	200b-54h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Displays the high 32-bit value of the position feedback of the rotary load when the absolute system works the rotation mode.

H0b.85 Single-turn position of the rotary load (reference unit)

Address:	200b-56h	Effective	-
		mode:	
Min.:	0	Unit:	Reference unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0 to 4294967295

Description

Displays the high 32-bit value of the position feedback of the rotary load when the absolute system works the rotation mode.

H0b.87 IGBT junction temperature

Address:	200b-58h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	200	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–200

Description

Display IGBT junction temperature.

H0b.90 Group No. of the abnormal parameter

Address:	200b-5Bh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Set the group number of the abnormal parameter.

H0b.91 Offset within the group of the abnormal parameter

Address:	200b-5Ch	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display offset within the group of the abnormal parameter.

H0b.92**Hall state**

Address: 200b-5Dh

Effective -

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: Unchangeable

Value Range:

0–65535

Description

Display Hall state.

H0b.93**Closed loop state**

Address: 200b-5Eh

Effective -

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: Unchangeable

Value Range:

0: Half closed loop

1: Fully closed loop

Description

Displays the closed loop state in position control mode.

0: Half closed loop

1: Fully closed loop

H0b.94**Individual power-on time**

Address: 200b-5Fh

Effective -

mode:

Min.: 0.0

Unit: s

Max.: 429496729.5

Data Type: UInt32

Default: 0.0

Change: Unchangeable

Value Range:

0.0s–429496729.5s

Description

Display the individual power-on time of the drive.

H0b.96 Individual power-on time upon occurrence of the selected fault

Address:	200b-61h	Effective	-
		mode:	
Min.:	0.0	Unit:	s
Max.:	429496729.5	Data Type:	UInt32
Default:	0.0	Change:	Unchangeable

Value Range:

0.0s–429496729.5s

Description

Display the individual power-on time upon occurrence of the selected fault.

H0b.98 Dynamic braking resistor load rate

Address:	200b-63h	Effective	-
		mode:	
Min.:	0.0	Unit:	%
Max.:	200.0	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0% to 200.0%

Description

Display dynamic braking resistor load rate.

4.13 H0C Fault and Protection Parameters 2**H0C.53 Probe DI ON compensation time 2**

Address:	200C-36h	Effective	Real time
		mode:	
Min.:	-3000	Unit:	25ns
Max.:	3000	Data Type:	Int16
Default:	200	Change:	Real-time

Value Range:

-3000 ns–3000 ns

DescriptionUsed to compensate for the action time when touch probe 2 is switched on.
(Effective when H0A_40 bit4 = 1)**H0C.54 Probe DI OFF compensation time 2**

Address:	200C-37h	Effective	Real time
		mode:	
Min.:	-3000	Unit:	25ns
Max.:	3000	Data Type:	Int16

Default:	1512	Change:	Real-time
Value Range:			
-3000 ns–3000 ns			
Description			
Used to compensate for the action time when touch probe 2 is switched off. (Effective when H0A_40 bit4 = 1)			

H0C.71 Internal function switch 2

Address:	200C-48h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	512	Change:	Real-time
Value Range:			
0–65535			
Description			
bit9: FPGA encoder feedback overspeed point hide switch			

4.14 H0D Auxiliary Parameters

H0d.00 Software Reset

Address:	200d-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop
Value Range:			
0: No operation			
1: Enable			
Description			
0: No operation			
1: Enabled			

Programs in the drive are reset automatically (similar to the program reset upon power-on) after the software reset function is enabled, without the need for a power cycle.

H0d.01 Fault Reset

Address:	200d-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0

Change: At stop

Value Range:

0: No operation

1: Enable

Description

0: No operation

1: Enable

Resettable faults of Level 1 and level 2 can be reset only when the servo drive is not in running state after the fault causes are eliminated. Then, the servo drive do not display the faults and enters the "rdy" state.

When a No. 3 alarm occurs, you can enable the fault reset function directly, regardless of the servo drive status.

H0d.02 Inertia auto-tuning enable

Address: 200d-03h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0–65

Description

Used to enable offline inertia auto-tuning through the keypad. In the parameter display mode, switch to H0d.02 and press the SET key to enable offline inertia auto-tuning.

H0d.04 Read/write in encoder ROM

Address: 200d-05h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 3

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0: No operation

1: Write ROM

2: Read ROM

3: ROM failure

Description

For Inovance encoders, the USB and control circuit need to be disconnected after writing in ROM to activate parameters. Also ensure that the drive is powered on during parameter writing.

- 0: No operation
- 1: Write ROM
- 2: Read ROM
- 3: ROM failure

H0d.05 Emergency stop

Address:	200d-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: No operation
- 1: Emergency stop

Description

Trigger emergency stop.

The emergency stop mode corresponding to H0D.05 is defined by H02.05 or 605C.

H0d.06 Current loop auto-tuning test

Address:	200d-07h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	6	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: No operation
- 1: Enable current loop auto-tuning
- 2: Enable current loop step test (static)
- 3: Enable current loop step test

Description

- 0: No operation
- 1: Enable current loop auto-tuning
- 2: Enable current loop step test (static)
- 3: Enable current loop step test

H0d.10 Analog channel auto adjusting

Address:	200d-0Bh	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Adjusted through AI1

2: Adjusted through AI2

Description

When automatic adjustment of the analog channel is enabled, the drive automatically corrects the zero drift voltage of the analog channel to improve signal detection accuracy.

0: No operation

1: Adjusted through AI1

2: Adjusted through AI2

H0d.12 Phase U/V current balance correction

Address:	200d-0Dh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Enable/disable phase U/V current balance correction.

0: Disabled

1: Enabled

H0d.17 Forced DI/DO enable switch

Address:	200d-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Forced DI enable switch

0: Disabled

1: Enabled

bit1: Forced DO enable switch

0: Disabled

1: Enabled

Description

Forced DI/DO selection.

Bit0: Forced DI enable switch

0: Disabled

1: Enabled

Bit1: Forced DO enable switch

0: Disabled

1: Enabled

H0d.18

Forced DI value

Address:	200d-13h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x1F	Data Type:	UInt16
Default:	0x1F	Change:	Real-time

Value Range:

0x0 to 0x1F

Description

Defines whether the DI functions set in group H03 is active when forced DI is activated (H0d.17 = 1 or 3).

The value of H0d.18 is displayed as a hexadecimal on the keypad. When it is converted to a binary value, "bit(n) = 1" indicates the level logic of DI function is high level; "bit(n) = 0" indicates the level logic of the DI function is low level.

H0d.19

Forced DO value

Address:	200d-14h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0x3	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0x3

Description

Defines whether the DO functions assigned in group H04 are active when forced DO is active (H0d.17 = 2 or 3).

The value of H0d.19 is displayed as a hexadecimal on the keypad. When it is converted to a binary value, "bit(n) = 1" indicates the DO function is active; "bit(n) = 0" indicates the DO function is inactive.

H0d.20

Absolute encoder reset

Address:	200d-15h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Reset fault

2: Reset fault and multi-turn data

3: Reset Inovance 2nd encoder fault

4: Reset Inovance 2nd encoder fault and multi-turn data

Description

You can reset the encoder error or the multi-turn data fed back by the encoder by setting H0d.20.

0: No operation

1: Reset fault

2: Reset fault and multi-turn data

3: Reset Inovance 2nd encoder fault

4: Reset Inovance 2nd encoder fault and multi-turn data

H0d.21 Read error status bit of Nikon and EnDat2.2 encoders

Address:	200d-16h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Reading error status bit

Description

Used to read the error status bit of Nikon encoder and EnDat2.2 encoder.

0: No operation

1: Reading error status bit

H0d.29 Motor parameter auto-tuning

Address:	200d-1Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Enabled

Description

Resistor inductance auto-tuning.

0: No operation

1: Enabled

4.15 H0E Communication Function Parameters

H0E.00 Node address

Address:	200E-01h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	127	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–127

Description

CAN Indicates the slave node address. Ensure this parameter is consistent with the configuration of the host controller.

H0E.01 Save objects written through communication to EEPROM

Address:	200E-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	255	Data Type:	UInt16
Default:	4	Change:	Real-time

Value Range:

0: Not save

1: Save parameters

2: Save object dictionaries

3: Save parameters and object dictionaries

4: Save object dictionaries written before communication (OP)

255: Determine through H0E03 and H0E04

Description

You can use this parameter to select a data saving operation when parameters and object dictionaries are written through a serial port or SDO.

0: Not save

1: Save parameters

2: Save object dictionaries

3: Save parameters and object dictionaries

4: Save object dictionaries written before communication (OP)

255: Determine through H0E03 and H0E04

H0E.03 Save objects written through software (commissioning protocol) to EEPROM

Address:	200E-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Do not save

1: Save

Description

Saves objects written through software (commissioning protocol) to EEPROM, including the parameter and object dictionary.

0: Do not save

1: Save

H0E.04 Save objects written through communication to EEPROM (excluding commissioning protocol)

Address:	200E-05h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Do not save

1: Save

Description

You can use this parameter to determine whether to save communication written data in EEPROM (excluding commissioning protocol) (CANOpen, CANLink, Ethernet COE, ModBus485). The data include the function code and object dictionary

0: Do not save

1: Save

H0E.07 Object dictionary unit selection

Address:	200E-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Reference unit system (p/s, p/s²)

1: User unit system (0.01 [mm/s]/[rpm], ms)

Description

Servo unit system switching:

0: Use reference unit system. The speed type dictionary unit is p/s, and the acceleration type object dictionary is p/s^2 .

1: User unit system, 0.01 [mm/s]/[rpm] for speed type object dictionaries and ms (time taken for changing from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm]) for acceleration type object dictionaries.

H0E.20

EtherCAT slave name

Address:	200E-15h	Effective	-
Min.:	0	mode:	
Max.:	65535	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	Unchangeable

Value Range:

0–65535

Description

Set EtherCAT slave name.

H0E.21

EtherCAT slave alias

Address:	200E-16h	Effective	Upon the next power-on
Min.:	0	mode:	
Max.:	65535	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	At stop

Value Range:

0–65535

Description

Set EtherCAT slave alias.

H0E.22

Number of synchronous loss events allowed by EtherCAT

Address:	200E-17h	Effective	Real time
Min.:	1	mode:	
Max.:	20	Unit:	-
Default:	8	Data Type:	UInt16
		Change:	Real-time

Value Range:

1–20

Description

Set the number of synchronous loss events allowed by EtherCAT.

H0E.24 Sync loss count

Address:	200E-19h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Set Synchronization loss count.

H0E.25 Max. error value and invalid frames of EtherCAT port 0 per unit time

Address:	200E-1Ah	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Indicates the maximum error value and invalid frames of EtherCAT port 0 per unit time.

H0E.26 Max. error value and invalid frames of EtherCAT port 1 per unit time

Address:	200E-1Bh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Indicates the maximum error value and invalid frames of EtherCAT port 1 per unit time.

H0E.27 Max. transfer error of EtherCAT port per unit time

Address:	200E-1Ch	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Indicates the maximum EtherCAT port forwarding errors per unit time.

H0E.28 Max. EtherCAT data frame processing unit error per unit time

Address:	200E-1Dh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFF

Description

Indicates the maximum EtherCAT data frame processing unit errors per unit time.

H0E.29 Max. link loss value of EtherCAT port 0 per unit time

Address:	200E-1Eh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Indicates the maximum EtherCAT port 0 link losses per unit time.

H0E.31 EtherCAT synchronization mode setting

Address:	200E-20h	Effective	Upon the next power-on
		mode:	
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0-3

Description

Set EtherCAT synchronization mode setting.

H0E.32 EtherCAT synchronization error threshold

Address:	200E-21h	Effective	Real time
		mode:	

Min.:	100	Unit:	ns
Max.:	8000	Data Type:	UInt16
Default:	4000	Change:	At stop

Value Range:

100 ns–8000 ns

Description

Set EtherCAT synchronization error threshold.

H0E.33 EtherCAT state machine status and port connection status

Address:	200E-22h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Set the EtherCAT state machine status and port connection status.

H0E.34 Excessive CSP position command increment count

Address:	200E-23h	Effective	Real time
		mode:	
Min.:	1	Unit:	-
Max.:	30	Data Type:	UInt16
Default:	20	Change:	Real-time

Value Range:

1–30

Description

Set the excessive CSP position command increment count.

H0E.35 AL fault code

Address:	200E-24h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Displays the AL fault subcode.

H0E.36 EtherCAT enhanced link enable

Address:	200E-25h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

EtherCAT enhanced link enable

0: Disabled

1: Enabled

H0E.37 EtherCAT XML reset selection

Address:	200E-26h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

EtherCAT XML reset selection

0: Disabled

1: Enabled

H0E.73 EtherCAT port control mode and status display

Address:	200E-4Ah	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

EtherCAT port control mode and status display

H0E.80 Modbus baud rate

Address:	200E-51h	Effective mode:	Real time

Min.: 0
 Max.: 9
 Default: 9

Unit: -
 Data Type: UInt16
 Change: Real-time

Value Range:

0: 300 bps
 1: 600 bps
 2: 1200 bps
 3: 2400 bps
 4: 4800 bps
 5: 9600 bps
 6: 19200 bps
 7: 38400 bps
 8: 57600 bps
 9: 115200 bps

Description

Defines the communication rate between the servo drive and the host controller. The baud rate set in the servo drive must be the same as that in the host controller. Otherwise, communication will fail.

0: 300 bps
 1: 600 bps
 2: 1200 bps
 3: 2400 bps
 4: 4800 bps
 5: 9600 bps
 6: 19200 bps
 7: 38400 bps
 8: 57600 bps
 9: 115200 bps

H0E.81 Modbus data format

Address: 200E-52h

Effective mode: Real time

Min.: 0
 Max.: 3
 Default: 3

Unit: -
 Data Type: UInt16
 Change: Real-time

Value Range:

0: No parity, 2 stop bits (N-2)
 1: Even parity, 1 stop bit (E-1)
 2: Odd parity, 1 stop bit (O-1)
 3: No parity, 1 stop bit (N-1)

Description

Defines the data check mode between the servo drive and the host controller during communication.

0: No parity, 2 stop bits

1: Even parity, 1 stop bit

2: Odd parity, 1 stop bit

3: No parity, 1 stop bit

The data format of the servo drive must be the same as that of the host controller. Otherwise, communication will fail.

H0E.82 Modbus response delay

Address:	200E-53h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	20	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–20 ms

Description

Defines the delay from the moment when the slave receives a command from the host controller to the moment when the slave returns a response.

H0E.83 Modbus communication timeout

Address:	200E-54h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	600	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–600 ms

Description

Set the Modbus communication timeout.

H0E.84 Sequence of Modbus communication data bits

Address:	200E-55h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: High bits before low bits

1: Low bits before high bits

Description

Defines the 32-bit data transmission format of Modbus communication.

0: High 16 bits before low 16 bits

1: Low 16 bits before high 16 bits

H0E.90**Communication version**

Address: 200E-5Bh

Effective -

mode:

Min.: 0.00

Unit: -

Max.: 655.35

Data Type: UInt16

Default: 0.00

Change: Unchangeable

Value Range:

0.00–655.35

Description

Display the communication version.

H0E.96**XML version information**

Address: 200E-61h

Effective -

mode:

Min.: 0.00

Unit: -

Max.: 655.35

Data Type: UInt16

Default: 0.00

Change: Unchangeable

Value Range:

0.00–655.35

Description

Display XML version information.

4.16 H0F Fully Closed-Loop**H0F.00****Encoder feedback mode**

Address: 200F-01h

Effective Upon the next power-on

mode:

Min.: 0

Unit: -

Max.: 2

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Internal encoder feedback

1: External encoder feedback

2: Inner/Outer loop switchover

Description

Defines the encoder feedback signal source in fully closed-loop control.

0: Internal encoder feedback. The position feedback signals come from the motor encoder.

1: External encoder feedback. The position feedback signals come from the fully closed-loop external encoder and electronic gear ratio 1 is used.

2: Inner/Outer loop switchover: The DI assigned with FunIN.24 (GEAR_SEL, electronic gear ratio switchover) is switch between inner and outer position closed loops.

DI function disabled: internal encoder feedback and electronic gear ratio 1 are used.

DI function enabled: external encoder feedback and electronic gear ratio 2 are used.

H0F.01 Fully closed-loop encoder application mode

Address:	200F-02h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Standard operating direction

1: Reverse operating direction

Description

Defines the feedback pulse counting direction of internal and external encoders when the motor rotates in the fully closed-loop mode.

0: Standard operating direction: The pulse feedback counter of the internal encoder (H0F.18) is in the same direction as that of the external encoder (H0F.20) during rotation of the motor.

1: Reverse operating direction: The pulse feedback counter of the internal encoder (H0F.18) is in the opposite direction as that of the external encoder (H0F.20) during rotation of the motor.

H0F.02 Fully closed-loop encoder absolute value

Address:	200F-03h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Incremental mode

1: Absolute linear mode

Description

Set fully closed-loop encoder absolute value

0: Incremental mode

1: Absolute linear mode

H0F.03 Fully closed-loop encoder feedback type

Address:	200F-04h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Quadrature pulse

1: Inovance

2: BiSS-C

3: EnDat2.2

4: SSI

Description

Set the fully closed-loop encoder feedback type

0: Quadrature pulse

1: Inovance

2: BiSS-C

3: EnDat2.2

4: SSI

H0F.04 Number of fully closed-loop encoder pulses per revolution

Address:	200F-05h	Effective mode:	Upon the next power-on
Min.:	1	Unit:	-
Max.:	2147483647	Data Type:	UInt32
Default:	10000	Change:	At stop

Value Range:

1–2147483647

Description

Defines the pulses fed back by the external encoder per revolution of the motor.

It defines the quantity relation between feedback pulses from the external encoder and those from the internal encoder.

Calculate the value of this parameter through analyzing mechanical parameters. When rigid connection is applied between the motor and the external encoder (scale), you can also set this parameter using the following method:

1: Manually rotate the motor and observe H0F.18 (Feedback pulse counter of internal encoder) in the meantime. After ensuring that the motor has rotated for a full turn ($H0F.18 = \text{Motor resolution}$), calculate the change of H0F.20 (Feedback pulse counter of external encoder) and use the absolute value of the change as the value of H0F.04.

2: Assume values of H0F.18 and H0F.20 are X1 and Y1 before the motor rotates and X2 and Y2 after the motor rotates, then the following formula applies:
 $H0F.04 = \text{Motor resolution} \times (Y2 - Y1) / (X2 - X1)$ The calculated result must be positive; if not, perform step 1 again.

For non-rigid connection, an error may exist in the calculation result.

Note:

Ensure H0F.04 is set properly. Otherwise, EB02.0 (Position deviation too large in fully closed loop) may occur after the drive operates.

H0F.06 Fully closed-loop encoder interface

Address:	200F-07h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: CN2

1: CN7

Description

Used to set the drive interface used by the fully closed-loop encoder.

0: CN2

1: CN7

H0F.08 Excessive deviation threshold in compound control mode

Address:	200F-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2147483647	Data Type:	UInt32
Default:	1000	Change:	Real-time

Value Range:

0–2147483647

Description

Defines the position deviation threshold at which the servo drive reports EB02.0 (Position deviation too large in fully closed-loop mode).

When H0F.08 is set to 0, the drive does not detect EB02.0 and always clears the fully closed-loop position deviation.

H0F.10 Clear deviation in compound control mode

Address:	200F-0Bh	Effective mode:	Real time
Min.:	0	Unit:	Rev
Max.:	100	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0 Rev to 100 Rev

Description

Defines the number of revolutions rotated by the motor per a clear of the fully closed-loop position deviation during operation. The number of revolutions is reflected by H0F.18 (Feedback pulse counter of internal encoder). The number of motor revolutions will not be cleared when the drive is not in the operational state.

H0F.13 Compound vibration suppression filter time

Address:	200F-0Eh	Effective mode:	Real time
Min.:	0.0	Unit:	ms
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0 ms–6553.5 ms

Description

Defines the time constant for compound vibration suppression in fully closed-loop control when external encoder feedback (H0F.00 = 1 or 2) is used.

Increase the setpoint gradually and check the response change.

When the stiffness of the transmission mechanism between fully closed loop and internal loop is insufficient, set H0F.13 properly to improve system stability, which is to generate the effect of internal loop temporarily and form a fully closed loop again after the system is stabilized. When the stiffness is sufficient, there is no need to adjust this parameter.

H0F.16 Pulse deviation display in compound control mode

Address:	200F-11h	Effective mode:	-
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count and display the position deviation absolute value in fully closed loop control.

Pulse deviation in compound control = Absolute position feedback of external encoder - Absolute position feedback conversion value of internal encoder.

The alignment of inner and outer loop feedbacks is performed each time the deviation is cleared.

H0F.18 Internal position pulse feedback display

Address:	200F-13h	Effective	-
		mode:	
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count and display the number of feedback pulses of the internal encoder (after being divided or multiplied by electronic gear ratio, in internal encoder unit).

H0F.20 Fully closed-loop encoder position pulse feedback display

Address:	200F-15h	Effective	-
		mode:	
Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Used to count and display the number of feedback pulses of the external encoder (after being divided or multiplied by electronic gear ratio, in external encoder unit).

H0F.22 Quadrature pulse phase Z detection invalid in fully closed-loop mode

Address:	200F-17h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Detected

1: Not detected

Description

Quadrature pulse phase Z detection in fully closed-loop mode

0: Detected

1: Not detected

H0F.23 BiSS-C/SSI/EDNAT2.2 fully closed-loop encoder absolute homing offset

Address:	200F-18h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

The homing offset is automatically updated after homing is completed, and is automatically aligned with H05.36. It is only necessary to write this value manually when you replace the drive. When the full closed-loop encoder is in absolute linear mode, the power-on initial position = Encoder position feedback original value + Homing offset – Absolute feedback offset

H0F.25 Set the source of touch probe Z signal in fully closed-loop mode.

Address:	200F-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Motor Z signal

1: External feedback Z signal

Description

Set the source of touch probe Z signal in fully closed-loop mode.

0: Motor Z signal

1: External feedback Z signal

H0F.26 BiSS-C/SSI/EDNAT2.2 fully closed-loop encoder absolute feedback offset

Address:	200F-1Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

When the full closed-loop encoder is in absolute linear mode, the absolute feedback offset is updated after homing is completed. It is only necessary to write this value manually when you replace the drive.

H0F.28 Index value of BiSS-C/SSI communication alarm

Address:	200F-1Dh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Set the index value of BiSS-C/SSI communication alarm.

H0F.29 CRC of BiSS-C/SSI fully closed-loop encoder feedback

Address:	200F-1Eh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: Positive

1: Negative

Description

Set the CRC of BiSS-C/SSI fully closed-loop encoder feedback.

0: Positive

1: Negative

H0F.30 BiSS-C/SSI/EDNAT2.2 valid bits of encoder communication position feedback in full closed-loop mode

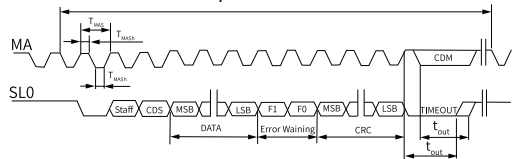
Address:	200F-1Fh	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	127	Data Type:	UInt16
Default:	29	Change:	At stop

Value Range:

0–127

Description

Set the BiSS-C/SSL/EDNAT2.2 valid bits of encoder communication position feedback in full closed-loop mode.



- DATA: position data CRC: 6-bit CRC code
- $100\text{ns} \leq T_{\text{MAS}} \leq 2t_{\text{out}}$ $25\text{ns} \leq T_{\text{MASh}} \leq t_{\text{out}}$ $25\text{ns} \leq T_{\text{MASl}} \leq t_{\text{out}}$
- $t_{\text{out}} = 1.5 \text{MA}$ clock period
- MA : master clock output; SLO : slave data output transmission speed up to 10 Mbps.
- CDM: register communication master transmit bit; CDS: register communication slave return bit
- Error Warning: error and warning bits index (F1 low level indicates an error, F0 low level indicates an alarm)
- Scale input and output complies with RS-422A. The differential line drive and line receiver are required.
- CRC generator polynomial: $X^6 + X^1 + 1$, initial value 0, range "DATA", "Error Warning".
In the figure, $\overline{\text{MA}}$ $\overline{\text{SLO}}$ are not shown.

H0F.30 is the valid bits of position feedback. For details, see the user manual of any third-party BiSS-C encoder.

H0F.31

Valid bit of BiSS-C/SSL encoder communication alarm index in full closed-loop mode

Address: 200F-20h

Effective Upon the next power-on mode:

Min.: 0

Unit: -

Max.: 31

Data Type: UInt16

Default: 2

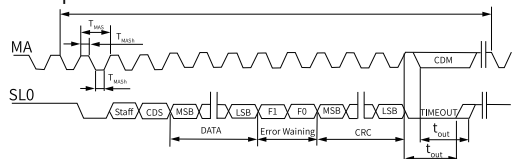
Change: At stop

Value Range:

0–31

Description

Set the valid bit of BiSS-C/SSL encoder communication alarm index in full closed-loop mode.



- DATA: position data CRC: 6-bit CRC code
- $100\text{ns} \leq T_{\text{MAS}} \leq 2t_{\text{out}}$ $25\text{ns} \leq T_{\text{MASh}} \leq t_{\text{out}}$ $25\text{ns} \leq T_{\text{MASl}} \leq t_{\text{out}}$
- $t_{\text{out}} = 1.5 \text{MA}$ clock period
- MA : master clock output; SLO : slave data output transmission speed up to 10 Mbps.
- CDM: register communication master transmit bit; CDS: register communication slave return bit
- Error Warning: error and warning bits index (F1 low level indicates an error, F0 low level indicates an alarm)
- Scale input and output complies with RS-422A. The differential line drive and line receiver are required.
- CRC generator polynomial: $X^6 + X^1 + 1$, initial value 0, range "DATA", "Error Warning".
In the figure, $\overline{\text{MA}}$ $\overline{\text{SLO}}$ are not shown.

H0F.31: Error alarm set bit, error and alarm bit index. Its value is the difference between DATA and CRC.

H0F.32 BiSS-C/SSI/ENDAT encoder communication frequency in fully closed-loop mode

Address:	200F-21h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	kHz
Max.:	10000	Data Type:	UInt16
Default:	2000	Change:	Real-time

Value Range:

0 kHz–10000 kHz

Description

Set the BiSS-C/SSI/ENDAT encoder communication frequency in fully closed-loop mode.

H0F.33 SSI/ENDAT encoder recovery time in fully closed-loop mode

Address:	200F-22h	Effective mode:	Upon the next power-on
Min.:	0.000	Unit:	μs
Max.:	40.000	Data Type:	UInt16
Default:	0.500	Change:	Real-time

Value Range:

0.000μs to 40.000μs

Description

Set the SSI/ENDAT encoder recovery time in fully closed-loop mode.

H0F.35 BiSS-C error detection enable in fully closed-loop mode

Address:	200F-24h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Detection on error bits of BiSS-C protocol by FPGA software.

0: Disabled

1: Enabled

H0F.36 BiSS-C error bit polarity in fully closed-loop mode

Address:	200F-25h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-

Max.: 1 Data Type: UInt16
 Default: 0 Change: At stop

Value Range:

0: Positive

1: Negative

Description

BiSS-C error bit polarity

0: Positive

1: Negative

H0F.40 Fully closed-loop communication encoder fault info

Address: 200F-29h Effective -
 mode:
 Min.: 0 Unit: -
 Max.: 65535 Data Type: UInt16
 Default: 0 Change: Unchangeable

Value Range:

0–65535

Description

Display fault information of the fully closed-loop communication encoder.

Table 4–1 Inovance encoder

bit	Name
0	Full closed-loop serial encoder communication timeout (RX side) ^[1]
1	Full closed-loop serial encoder frame stop bit error (RX side)
2	Full closed-loop serial encoder CRC error (RX side) ^[2]
3	Full closed-loop serial encoder data field error (RX side)
4	Full closed-loop serial encoder position count error (TX side) ^[1]
5	Full closed-loop serial encoder frame overspeed (TX side)
6	Full closed-loop serial encoder over-temperature (TX side)
7	Full closed-loop serial encoder single-turn count error (TX side)
8	Full closed-loop serial encoder multi-turn count error (TX side)
9	Full closed-loop serial encoder battery alarm (TX side)
10	Full closed-loop serial encoder battery failure (TX side)
11–12	Undefined
13 ^[3]	Full closed-loop serial encoder count increment error (algorithm) ^[1]
14–15	Undefined
16–23	Full closed-loop serial encoder expansion data 1
24–31	Full closed-loop serial encoder expansion data 2

Table 4-2 EnDat encoder

bit	Name
0	EnDat encoder communication timeout (RX side)
1	EnDat level 1 fault (RX side)
2	EnDat encoder CRC error (RX side) ^[2]
3	EnDat level 2 fault (RX side)
4	EnDat fault information 1 (TX side)
5	EnDat fault information 2 (TX side)
6-8	Undefined
9	EnDat additional data 1 CRC error
10	EnDat additional data 2 CRC error
11-12	Undefined
13 ^[3]	Full closed-loop serial encoder count increment error (algorithm)
14	EnDat level 3 fault (RX side)
15	EnDat level 3 fault (RX side)
16-23	Full closed-loop serial encoder expansion data 1
24-31	Full closed-loop serial encoder expansion data 2

Table 4-3 BiSS-C and SSI encoders

bit	Name
0	Full closed-loop serial encoder communication timeout (RX side)
1	Undefined
2	Full closed-loop serial encoder CRC error (RX side) ^[2]
3-10	Undefined
7	Full closed-loop serial encoder single-turn count error (TX side)
11-12	Undefined
13 ^[3]	Full closed-loop serial encoder count increment error (algorithm)
14-15	Undefined
16 to 23 ^[4]	Full closed-loop serial encoder expansion data 1
24 to 31 ^[4]	Full closed-loop serial encoder expansion data 2

Note

[1]: In the above table, the RX side refers to the drive and the TX side refers to the motor encoder. The algorithm refers to the type of the indirect error caused by a direct error on the RX or TX side.

[2]: When a BiSS-C encoder is used: 1-CRC error; 0-CRC is normal. When an SSI encoder is used: 1-Parity error; 0-Parity is normal.

[3]: When H0A.50 or more data transmission errors occur continuously, bit13 will be set to 1 and the drive must be stopped. For other error types, you can stop the drive as needed.

[4]: Full closed-loop serial encoder extended data 1/2 (when a BiSS-C encoder is used); This part is the status word of BiSS-C and SSI encoders.

H0F.41 Inovance fully closed-loop encoder version

Address:	200F-2Ah	Effective	-
		mode:	
Min.:	0.0	Unit:	-
Max.:	6553.5	Data Type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0–6553.5

Description

Display the version number of the Inovance fully closed-loop encoder.

H0F.42 Inovance fully closed-loop encoder resolution

Address:	200F-2Bh	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Unchangeable

Value Range:

0–4294967295

Description

Display the resolution of the Inovance fully closed-loop encoder.

H0F.45 Positioning completed/Position deviation threshold in fully closed-loop mode

Address:	200F-2Eh	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0

Change: At stop

Value Range:

0: Threshold scaled to outer loop unit

1: Same threshold used for inner and outer loops

Description

0: Fully closed-loop positioning completed threshold 6067/Excessive position deviation threshold 6065 (scaled to outer loop unit)

1: Same threshold used for inner and outer loops

H0F.51 SSI encoder check bit selection in fully closed-loop mode

Address: 200F-34h

Effective mode: Upon the next power-on

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 1

Change: At stop

Value Range:

0: No check

1: Check applied

Description

Select the SSI encoder check bit in full closed-loop mode.

0: No check

1: Check applied

H0F.52 SSI encoder code system in full closed-loop mode

Address: 200F-35h

Effective mode: Upon the next power-on

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 1

Change: At stop

Value Range:

0: Binary

1: Gray code

Description

Select the SSI encoder code system in full closed-loop mode.

0: Binary

1: Gray code

H0F.53 SSI encoder state word code system in fully closed-loop mode

Address: 200F-36h

Effective mode: Upon the next power-on

Min.: 0

Unit: -

Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Binary

1: Gray code

Description

Select the SSI encoder status word code system in full closed-loop mode.

0: Binary

1: Gray code

H0F.54 SSI encoder parity check in fully closed-loop mode

Address:	200F-37h	Effective mode:	Upon the next power-on

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0: Disabled

1: Enabled

Description

Enable/disable the SSI encoder parity check in fully closed-loop mode.

0: Disabled

1: Enabled

H0F.55 Fully closed-loop encoder communication timeout error count

Address:	200F-38h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Fully closed-loop encoder communication timeout error count

H0F.56 Encoder CRC error count in fully closed-loop mode

Address:	200F-39h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Encoder CRC error count in fully closed-loop mode

H0F.57 Fully closed-loop encoder communication frame stop bit error count.

Address:	200F-3Ah	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Fully closed-loop encoder communication frame stop bit error count.

4.17 H11 Multi-position

H11.00 Multi-position running mode

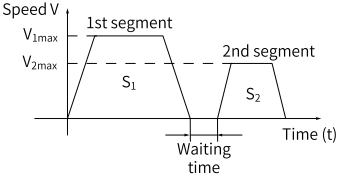
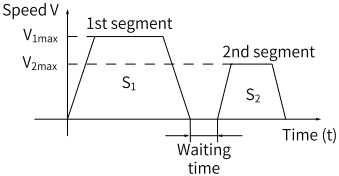
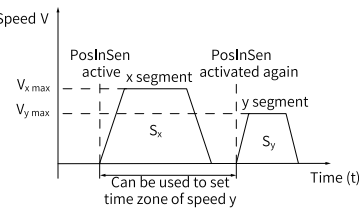
Address:	2011-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	5	Data Type:	UInt16
Default:	1	Change:	At stop

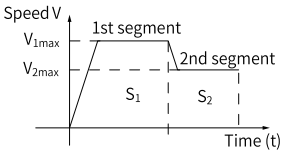
Value Range:

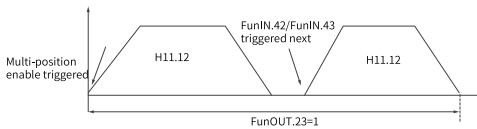
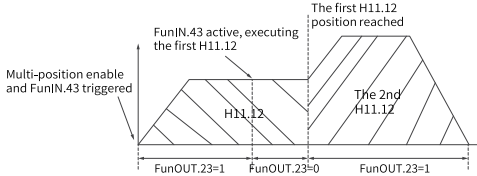
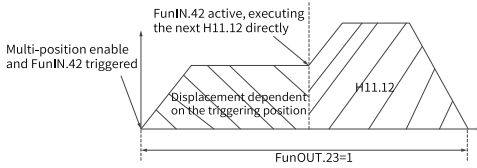
- 0: Single run (number of displacements selected in H11.01)
- 1: Cyclic operation (number of displacement selected in H11.01)
- 2: DI-based operation (selected by DI)
- 3: Sequential operation
- 5: Axis-controlled continuous operation

Description

Defines the multi-position operation mode when the main position reference source is multi-position references (H05.00 = 2) in the position control mode.

Value	Operation Mode	Remarks	Operation Curve
0	Individual operation	The drive stops after one cycle of operation. The drive automatically switches to the next speed. You can set the interval time between displacements. The multi-position reference is level-triggered.	 V_{1max}, V_{2max} : maximum operating speeds in displacement 1 and displacement 2 S_1, S_2 : displacement 1 and displacement 2
1	Cyclic operation	The starting displacement after the first cycle is displacement 1. The drive automatically switches to the next speed. You can set the interval time between displacements. The multi-position reference is level-triggered.	 V_{1max}, V_{2max} : maximum operating speeds in displacement 1 and displacement 2 S_1, S_2 : displacement 1 and displacement 2
2	DI-based operation	The drive continues operating when the displacement No. is updated. The speed No. is determined by the DI logic. The interval time between displacements is determined by the command delay of the host controller. The multi-position reference is edge-triggered.	 V_{xmax}, V_{ymax} : maximum operating speeds in displacement x and displacement y S_x, S_y : displacement x and displacement y

Value	Operation Mode	Remarks	Operation Curve
3	Sequential operation	The drive stops after one cycle of operation. (H11.05 = 0 or H11.05 > H11.01). When H11.05 is greater than H11.01, the software will set H11.05 to 0. The starting displacement after the first cycle is defined by H11.05. The drive automatically switches to the next speed. There is no interval time between displacements. The multi-position reference is level-triggered.	 V 1max , V 2max : maximum operating speeds in displacement 1 and displacement 2 S 1 , S 2 : displacement 1 and displacement 2

Value	Operation Mode	Remarks	Operation Curve
5	Axis-controlled continuous operation	The drive executes one displacement only. The individual operation mode, sequential operation mode, and interrupted operation mode are included. The PosInSen (multi-position reference enable) signal is level-triggered.	● Individual operation  The PosInSen (multi-position reference enable) signal is triggered only once (FunIN.43/42 triggered later). The drive stops after executing the distance defined by H11.12. ● Sequential operation  The PosInSen (multi-position reference enable) signal is triggered only once. Write H11.12 again and activate FunIN.43 when the distance defined by the first H11.12 is still in progress. After receiving the new distance (or speed), which is the second H11.12, the drive continues executing the first H11.12 until the distance defined by the first H11.12 is done. Then it starts to execute the second H11.12 directly. The travel distance therefore is the sum of the first H11.12 and the second H11.12. ● Interrupted operation  The PosInSen (Multi-position reference enable) signal is triggered only once. Write H11.12 (such as 1000000) again and activate FunIN.42 when the first H11.12 (such as 9000000) is still in progress. After receiving the new distance (or speed), which is the second H11.12, the drive stops executing the first H11.12 and turns to executing the second H11.12.

To use the multi-position function, assign FunIN.28 (PosInSen, multi-position reference enable) to a DI first. See "Group H03: Terminal input parameters" for the setting mode.

The positioning completed (COIN) signal is activated each time upon completion of a displacement. To determine whether a certain displacement is done executing, use FunOUT.5 (COIN, positioning completed). See "Group H04: Terminal output parameters" for details.

Ensure the S-ON signal is active during operation of each displacement. Otherwise, the drive stops immediately as defined by H02.05 (Stop mode at S-ON OFF) and the positioning completed (COIN) signal is inactive. In modes other than DI-based operation, if the S-ON signal is active but multi-position is disabled during operation of a certain displacement, the drive abandons the unsent displacement reference and stops, with the positioning completed (COIN) signal being active. If the multi-position function is enabled again, the displacement to be executed is defined by H11.02.

H11.01 Number of displacement references in multi-position mode

Address:	2011-02h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	16	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–16

Description

Defines the total number of displacement references in the multi-position mode. You can set different displacements, operating speeds, and acceleration/ deceleration time for each displacement.

H11.00 ≠ 2: Displacements are switched automatically in a sequence from 1, 2... H11.01.

H11.00 is 2: Assign four DIs (Hardware DI or VDI) with DI functions 6 to 9 (FunIN.6: CMD1 to FunIN.9: CMD4) and control the DI logic through the host controller to switch between different speeds. The segment No. is a 4-bit binary value. Bits 0 to 3 correspond to CMD1 to CMD4.

The displacement No. is a 4-bit binary value. The relationship between the displacement numbers and CMD1...CMD4 is shown in the following table.

FunIN.9 CMD4	FunIN.8 CMD3	FunIN.7 CMD2	FunIN.6 CMD1	Segment No.
0	0	0	0	
0	0	0	1	2
...				
1	1	1	1	16

H11.02 Starting displacement No. after pause

Address:	2011-03h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Continue to execute the unexecuted displacements

1: Start from displacement 1

Description

Defines the starting displacement No. when the multi-position operation recovers from a pause.

Pause:

1. The servo drive switches to another control mode or the interrupt positioning function is enabled during multi-position operation.

2. The internal multi-position enable signal (FunIN.28:PosInSen) changes from "active" to "inactive".

0: Continue to execute the unexecuted displacements: For example, if H11.01 is set to 16 and the drive pauses at displacement 2, after the drive recovers from the pause, it will start from displacement 3.

1: Start from displacement 1: For example, if H11.01 is set to 16 and the drive pauses at displacement 2, after the drive recovers from the pause, it will start from displacement 1.

H11.03**Interval time unit**

Address:	2011-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: ms

1: s

Description

Defines the unit of acceleration/deceleration time and the interval time during multi-position operation.

Acceleration/Deceleration time: Indicates the time taken for the motor to change from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

Interval time: interval time that starts from the end of the last reference to the beginning of the next reference

H11.04**Displacement reference type**

Address:	2011-05h	Effective mode:	Real time
Min.:	0	Unit:	-

Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Relative displacement reference

1: Absolute displacement reference

Description

Relative displacement: position increment of the target position relative to the current motor position

Absolute displacement: position increment of the target position relative to the motor home.

H11.05 Starting displacement No. in sequential operation

Address:	2011-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	16	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–16

Description

Defines whether to perform cyclic operation and the starting displacement No. after the first cycle of operation in the sequential operation mode (H11.00 = 3).

0: The drive executes the displacements defined by H11.01 only once and then stops. The motor is in the locked state.

1 to 16: The drive operates cyclically, with the starting displacement No. defined by H11.05 after the first cycle of operation. The value of H11.05 should be lower than or equal to H11.01.

H11.09 Deceleration upon axis control OFF

Address:	2011-0Ah	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	65535	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Set deceleration upon axis control OFF.

H11.10 Starting speed of displacement 1

Address:	2011-0Bh	Effective mode:	Real time

Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	6000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–6000[mm/s]/[rpm]

Description

Set starting speed of displacement 1.

H11.11 Stop speed of displacement 1

Address:	2011-0Ch	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	6000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–6000[mm/s]/[rpm]

Description

Set stop speed of displacement 1.

H11.12 Displacement 1

Address:	2011-0Dh	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

Defines displacement 1 (reference unit) in multi-position operation.

H11.14 Max. speed of displacement 1

Address:	2011-0Fh	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Defines the maximum speed of displacement 1 in multi-position operation.
 The maximum speed is the average operating speed when the motor is not in the acceleration/deceleration process. If H11.12 is set to a too low value, the actual motor speed will be lower than H11.14.

H11.15 Acc/Dec time of displacement 1

Address:	2011-10h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the time for the motor to change from 0 [mm/s]/[rpm] to 1000 rpm[mm/s]/[rpm] at a constant speed during displacement 1.

Actual time needed for accelerating to H11.14 (Max. speed of displacement 1):

$$t = \frac{(H11.14) \times (H11.15)}{1000}$$

Note: The rigidity must be good, and the speed loop can follow the position command.

H11.16 Interval time after displacement 1

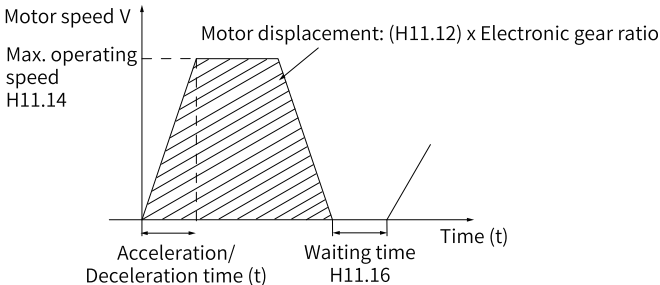
Address:	2011-11h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

Defines the interval time that starts from the end of displacement 1 to the beginning of the next displacement.



H11.17

Displacement 2

Address: 2011-12h

Effective mode: Real time

Min.: -1073741824

Unit: Reference unit

Max.: 1073741824

Data Type: Int32

Default: 10000

Change: Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.19

Max. speed of displacement 2

Address: 2011-14h

Effective mode: Real time

Min.: 1

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: UInt16

Default: 200

Change: Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.20

Acc/Dec time of displacement 2

Address: 2011-15h

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

H11.25 Acc/Dec time of displacement 3

Address:	2011-1Ah	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.26 Interval time after displacement 3

Address:	2011-1Bh	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.27 Displacement 4

Address:	2011-1Ch	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.29 Max. speed of displacement 4

Address:	2011-1Eh	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.30 Acc/Dec time of displacement 4

Address:	2011-1Fh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.31 Interval time after displacement 4

Address:	2011-20h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.32 Displacement 5

Address:	2011-21h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.34 Max. speed of displacement 5

Address:	2011-23h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16

Default: 200 Change: Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.35 Acc/Dec time of displacement 5

Address: 2011-24h Effective mode: Real time

Min.: 0 Unit: ms

Max.: 65535 Data Type: UInt16

Default: 10 Change: Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.36 Interval time after displacement 5

Address: 2011-25h Effective mode: Real time

Min.: 0 Unit: ms (s)

Max.: 10000 Data Type: UInt16

Default: 10 Change: Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.37 Displacement 6

Address: 2011-26h Effective mode: Real time

Min.: -1073741824 Unit: Reference unit

Max.: 1073741824 Data Type: Int32

Default: 10000 Change: Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.39 Max. speed of displacement 6

Address:	2011-28h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.40 Acc/Dec time of displacement 6

Address:	2011-29h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.41 Interval time after displacement 6

Address:	2011-2Ah	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.42 Displacement 7

Address:	2011-2Bh	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.44 Max. speed of displacement 7

Address:	2011-2Dh	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.45 Acc/Dec time of displacement 7

Address:	2011-2Eh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.46 Interval time after displacement 7

Address:	2011-2Fh	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.47 Displacement 8

Address:	2011-30h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32

Address:	2011-32h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Address:	2011-33h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Address:	2011-34h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

H11.52 Displacement 9

Address:	2011-35h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.54 Max. speed of displacement 9

Address:	2011-37h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.55 Acc/Dec time of displacement 9

Address:	2011-38h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.56 Interval time after displacement 9

Address:	2011-39h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.57**Displacement 10**

Address:	2011-3Ah	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.59**Max. speed of displacement 10**

Address:	2011-3Ch	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.60**Acc/Dec time of displacement 10**

Address:	2011-3Dh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.61**Interval time after displacement 10**

Address:	2011-3Eh	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16

Change: Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.62 Displacement 11

Effective Real time

mode:

Unit:	Reference unit

Data Type: Int32

Change: Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.64 **Max. speed of displacement 11**

Effective Real time

mode:

Unit: [mm/s]/[rpm]

Data Type: UInt16

Change: Real-time

Value Range:

$$1[\text{mm/s}]/[\text{rpm}]-10000[\text{mm/s}]/[\text{rpm}]$$

Description

See max. speed of displacement 1.

H11.65 **Acc/Dec time of displacement 11**

Effective Real time

mode:

Unit: ms

Data Type: UInt16

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.66 Interval time after displacement 11

Address:	2011-43h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.67 Displacement 12

Address:	2011-44h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.69 Max. speed of displacement 12

Address:	2011-46h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.70 Acc/Dec time of displacement 12

Address:	2011-47h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.71 Interval time after displacement 12

Address:	2011-48h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.72 Displacement 13

Address:	2011-49h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.74 Max. speed of displacement 13

Address:	2011-4Bh	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.75 Acc/Dec time of displacement 13

Address:	2011-4Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16

Address:	2011-4Dh	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

See interval time after displacement 1.

Address:	2011-4Eh	Effective	Real time
Min.:	-1073741824	mode:	
Max.:	1073741824	Unit:	Reference unit
Default:	10000	Data Type:	Int32
		Change:	Real-time

See displacement 1.

Address:	2011-50h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

See max. speed of displacement 1.

H11.80 Acc/Dec time of displacement 14

Address:	2011-51h	Effective	Real time
		mode:	
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.81 Interval time after displacement 14

Address:	2011-52h	Effective	Real time
		mode:	
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.82 Displacement 15

Address:	2011-53h	Effective	Real time
		mode:	
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.84 Max. speed of displacement 15

Address:	2011-55h	Effective	Real time
		mode:	
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

1[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See max. speed of displacement 1.

H11.85 Acc/Dec time of displacement 15

Address:	2011-56h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.86 Interval time after displacement 15

Address:	2011-57h	Effective mode:	Real time
Min.:	0	Unit:	ms (s)
Max.:	10000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

H11.87 Displacement 16

Address:	2011-58h	Effective mode:	Real time
Min.:	-1073741824	Unit:	Reference unit
Max.:	1073741824	Data Type:	Int32
Default:	10000	Change:	Real-time

Value Range:

-1073741824 to 1073741824

Description

See displacement 1.

H11.89 Max. speed of displacement 16

Address:	2011-5Ah	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	UInt16

Change: Real-time

Value Range:

$$1[\text{mm/s}]/[\text{rpm}]-10000[\text{mm/s}]/[\text{rpm}]$$

Description

See max. speed of displacement 1.

H11.90 **Acc/Dec time of displacement 16**

Address: 2011-5Bh

Effective Real time
mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 10

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See acc/dec time of displacement 1.

H11.91 Interval time after displacement 16

Address: 2011-5Ch

Effective	Real time
mode:	

Min.: 0

Unit: ms (s)

Max.: 10000

Data Type: UInt16

Default: 10

Change: Real-time

Value Range:

0 ms(s) to 10000 ms(s)

Description

See interval time after displacement 1.

4.18 H12 Multi-Speed

H12.00 Multi-speed operation mode

Address: 2012-01h

Effective	Real time
mode:	

Min.: 0

Unit: -

Max.: 2

Data Type: UInt16

Default: 1

Change: At stop

Value Range:

0: Individual operation (number of speeds selected in H12.01)

1: Cyclic operation (number of speeds selected in H12.01)

2: DI-based operation

Description

Defines the multi-speed operation mode when the speed reference source is multi-speed reference ($H06.01 = 5$, $H06.02 = 1/2/3$) in the speed control mode.

0: Stop after one run, and the segment No. is auto incremented and switched

1: Cyclic. The starting segment number of each run is 1, and the segment number is auto incremented and switched. If the servo drive is enabled, the cyclic operation state is maintained all the time.

2: The drive can run continuously when it is enabled. The segment number is determined by DI terminal logic. The running time of each speed reference is only determined by the interval time of segment number switching. FunIN.5 (DIR-SEL) can be used to switch the direction of the speed reference.

The S-ON signal must be active during running of each speed reference; otherwise, the servo drive will stop immediately as defined by H02.05 (Stop mode at S-ON off).

Speed arrival (FunOUT.19: V-Arr) signal is valid when a certain speed reference reaches the set value.

H12.01 Number of speed references in multi-speed mode

Address:	2012-02h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	16	Data Type:	UInt16
Default:	16	Change:	At stop

Value Range:

1–16

Description

Defines the total number of speed references in the multi-speed mode. Different speed references, operating time, and acceleration/deceleration time (four groups optional) can be set for each speed.

H12.00 $\neq$ 2: Speeds are switched automatically in a sequence from 1, 2...

H12.01.

H12.00 is 2: Assign four DIs (Hardware DI or VDI) with DI functions 6 to 9 (FunIN.6: CMD1 to FunIN.9: CMD4) and control the DI logic through the host controller to switch between different speeds. The segment No. is a 4-bit binary value. Bits 0 to 3 correspond to CMD1 to CMD4.

H12.02 Operating time unit

Address:	2012-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: s

1: min

Description

Defines the time unit of multi-speed operation.

0: s

1: min

H12.03**Acceleration time 1**

Address: 2012-04h

Effective Real time

mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 10

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Acceleration time: time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

H12.04**Deceleration time 1**

Address: 2012-05h

Effective Real time

mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 10

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Deceleration time: time for the motor to decelerate from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm] at a constant speed.

H12.05**Acceleration time 2**

Address: 2012-06h

Effective Real time

mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 50

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Acceleration time: time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

H12.06**Deceleration time 2**

Address: 2012-07h

Effective Real time
mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 50

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Deceleration time: time for the motor to decelerate from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm] at a constant speed.

H12.07**Acceleration time 3**

Address: 2012-08h

Effective Real time
mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 100

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Acceleration time: time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

H12.08**Deceleration time 3**

Address: 2012-09h

Effective Real time
mode:

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 100

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Deceleration time: time for the motor to decelerate from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm] at a constant speed.

H12.09**Acceleration time 4**

Address: 2012-0Ah

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 150

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Acceleration time: time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

H12.10**Deceleration time 4**

Address: 2012-0Bh

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 150

Change: Real-time

Value Range:

0 ms–65535 ms

Description

Four groups of acceleration/deceleration time can be set for each speed reference.

Deceleration time: time for the motor to decelerate from 1000 [mm/s]/[rpm] to 0 [mm/s]/[rpm] at a constant speed.

H12.20**1st speed reference**

Address: 2012-15h

Effective mode: Real time

Min.: -10000

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: Int16

Default: 0

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

Set the first speed reference.

H12.21 Operating time of speed 1

Address:	2012-16h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

Defines the operating time of speed 1.

The operating time is the sum of the speed variation time from previous speed reference to present speed reference plus the average operating time of present speed reference.

If the operating time is set to 0, the drive skips this speed reference automatically.

As long as H12.00 (Multi-speed operation mode) is set to 2 (DI-based operation) and the speed No. determined by the external DI does not change, the drive continues operating at the speed defined by this speed reference, without being affected by the reference operating time.

H12.22 1st speed rise/drop and curve smoothing parameter time

Address:	2012-17h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

Bit0–bit7: Acc./dec. time of speed 6

Defines the acceleration/deceleration time of speed 1.

0: Zero acc./dec. time Acceleration time: 0

Deceleration time: 0

1: Acc./dec. Time 1 Acceleration time: H12.03

Deceleration time: H12.04

2: Acc./dec. Time 2 Acceleration time: H12.05

Deceleration time: H12.06

3: Acc./dec. Time 3 Acceleration time: H12.07

Deceleration time: H12.08

4: Acc./dec. Time 4 Acceleration time: H12.09

Deceleration time: H12.10

Bit8–bit15: S curve smoothing parameter

1. Smoothing parameter 1 increasing acceleration time of acceleration segment: H06.51

Decreasing acceleration time of acceleration segment: H06.52

Decreasing deceleration time of deceleration segment: H06.53

Decreasing acceleration time of acceleration segment: H06.54

2. Smoothing parameter 2 increasing acceleration time of acceleration segment: H06.55

Decreasing acceleration time of acceleration segment: H06.56

Decreasing deceleration time of deceleration segment: H06.57

Decreasing acceleration time of acceleration segment: H06.58

3. Smoothing parameter 3 increasing acceleration time of acceleration segment: H06.59

Decreasing acceleration time of acceleration segment: H06.60

Decreasing deceleration time of deceleration segment: H06.61
Decreasing acceleration time of acceleration segment: H06.62
4. Smoothing parameter 4 increasing acceleration time of acceleration segment: H06.63
Decreasing acceleration time of acceleration segment: H06.64
Decreasing deceleration time of deceleration segment: H06.65
Decreasing acceleration time of acceleration segment: H06.66
5. Smoothing parameter 5 increasing acceleration time of acceleration segment: H06.67
Decreasing acceleration time of acceleration segment: H06.68
Decreasing deceleration time of deceleration segment: H06.69
Decreasing acceleration time of acceleration segment: H06.70
6. Smoothing parameter 6 increasing acceleration time of acceleration segment: H06.71
Decreasing acceleration time of acceleration segment: H06.72
Decreasing deceleration time of deceleration segment: H06.73
Decreasing acceleration time of acceleration segment: H06.74
7. Smoothing parameter 7 increasing acceleration time of acceleration segment: H06.75
Decreasing acceleration time of acceleration segment: H06.76
Decreasing deceleration time of deceleration segment: H06.77
Decreasing acceleration time of acceleration segment: H06.78
8. Smoothing parameter 8 increasing acceleration time of acceleration segment: H06.79
Decreasing acceleration time of acceleration segment: H06.80
Decreasing deceleration time of deceleration segment: H06.81
Decreasing acceleration time of acceleration segment: H06.82

H12.23 Reference 2

Address:	2012-18h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	100	Change:	Real-time

Value Range:
-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description
See reference 1.

H12.24 Operating time of speed 2

Address:	2012-19h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.25 2nd speed rise/drop time and curve smoothing parameter time

Address:	2012-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.26 Reference 3

Address:	2012-1Bh	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16

Default: 300

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]-10000[mm/s]/[rpm]

Description

See reference 1.

H12.27 Operating time of speed 3

Address: 2012-1Ch

Effective Real time
mode:

Min.: 0.0

Unit: s (m)

Max.: 6553.5

Data Type: UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.28 3rd speed rise/drop time and curve smoothing parameter time

Address: 2012-1Dh

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.29**Reference 4**

Address:	2012-1Eh	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	500	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.30**Operating time of speed 4**

Address:	2012-1Fh	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.31**4th speed rise/drop time and curve smoothing parameter time**

Address:	2012-20h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time
0: Zero acc and dec time
1: Acc and dec time 1
2: Acc and dec time 2
3: Acc and dec time 3
4: Acc and dec time 4
bit8-bit15: S curve smoothing parameter
1: Smoothing parameter 1
2: Smoothing parameter 2
3: Smoothing parameter 3
4: Smoothing parameter 4
5: Smoothing parameter 5
6: Smoothing parameter 6
7: Smoothing parameter 7
8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.32 Reference 5

Address:	2012-21h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	700	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.33 Operating time of speed 5

Address:	2012-22h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.34 5th speed rise/drop time and curve smoothing parameter time

Address:	2012-23h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.35 Reference 6

Address:	2012-24h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	900	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.36 Operating time of speed 6

Address:	2012-25h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.37 6th speed rise/drop time and curve smoothing parameter time

Address: 2012-26h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.38 Reference 7

Address: 2012-27h

Effective Real time

mode:

Min.: -10000

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: Int16

Default: 600

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.39 Operating time of speed 7

Address:	2012-28h	Effective	Real time
		mode:	
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.40 7th speed rise/drop time and curve smoothing parameter time

Address:	2012-29h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.41 Reference 8

Address:	2012-2Ah	Effective	Real time
		mode:	
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16

Default: 300

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]-10000[mm/s]/[rpm]

Description

See reference 1.

H12.42 Operating time of speed 8

Address: 2012-2Bh

Effective Real time
mode:

Min.: 0.0

Unit: s (m)

Max.: 6553.5

Data Type: UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.43 8th speed rise/drop time and curve smoothing parameter time

Address: 2012-2Ch

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.44**Reference 9**

Address:	2012-2Dh	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	100	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.45**Operating time of speed 9**

Address:	2012-2Eh	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.46**9th speed rise/drop time and curve smoothing parameter time**

Address:	2012-2Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time
0: Zero acc and dec time
1: Acc and dec time 1
2: Acc and dec time 2
3: Acc and dec time 3
4: Acc and dec time 4
bit8-bit15: S curve smoothing parameter
1: Smoothing parameter 1
2: Smoothing parameter 2
3: Smoothing parameter 3
4: Smoothing parameter 4
5: Smoothing parameter 5
6: Smoothing parameter 6
7: Smoothing parameter 7
8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.47**Reference 10**

Address:	2012-30h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	-100	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.48**Operating time of speed 10**

Address:	2012-31h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.49 10th speed rise/drop time and curve smoothing parameter time

Address:	2012-32h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.50 Reference 11

Address:	2012-33h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	-300	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.51 Operating time of speed 11

Address:	2012-34h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.52 11th speed rise/drop time and curve smoothing parameter time

Address: 2012-35h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.53 Reference 12

Address: 2012-36h

Effective Real time

mode:

Min.: -10000

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: Int16

Default: -500

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.54 Operating time of speed 12

Address:	2012-37h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.55 12th speed rise/drop time and curve smoothing parameter time

Address:	2012-38h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.56 Reference 13

Address:	2012-39h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16

Default: -700

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]-10000[mm/s]/[rpm]

Description

See reference 1.

H12.57 Operating time of speed 13

Address: 2012-3Ah

Effective Real time
mode:

Min.: 0.0

Unit: s (m)

Max.: 6553.5

Data Type: UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.58 13th speed rise/drop time and curve smoothing parameter time

Address: 2012-3Bh

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.59**Reference 14**

Address:	2012-3Ch	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	-900	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.60**Operating time of speed 14**

Address:	2012-3Dh	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16
Default:	5.0	Change:	Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.61**14th speed rise/drop time and curve smoothing parameter time**

Address:	2012-3Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.62**Reference 15**

Address: 2012-3Fh

Effective Real time

mode:

Min.: -10000

Unit: [mm/s]/[rpm]

Max.: 10000

Data Type: Int16

Default: -600

Change: Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.63**Operating time of speed 15**

Address: 2012-40h

Effective Real time

mode:

Min.: 0.0

Unit: s (m)

Max.: 6553.5

Data Type: UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.64 15th speed rise/drop time and curve smoothing parameter time

Address:	2012-41h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	256	Change:	Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

H12.65 Reference 16

Address:	2012-42h	Effective mode:	Real time
Min.:	-10000	Unit:	[mm/s]/[rpm]
Max.:	10000	Data Type:	Int16
Default:	-300	Change:	Real-time

Value Range:

-10000[mm/s]/[rpm]–10000[mm/s]/[rpm]

Description

See reference 1.

H12.66 Operating time of speed 16

Address:	2012-43h	Effective mode:	Real time
Min.:	0.0	Unit:	s (m)
Max.:	6553.5	Data Type:	UInt16

Default: 5.0

Change: Real-time

Value Range:

0.0s(m) to 6553.5s(m)

Description

See operating time of speed 1.

H12.67 16th speed rise/drop time and curve smoothing parameter time

Address: 2012-44h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 256

Change: Real-time

Value Range:

bit0-bit7: Speed rise and drop time

0: Zero acc and dec time

1: Acc and dec time 1

2: Acc and dec time 2

3: Acc and dec time 3

4: Acc and dec time 4

bit8-bit15: S curve smoothing parameter

1: Smoothing parameter 1

2: Smoothing parameter 2

3: Smoothing parameter 3

4: Smoothing parameter 4

5: Smoothing parameter 5

6: Smoothing parameter 6

7: Smoothing parameter 7

8: Smoothing parameter 8

Description

See acc./dec. time of speed 1.

4.19 H13 Application Safety Parameters**H13.00 Auto-tuned scheme 2 runaway distance threshold**

Address: 2013-01h

Effective -

mode:

Min.: 0.00

Unit: [mm]/[Rev]

Max.: 655.35

Data Type: UInt16

Default: 0.00

Change: Unchangeable

Value Range:

0.00[mm]/[Rev]–655.35[mm]/[Rev]

Description

-

H13.01 Scheme 2 runaway distance threshold

Address:	2013-02h	Effective mode:	Real time
Min.:	0.00	Unit:	[mm]/[Rev]
Max.:	15.00	Data Type:	UInt16
Default:	0.50	Change:	At stop

Value Range:

0.00[mm]/[Rev]–15.00[mm]/[Rev]

Description

-

H13.02 Scheme 2 runaway current threshold

Address:	2013-03h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	400.0	Data Type:	UInt16
Default:	50.0	Change:	At stop

Value Range:

0.0% to 400.0%

Description

-

H13.03 Runaway speed threshold in scheme 2 speed or position mode

Address:	2013-04h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]
Max.:	6000	Data Type:	UInt16
Default:	50	Change:	At stop

Value Range:

1[mm/s]/[rpm]–6000[mm/s]/[rpm]

Description

-

H13.04 Runaway speed threshold in scheme 2 torque mode

Address:	2013-05h	Effective mode:	Real time
Min.:	1	Unit:	[mm/s]/[rpm]

Max.:	6000	Data Type:	UInt16
Default:	500	Change:	At stop
Value Range:			
1[mm/s]/[rpm]–6000[mm/s]/[rpm]			
Description			
-			

H13.05 Scheme 2 runaway inspection window time

Address:	2013-06h	Effective mode:	Real time
Min.:	10	Unit:	ms
Max.:	100	Data Type:	UInt16
Default:	30	Change:	At stop
Value Range:			
10 ms–100 ms			
Description			
-			

4.20 H14 Gantry Synchronization

H14.00 Gantry communication state

Address:	2014-01h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Unchangeable
Value Range:			
0–1			

Description

Used to judge whether both axes have established communication after the gantry function is enabled.

H14.01 Gantry alignment state

Address:	2014-02h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Unchangeable
Value Range:			
0–1			

Description

After the gantry alignment is completed, the gantry alignment state will be set to 1 to determine whether the gantry alignment is completed.

H14.02 Gantry function selection

Address:	2014-03h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: None

1: Gantry synchronization

Description

Gantry function selection.

0: Disabled

1: Enabled

H14.03 Gantry axis attribute (master-slave)

Address:	2014-04h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Slave axis

1: Master axis

Description

Selects the gantry axis attribute.

0: Slave axis

1: Master axis

H14.04 Gantry mechanical attribute

Address:	2014-05h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: Rigid gantry scheme 1-Two-axis position control
- 1: Flexible gantry scheme 1-Two-axis position control
- 2: Rigid gantry scheme 2-Master axis position control and slave axis torque control

Description

The gantry mechanical attribute is related to the mechanical structure type of the gantry, which can be divided into rigid crossbeam frame connection and flexible crossbeam frame connection.

- 0: Rigid crossbeam frame, "axis sticking" may occur if both axes deviate too much
- 1: Flexible crossbeam frame, sync deviation is allowed between both axes
- 2: Rigid crossbeam frame, suitable for applications do not require high accuracy

H14.05 Current axis position sync direction

Address:	2014-06h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: Forward
- 1: Reverse

Description

The synchronous direction of the two axes is related to the installation direction of the motor and the rotation direction of H02.02.

- 0: Forward
- 1: Reverse

H14.07 Gantry sync enable

Address:	2014-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Disabled
- 1: Enabled
- 2: DI-enabled

Description

Selects the gantry synchronization enable mode to adjust the gain of gantry slave axis compensation. When it is enabled, H14.08–H14.11 will take effect.

0: Disabled

1: Enabled

2: DI-enabled

H14.08 Gantry sync position loop proportional gain

Address:	2014-09h	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 300.0%

Description

It is only effective for the slave axis.

H14.09 Gantry sync position loop integral time constant

Address:	2014-0Ah	Effective mode:	Real time
Min.:	0.5	Unit:	ms
Max.:	1000.0	Data Type:	UInt16
Default:	1000.0	Change:	Real-time

Value Range:

0.5 ms–1000.0 ms

Description

It is only effective for the slave axis.

H14.10 Gantry sync speed loop proportional gain

Address:	2014-0Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	0.0	Change:	Real-time

Value Range:

0.0% to 300.0%

Description

It is only effective for the slave axis.

H14.11 Gantry sync speed loop integral time constant

Address:	2014-0Ch	Effective mode:	Real time
Min.:	0.5	Unit:	ms
Max.:	1000.0	Data Type:	UInt16
Default:	1000.0	Change:	Real-time

Value Range:

0.5 ms–1000.0 ms

Description

It is only effective for the slave axis.

H14.12 Gantry sync speed limit

Address:	2014-0Dh	Effective mode:	Real time
Min.:	0.0	Unit:	rpm
Max.:	6000.0	Data Type:	UInt16
Default:	50.0	Change:	Real-time

Value Range:

0.0rpm to 6000.0rpm

Description

Gantry sync speed limit.

H14.13 Gantry alignment speed

Address:	2014-0Eh	Effective mode:	Real time
Min.:	0.0	Unit:	rpm
Max.:	3000.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0rpm to 3000.0rpm

Description

Gantry alignment speed

H14.14 Gantry alignment acc./dec. time

Address:	2014-0Fh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0 ms–1000 ms

Description

Gantry alignment acc./dec. time

H14.18 Torque pre-alignment before gantry homing

Address:	2014-13h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Enables/disables torque pre-alignment before gantry homing.

0: Disabled

1: Enabled

H14.20 Gantry aligned by default upon power-on

Address:	2014-15h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: No operation

1: Align at first power-on

Description

Sets whether gantry alignment is performed by default upon power-on.

0: No operation

1: Aligned by default upon initial power-on of two axes

H14.21 Gantry alignment mode

Address:	2014-16h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	4	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Gantry homing alignment

2: Gantry torque alignment

3: Gantry enable alignment

4: Gantry DI alignment

Description

Gantry axis alignment mode

0: Gantry homing alignment

2: Gantry torque alignment

3: Gantry enable alignment

4: Gantry DI alignment

H14.25 Flexible gantry homing - Master/slave home deviation auto-tuning

Address:	2014-1Ah	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Torque alignment auto-tuning

2: Position auto-tuning

Description

Sets whether to perform master/slave home deviation auto-tuning when H14.04 is set to flexible gantry.

0: Disabled

1: Torque alignment auto-tuning

2: Position auto-tuning

H14.26 Gantry torque alignment enable

Address:	2014-1Bh	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

2: DI-enabled

3: Enabled at power-on

Description

Selects gantry torque alignment enable mode in gantry alignment mode.

0: Disabled

1: Enabled

2: DI-enabled

3: Enabled at power-on

H14.27 Gantry torque alignment torque

Address:	2014-1Ch	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0% to 300.0%

Description

Torque value in gantry torque alignment mode.

H14.28 Gantry torque alignment count

Address:	2014-1Dh	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	2	Change:	Real-time

Value Range:

1–2

Description

The number of alignments in gantry torque alignment mode.

H14.29 Gantry torque alignment speed

Address:	2014-1Eh	Effective mode:	Real time
Min.:	0.0	Unit:	rpm
Max.:	3000.0	Data Type:	UInt16
Default:	10.0	Change:	Real-time

Value Range:

0.0rpm to 3000.0rpm

Description

The speed in gantry torque alignment mode.

H14.30 Gantry torque alignment timeout alarm time

Address:	2014-1Fh	Effective mode:	Real time
Min.:	1	Unit:	s
Max.:	65535	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

1s to 65535s

Description

Gantry torque alignment timeout alarm time

H14.31 Gantry torque alignment acc./dec. time

Address:	2014-20h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0 ms–1000 ms

Description

Gantry torque alignment acc./dec. time

H14.32 Gantry torque alignment zero speed threshold

Address:	2014-21h	Effective mode:	Real time
Min.:	0.0	Unit:	rpm
Max.:	100.0	Data Type:	UInt16
Default:	2.0	Change:	Real-time

Value Range:

0.0rpm to 100.0rpm

Description

The zero speed threshold for gantry torque alignment.

H14.33 Gantry torque alignment mechanical limit evaluation position loop period count

Address:	2014-22h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	5	Change:	Real-time

Value Range:

0–65535

Description

Gantry torque alignment mechanical limit evaluation position loop period count

H14.35 2-axis position deviation (encoder unit)

Address:	2014-24h	Effective mode:	-

Min.:	-2147483648	Unit:	Encoder unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

The position deviation (encoder unit) between the active axis and the paired axis in gantry mode. It is related to H0B.17 of the two axes.

H14.37 2-axis speed deviation

Address:	2014-26h	Effective mode:	-
Min.:	-32767	Unit:	rpm
Max.:	32767	Data Type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

-32767rpm to 32767rpm

Description

It is the speed difference between the active axis and paired axis in gantry mode.

H14.38 Torque reference of active axis

Address:	2014-27h	Effective mode:	-
Min.:	-3276.7	Unit:	%
Max.:	3276.7	Data Type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

-3276.7% to 3276.7%

Description

Torque reference of active axis

H14.39 Torque reference of paired axis

Address:	2014-28h	Effective mode:	-
Min.:	-3276.7	Unit:	%
Max.:	3276.7	Data Type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

-3276.7% to 3276.7%

Description

Torque reference of paired axis

H14.40 Motor speed of active axis

Address:	2014-29h	Effective	-
Min.:	-32767	mode:	
Max.:	32767	Unit:	rpm
Default:	0	Data Type:	Int16
		Change:	Unchangeable

Value Range:

-32767rpm to 32767rpm

Description

Motor speed of active axis

H14.41 Motor speed of paired axis

Address:	2014-2Ah	Effective	-
Min.:	-32767	mode:	
Max.:	32767	Unit:	rpm
Default:	0	Data Type:	Int16
		Change:	Unchangeable

Value Range:

-32767rpm to 32767rpm

Description

Motor speed of paired axis

H14.44 Alarm time threshold of large gantry deviation

Address:	2014-2Dh	Effective	Real time
Min.:	0.5	mode:	
Max.:	1000.0	Unit:	ms
Default:	3.0	Data Type:	UInt16
		Change:	Real-time

Value Range:

0.5 ms–1000.0 ms

Description

The alarm time threshold of large gantry deviation.

H14.45 Gantry position alarm threshold

Address:	2014-2Eh	Effective	Real time
Min.:	0	mode:	
Max.:	4294967295	Unit:	Encoder unit
		Data Type:	UInt32

Default: 50000

Change: At stop

Value Range:

0 to 4294967295

Description

Gantry position alarm threshold.

H14.47 Large gantry position deviation alarm enable

Address: 2014-30h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 1

Change: Real-time

Value Range:

0: Disabled

1: Enabled

Description

Large gantry position deviation alarm enable

0: Disabled

1: Enabled

H14.48 Alarm time threshold of large gantry torque deviation

Address: 2014-31h

Effective mode: Real time

Min.: 0.5

Unit: ms

Max.: 1000.0

Data Type: UInt16

Default: 3.0

Change: Real-time

Value Range:

0.5 ms–1000.0 ms

Description

The alarm time threshold of large gantry torque deviation.

H14.49 Gantry torque deviation alarm threshold

Address: 2014-32h

Effective mode: Real time

Min.: 0.0

Unit: %

Max.: 800.0

Data Type: UInt16

Default: 300.0

Change: At stop

Value Range:

0.0% to 800.0%

Description

The alarm threshold for large gantry torque deviation.

H14.50**Large gantry torque deviation alarm enable**

Address:	2014-33h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Disabled

1: Enabled

Description

Enables/disables large gantry torque deviation alarm.

0: Disabled

1: Enabled

H14.52**Gantry mismatch**

Address:	2014-35h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	1451	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–1451

Description

If the parameters of the two axes of the gantry do not match, they will be displayed.

H14.71**Flexible gantry homing - Enable aligning slave axis homing position to home offset**

Address:	2014-48h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No operation

1: Enabled

Description

Flexible gantry homing - Enable aligning slave axis homing position to home offset

0: No operation

1: Enabled

H14.74 Gantry scheme 2 slave axis enable

Address:	2014-4Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Enabled

Description

0: Slave axis not respond to position references in gantry scheme 2

1: Slave axis respond to position references in gantry scheme 2

4.21 H17 Virtual DI/DO**H17.90 Communication VDI enable**

Address:	2017-5Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

To use the VDI function:

1. Set H17.90 to enable VDI.
2. Set the default level after power-on through H17.91.
3. Set the DI function of the VDI terminal through parameters in group H17.
4. Set VDI output through H31.00.

H17.91 VDI default value after power-on

Address:	2017-5Ch	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: VDI1
bit1: VDI2
bit2: VDI3
bit3: VDI4
bit4: VDI5
bit5: VDI6
bit6: VDI7
bit7: VDI8
bit8: VDI9
bit9: VDI10
bit10: VDI11
bit11: VDI12
bit12: VDI13
bit13: VDI14
bit14: VDI15
bit15: VDI16

Description

Configures the initial value of VDI upon power-on.
Bit 0 corresponds to VDI1.
Bit 1 corresponds to VDI2.
...
Bit 15 corresponds to VDI16.

H17.00

VDI1 function

Address:	2017-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	59	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI1.

H17.01 VDI1 logic level selection

Address:	2017-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI1 active level

H17.02

VDI2 function

Address: 2017-03h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI2.

H17.03 VDI2 logic level selection

Address:	2017-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI2 active level

H17.04 VDI3 function

Address: 2017-05hEffective mode: Real time

Unit: -

Min.: 0Data Type: UInt16

Max.: 59Change: Real-time

Default: 0

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI3.

H17.05 VDI3 logic level selection

Address:	2017-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI3 active level

H17.06 VDI4 function

Address: 2017-07hEffective mode: Real time

Unit: -

Min.: 0Data Type: UInt16

Max.: 59Change: Real-time

Default: 0

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI4.

H17.07 VDI4 logic level selection

Address:	2017-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI4 active level

H17.08

VDI5 function

Address: 2017-09h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI5.

H17.09 VDI5 logic level selection

Address:	2017-0Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI5 active level

H17.10 VDI6 function

Address: 2017-0Bh

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI6.

H17.11 VDI6 logic level selection

Address:	2017-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI6 active level

H17.12

VDI7 function

Address: 2017-0Dh

Effective mode: Real time

Unit: -

Min.: 0

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI7.

H17.13 VDI7 logic level selection

Address:	2017-0Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default:0

Change:Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI7 active level

H17.14

VDI8 function

Address:2017-0Fh

Effective mode:Real time

Min.:0

Unit:-

Max.:59

Data Type:UInt16

Default:0

Change:Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI8.

H17.15 VDI8 logic level selection

Address:	2017-10h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI8 active level

H17.16 VDI9 function

Address: 2017-11h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI9.

H17.17 VDI9 logic level selection

Address:	2017-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI9 active level

H17.18 VDI10 function

Address: 2017-13h

Effective Real time

mode:

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI10.

H17.19 VDI10 logic level selection

Address:	2017-14h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default:0

Change:Real-time

Value Range:
0: Active when the written value is 1
1: Active when the written value changes from 0 to 1

Description
Set VDI10 active level

H17.20

VDI11 function

Address:2017-15h

Effective mode:Real time

Min.:0

Unit:-

Max.:59

Data Type:UInt16

Default:0

Change:Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI11.

H17.21 VDI11 logic level selection

Address:	2017-16h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI11 active level

H17.22

VDI12 function

Address: 2017-17h

Effective mode: Real time

Unit: -

Min.: 0

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI12.

H17.23 VDI12 logic level selection

Address:	2017-18h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI12 active level

H17.24

VDI13 function

Address: 2017-19h

Effective	Real time
mode:	

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI13.

H17.25 VDI13 logic level selection

Address:	2017-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI13 active level

H17.26 VDI14 function

Address: 2017-1BhEffective mode: Real time

Unit: -

Min.: 0Data Type: UInt16

Max.: 59Change: Real-time

Default: 0

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI14.

H17.27 VDI14 logic level selection

Address:	2017-1Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI14 active level

H17.28

VDI15 function

Address: 2017-1Dh

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 59

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI15.

H17.29 VDI15 logic level selection

Address:	2017-1Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI15 active level

H17.30 VDI16 function

Address: 2017-1FhEffective mode: Real time

Unit: -

Min.: 0Data Type: UInt16

Max.: 59Change: Real-time

Default: 0

Value Range:

- 0: No assignment
- 1: Servo ON
- 2: Alarm reset signal
- 5: Multi-reference direction
- 6: Multi-reference switchover CMD1
- 7: Multi-reference switchover CMD2
- 8: Multi-reference switchover CMD3
- 9: Multi-reference switchover CMD4
- 14: Positive limit switch
- 15: Negative limit switch
- 16: Positive external torque limit
- 17: Negative external torque limit
- 18: Forward jog
- 19: Reverse jog
- 24: Electronic gear
- 28: Multi-position reference enable
- 31: Home switch
- 34: Emergency stop
- 36: Internal speed limit source
- 40: Multi-speed enable
- 46: Process segment enable
- 47: Process segment command switchover 1
- 48: Process segment command switchover 2
- 49: Process segment command switchover 3
- 50: Process segment command switchover 4
- 51: Event trigger process segment 1
- 52: Event trigger process segment 2
- 53: Event trigger process segment 3
- 54: Event trigger process segment 4
- 55: Process segment pause
- 56: Gantry torque alignment
- 57: Gantry DI alignment enable
- 58: Gantry DI alignment clear
- 59: Gantry synchronization enable

Description

Defines the function of VDI16.

H17.31 VDI16 logic level selection

Address:	2017-20h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 0

Change: Real-time

Value Range:

0: Active when the written value is 1

1: Active when the written value changes from 0 to 1

Description

Set VDI16 active level

H17.92

Communication VDO enable

Address: 2017-5Dh

Effective mode: Real time

Unit: -

Min.: 0

Max.: 1

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0: Disabled

1: Enabled

Description

To use the VDO function:

1. Set H17.92 to enable VDO.

2. Set the default level after power-on through H17.93.

3. Set the DO function of the VDO terminal through parameters in group H17.

4: Read the output level of the VDO in H17.32.

H17.93

VDO default value after power-on

Address: 2017-5Eh

Effective mode: Real time

Unit: -

Min.: 0x0

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: At stop

Value Range:

bit0: VDO1
 bit1: VDO2
 bit2: VDO3
 bit3: VDO4
 bit4: VDO5
 bit5: VDO6
 bit6: VDO7
 bit7: VDO8
 bit8: VDO9
 bit9: VDO10
 bit10: VDO11
 bit11: VDO12
 bit12: VDO13
 bit13: VDO14
 bit14: VDO15
 bit15: VDO16

Description

Configures the initial value of VDO upon power-on.
 Bit 0 corresponds to VDO1.
 Bit 1 corresponds to VDO2.
 ...
 Bit 15 corresponds to VDO16.

H17.32 VDO virtual level

Address:	2017-21h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Display the VDO virtual level.

H17.33 VDO1 function

Address:	2017-22h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking
- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description
Set the function of VDO1.

H17.34 VDO1 logic level selection

Address:	2017-23h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:
0: Output 1 upon active logic
1: Output 0 upon active logic

Description
Set VDO1 active level.

H17.35 VDO2 function

Address:	2017-24h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.36 VDO2 logic level selection

Address:	2017-25h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.37 VDO3 function

Address:	2017-26h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.38 VDO3 logic level selection

Address:	2017-27h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.39 VDO4 function

Address:	2017-28h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.40 VDO4 logic level selection

Address:	2017-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.41 VDO5 function

Address:	2017-2Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.42 VDO5 logic level selection

Address:	2017-2Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.43 VDO6 function

Address:	2017-2Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Undefined
 1: Servo ready
 2: Motor rotation signal
 5: Positioning completed
 6: Positioning near
 9: Braking

 10: Warning
 11: Failure
 22: Internal command completed
 24: Internal motion completed
 26: Closed-loop state
 27: Left limit
 28: Right limit
 33: Gantry alignment

Description

See H17.33.

H17.44 VDO6 logic level selection

Address:	2017-2Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Output 1 upon active logic
 1: Output 0 upon active logic

Description

See H17.34.

H17.45 VDO7 function

Address:	2017-2Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.46 VD07 logic level selection

Address:	2017-2Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.47 VD08 function

Address:	2017-30h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.48 VDO8 logic level selection

Address:	2017-31h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.49 VDO9 function

Address:	2017-32h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description
See H17.33.

H17.50 VDO9 logic level selection

Address:	2017-33h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:
0: Output 1 upon active logic
1: Output 0 upon active logic

Description
See H17.34.

H17.51 VDO10 function

Address:	2017-34h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.52 VDO10 logic level selection

Address:	2017-35h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.53 VDO11 function

Address:	2017-36h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description
See H17.33.

H17.54 VDO11 logic level selection

Address:	2017-37h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:
0: Output 1 upon active logic
1: Output 0 upon active logic

Description
See H17.34.

H17.55 VDO12 function

Address:	2017-38h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.56 VDO12 logic level selection

Address:	2017-39h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.57 VDO13 function

Address:	2017-3Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.58 VDO13 logic level selection

Address:	2017-3Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.59 VDO14 function

Address:	2017-3Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.60 VDO14 logic level selection

Address:	2017-3Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

H17.61 VDO15 function

Address:	2017-3Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description
See H17.33.

H17.62 VDO15 logic level selection

Address:	2017-3Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:
0: Output 1 upon active logic
1: Output 0 upon active logic

Description
See H17.34.

H17.63 VDO16 function

Address:	2017-40h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	33	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Undefined
- 1: Servo ready
- 2: Motor rotation signal
- 5: Positioning completed
- 6: Positioning near
- 9: Braking

- 10: Warning
- 11: Failure
- 22: Internal command completed
- 24: Internal motion completed
- 26: Closed-loop state
- 27: Left limit
- 28: Right limit
- 33: Gantry alignment

Description

See H17.33.

H17.64 VDO16 logic level selection

Address:	2017-41h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Output 1 upon active logic
- 1: Output 0 upon active logic

Description

See H17.34.

4.22 H18 Position Comparison Output

H18.00 Position comparison output selection

Address:	2018-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- 0: Disable
- 1: Enable (rising edge-triggered)

Description

0: Disable

1: Enable (rising edge-triggered)

H18.01 Position comparison output feedback source

Address:	2018-02h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: Motor encoder feedback

1: Fully closed-loop position feedback

Description

Select position comparison output feedback source.

0: Motor encoder feedback

1: Fully closed-loop position feedback

H18.02 Position comparison resolution

Address:	2018-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

0: 24-bit

1: 23-bit

2: 22-bit

3: 21-bit

4: 20-bit

5: 19-bit

6: 18-bit

7: 17-bit

Description

Set position comparison resolution

0: 24-bit

1: 23-bit

2: 22-bit

3: 21-bit

4: 20-bit

5: 19-bit

6: 18-bit

7: 17-bit

H18.03 Position comparison mode

Address: 2018-04h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 2

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Individual comparison mode

1: Cyclic comparison mode

2: Fixed cyclic comparison mode

Description

Set position comparison mode

0: Individual comparison mode

1: Cyclic comparison mode

2: Fixed cyclic comparison mode

H18.04 Current position as zero

Address: 2018-05h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Disable

1: Enable (rising edge-triggered)

Description

Current position as zero

H18.05 Position comparison output width

Address: 2018-06h

Effective mode: Real time

Min.:	0.1	Unit:	ms
Max.:	204.7	Data Type:	UInt16
Default:	0.1	Change:	Real-time

Value Range:

0.1 ms–204.7 ms

Description

Defines the active pulse width of the DO when the comparison point is reached.
The value range is 0 to 204.7 (unit: 1 ms).

H18.06 Position comparison output ABZ port polarity

Address:	2018-07h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit 0: OCZ output logic
0: Positive, output high level upon active logic
1: Negative, output low level upon active logic
Bit 1: Z port output logic
0: Positive, output high level upon active logic
1: Negative, output low level upon active logic
bit2: A/B output logic
0: Positive, output high level upon active logic
1: Negative, output low level upon active logic

Description

0: Positive (output high level upon active logic) 1: Negative (output high level upon active logic)
bit0: OCZ output logic
Bit1: Z output logic
Bit2: A/B output logic

H18.07 Position comparison start point

Address:	2018-08h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	40	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1–40

Description

Set position comparison start point.

H18.08 Position comparison end point

Address:	2018-09h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	40	Data Type:	UInt16
Default:	1	Change:	Real-time

Value Range:

1–40

Description

Set position comparison end point.

H18.09 Current state of position comparison

Address:	2018-0Ah	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1024	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–1024

Description

Display current state of position comparison.

H18.10 Real-time position of position comparison

Address:	2018-0Bh	Effective mode:	-
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648–2147483647

Description

Display the real-time position of position comparison.

H18.12 Zero offset of position comparison

Address:	2018-0Dh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32

Change: Real-time

Value Range:

-2147483648-2147483647

Description

Set the zero offset of position comparison.

H18.14 Position comparison output delay compensation

Effective mode: Upon the next power-on

Unit: μs

Data Type: Int16

Change: Real-time

Value Range:

-12.00μs to 12.00μs

Description

Compensates the delay caused by hardware signal output.

H18.15 Fixed cyclic comparison

Effective Real time
mode:

Unit: -

Data Type: UInt16

Change: Real-time

Value Range:

1-65535

Description

Set fixed cyclic comparison.

H18.16 ABZ output function setting

Effective Real time
mode:

Unit: -

Data Type: UInt16

Change: Real-time

Value Range:

bit0: OCZ output function
 0: Frequency-division output
 1: Position comparison
 bit1: Z port output function
 0: Frequency-division output
 1: Position comparison
 bit2: A/B port output function
 0: Frequency-division output
 1: Position comparison

Description

Set ABZ output function.
 bit0: OCZ (0: Frequency-division output; 1: Position comparison)
 bit1: Z (0: Frequency-division output; 1: Position comparison)
 bit2: A/B (0: Frequency-division output; 1: Position comparison)

H18.17 Number of fixed mode cycles

Address:	2018-12h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Set the number of fixed mode cycles.

4.23 H19 Target Position Parameters

H19.00 Target value of position comparison 1

Address:	2019-01h	Effective	Real time
		mode:	
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

Set the target value of position comparison 1.

H19.02 Attribute value of position comparison 1

Address:	2019-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- Bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: N/A
- bit3: N/A
- bit4: N/A
- bit5: N/A
- bit6: N/A
- bit7: DO1 output
- bit8: DO2 output
- bit9: N/A
- bit10:
- bit10: N/A
- bit11: N/A
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

- Attribute setting of position comparison point 1
- Bit0: 1: Current position changes from "less than" to "more than" the comparison point; 0: N/A
 - Bit0: 1: Current position changes from "more than" to "less than" the comparison point; 0: N/A
 - bit2 to bit6: NA
 - Bit7: 1: DO1 output enabled; 0: N/A
 - Bit8: 1: DO2 output enabled; 0: N/A
 - Bit9 to bit11: N/A
 - Bit12: 1: Frequency-division A output enabled; 0: N/A
 - Bit13: 1: Frequency-division B output enabled; 0: N/A
 - Bit14: 1: Frequency-division C output enabled; 0: N/A
 - Bit15: 1: Frequency-division OCZ output enabled; 0: N/A

H19.03 Target value of position comparison 2

Address:	2019-04h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.05 Attribute value of position comparison 2

Address:	2019-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: N/A

bit3: N/A

bit4: N/A

bit5: N/A

bit6: N/A

bit7: DO1 output

bit8: DO2 output

bit9: N/A

bit10: N/A

bit11: N/A

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.06 Target value of position comparison 3

Address:	2019-07h	Effective mode:	Real time

Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.08 Attribute value of position comparison 3

Address:	2019-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: N/A

bit3: N/A

bit4: N/A

bit5: N/A

bit6: N/A

bit7: DO1 output

bit8: DO2 output

bit9: Nabit10:

bit10: N/A

bit11: N/A

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.09 Target value of position comparison 4

Address:	2019-0Ah	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.11 Attribute value of position comparison 4

Address:	2019-0Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: N/A

bit3: N/A

bit4: N/A

bit5: N/A

bit6: N/A

bit7: DO1 output

bit8: DO2 output

bit9: Nabit10:

bit10: N/A

bit11: N/A

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.12 Target value of position comparison 5

Address:	2019-0Dh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.14 Attribute value of position comparison 5

Address:	2019-0Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: N/A

bit3: N/A

bit4: N/A

bit5: N/A

bit6: N/A

bit7: DO1 output

bit8: DO2 output

bit9: Nabit10:

bit10: N/A

bit11: N/A

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.15 Target value of position comparison 6

Address:	2019-10h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.17 Attribute value of position comparison 6

Address:	2019-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: N/A

bit3: N/A

bit4: N/A

bit5: N/A

bit6: N/A

bit7: DO1 output

bit8: DO2 output

bit9: Nabit10:

bit10: N/A

bit11: N/A

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.18 Target value of position comparison 7

Address:	2019-13h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648~2147483647

Description

See H19.00.

H19.20 Attribute value of position comparison 7

Address:	2019-15h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point

bit1: Current position changes from "more than" to "less than" the comparison point

bit2: N/A

bit3: N/A

bit4: N/A

bit5: N/A

bit6: N/A

bit7: DO1 output

bit8: DO2 output

bit9: Nabit10:

bit10: N/A

bit11: N/A

bit12: Frequency-division A output

bit13: Frequency-division B output

bit14: Frequency-division Z output

bit15: Frequency-division OCZ output

Description

See H19.02.

H19.21 Target value of position comparison 8

Address:	2019-16h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.23 Attribute value of position comparison 8

Address:	2019-18h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.24 Target value of position comparison 9

Address:	2019-19h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.26 Attribute value of position comparison 9

Address:	2019-1Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.27 Target value of position comparison 10

Address:	2019-1Ch	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.29 Attribute value of position comparison 10

Address:	2019-1Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.30 Target value of position comparison 11

Address:	2019-1Fh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.32 Attribute value of position comparison 11

Address:	2019-21h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.33 Target value of position comparison 12

Address:	2019-22h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.35 Attribute value of position comparison 12

Address:	2019-24h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.36 Target value of position comparison 13

Address:	2019-25h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.38 Attribute value of position comparison 13

Address:	2019-27h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.39 Target value of position comparison 14

Address:	2019-28h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.41 Attribute value of position comparison 14

Address:	2019-2Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.42 Target value of position comparison 15

Address:	2019-2Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.44 Attribute value of position comparison 15

Address:	2019-2Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.45 Target value of position comparison 16

Address:	2019-2Eh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.47 Attribute value of position comparison 16

Address:	2019-30h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.48 Target value of position comparison 17

Address:	2019-31h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.50 Attribute value of position comparison 17

Address:	2019-33h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.51 Target value of position comparison 18

Address:	2019-34h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.53 Attribute value of position comparison 18

Address:	2019-36h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.54 Target value of position comparison 19

Address:	2019-37h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.56 Attribute value of position comparison 19

Address:	2019-39h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.57 Target value of position comparison 20

Address:	2019-3Ah	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.59 Attribute value of position comparison 20

Address:	2019-3Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.60 Target value of position comparison 21

Address:	2019-3Dh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.62 Attribute value of position comparison 21

Address:	2019-3Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.63 Target value of position comparison 22

Address:	2019-40h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.65 Attribute value of position comparison 22

Address:	2019-42h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.66 Target value of position comparison 23

Address:	2019-43h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.68 Attribute value of position comparison 23

Address:	2019-45h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.69 Target value of position comparison 24

Address:	2019-46h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.71 Attribute value of position comparison 24

Address:	2019-48h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.72

Target value of position comparison 25

Address:	2019-49h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.74

Attribute value of position comparison 25

Address:	2019-4Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.75 Target value of position comparison 26

Address:	2019-4Ch	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.77 Attribute value of position comparison 26

Address:	2019-4Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.78 Target value of position comparison 27

Address:	2019-4Fh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.80 Attribute value of position comparison 27

Address:	2019-51h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.81 Target value of position comparison 28

Address:	2019-52h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.83 Attribute value of position comparison 28

Address:	2019-54h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.84 Target value of position comparison 29

Address:	2019-55h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.86 Attribute value of position comparison 29

Address:	2019-57h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.87 Target value of position comparison 30

Address:	2019-58h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.89 Attribute value of position comparison 30

Address:	2019-5Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.90 Target value of position comparison 31

Address:	2019-5Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.92 Attribute value of position comparison 31

Address:	2019-5Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.93 Target value of position comparison 32

Address:	2019-5Eh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.95 Attribute value of position comparison 32

Address:	2019-60h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.96 Target value of position comparison 33

Address:	2019-61h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.98 Attribute value of position comparison 33

Address:	2019-63h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.99 Target value of position comparison 34

Address:	2019-64h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.101 Attribute value of position comparison 34

Address:	2019-66h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.102 Target value of position comparison 35

Address:	2019-67h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.104 Attribute value of position comparison 35

Address:	2019-69h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

- Bit0: Current position changes from "less than" to "more than" the comparison point
- bit1: Current position changes from "more than" to "less than" the comparison point
- bit2: N/A
- bit3: N/A
- bit4: N/A
- bit5: N/A
- bit6: N/A
- bit7: DO1 output
- bit8: DO2 output
- bit9: Nabit10:
- bit10: N/A
- bit11: N/A
- bit12: Frequency-division A output
- bit13: Frequency-division B output
- bit14: Frequency-division Z output
- bit15: Frequency-division OCZ output

Description

See H19.02.

H19.105 Target value of position comparison 36

Address:	2019-6Ah	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.107 Attribute value of position comparison 36

Address:	2019-6Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.108 Target value of position comparison 37

Address:	2019-6Dh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.110 Attribute value of position comparison 37

Address:	2019-6Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.111 Target value of position comparison 38

Address:	2019-70h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.113 Attribute value of position comparison 38

Address:	2019-72h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

H19.114 Target value of position comparison 39

Address:	2019-73h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.116 Attribute value of position comparison 39

Address:	2019-75h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
bit1: Current position changes from "more than" to "less than" the comparison point
bit2: N/A
bit3: N/A
bit4: N/A
bit5: N/A
bit6: N/A
bit7: DO1 output
bit8: DO2 output
bit9: Nabit10:
bit10: N/A
bit11: N/A
bit12: Frequency-division A output
bit13: Frequency-division B output
bit14: Frequency-division Z output
bit15: Frequency-division OCZ output

Description

See H19.02.

H19.117 Target value of position comparison 40

Address:	2019-76h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See H19.00.

H19.119 Attribute value of position comparison 40

Address:	2019-78h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

Bit0: Current position changes from "less than" to "more than" the comparison point
 bit1: Current position changes from "more than" to "less than" the comparison point
 bit2: N/A
 bit3: N/A
 bit4: N/A
 bit5: N/A
 bit6: N/A
 bit7: DO1 output
 bit8: DO2 output
 bit9: Nabit10:
 bit10: N/A
 bit11: N/A
 bit12: Frequency-division A output
 bit13: Frequency-division B output
 bit14: Frequency-division Z output
 bit15: Frequency-division OCZ output

Description

See H19.02.

4.24 H1F Software Parameters

H1F.90 DI function status 1 read through communication

Address:	201F-5Bh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DI function 1.
 Bit 1 corresponds to DI function 2.
 Bit 2 corresponds to DI function 3.
 ...
 By analogy

H1F.91 DI function status 2 read through communication

Address:	201F-5Ch	Effective mode:	-

Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DI function 17.

Bit 1 corresponds to DI function 18.

Bit 2 corresponds to DI function 19.

...

By analogy

H1F.92 DI function status 3 read through communication

Address:	201F-5Dh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DI function 33.

Bit 1 corresponds to DI function 34.

Bit 2 corresponds to DI function 35.

...

By analogy

H1F.93 DI function status 4 read through communication

Address:	201F-5Eh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DI function 49.

Bit 1 corresponds to DI function 50.

Bit 2 corresponds to DI function 51.

...

By analogy

H1F.94 DO function status 1 read through communication

Address:	201F-5Fh	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DO function 1.

Bit 1 corresponds to DO function 2.

Bit 2 corresponds to DO function 3.

...

By analogy

H1F.95 DO function status 2 read through communication

Address:	201F-60h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DO function 17.

Bit 1 corresponds to DO function 18.

Bit 2 corresponds to DO function 19.

...

By analogy

4.25 H21 Current Loop Gain Switchover Parameters**H21.00 Current loop gain switchover**

Address:	2021-01h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0: No operation

1: Enabled

Description

Used to enable or disable the current loop gain switchover function.

0: No operation, turned off

1: Enabled, turned on

4.26 H22 Technology Segment Parameters

H22.00 Process segment command trigger

Address:	2022-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1000	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–1000

Description

Used to trigger the process segment. The process segment can be triggered through the keypad or communication.

The homing function is triggered when 0 is written to H22.00.

Process segments 1 to 15 are triggered when 1 to 15 are written to H22.00.

The process segment pauses when 1000 is written to H22.00.

E126.0 (Process segment number error) will be reported when 16 to 999 are written to H22.00.

H22.01 Process segment triggered by the event rising edge

Address:	2022-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

DI: ProceEvTri (OFF to ON, rising edge-triggered).

0–3bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri1 rising edge. When its value is 1–15, DI is triggered: Process segment 1–15 is executed during ProceEvTri1 rising edge.

4–7bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri2 rising edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri2 rising edge.

8–11bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri3 rising edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri3 rising edge.

12–15bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri4 rising edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri4 rising edge.

H22.02 Process segment triggered by the event falling edge

Address:	2022-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

DI: ProceEvTri (ON to OFF, falling edge-triggered).

0–3bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri1 falling edge. When its value is 1–15, DI is triggered: Process segment 1–15 is executed during ProceEvTri1 falling edge.

4–7bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri2 falling edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri2 falling edge.

8–11bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri3 falling edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri3 falling edge.

12–15bit: When its value is 0, DI is triggered: The motor does not operate during ProceEvTri4 falling edge. When its value is 1–15, DI is triggered: Process segments 1–15 are executed during ProceEvTri4 falling edge.

H22.03 Acceleration/Deceleration time upon technology segment pause

Address:	2022-04h	Effective mode:	Real time
Min.:	0	Unit:	-

Max.: 7

Data Type: UInt16

Default: 0

Change: Real-time

Value Range:

0: Acceleration/Deceleration time

1: Acceleration/Deceleration time 1

2: Acceleration/Deceleration time 2

3: Acceleration/Deceleration time 3

4: Acceleration/Deceleration time 4

5: Acceleration/Deceleration time 5

6: Acceleration/Deceleration time 6

7: Acceleration/Deceleration time 7

Description

When the process segment is paused, the motor ramps to stop based on the deceleration time defined by H22.03. Setpoints 0 to 7 correspond to parameters H22.35 to H22.42.

H22.04 Positive software position limit

Address: 2022-05h

Effective mode: Real time

Min.: -2147483648

Unit: Reference unit

Max.: 2147483647

Data Type: Int32

Default: 2147483647

Change: Real-time

Value Range:

-2147483648 to 2147483647

Description

E956.0 can occur when the motor operates forwardly with position reference exceeding the setpoint of H22.04 during positioning in the process segment mode.

H22.06 Negative software position limit

Address: 2022-07h

Effective mode: Real time

Min.: -2147483648

Unit: Reference unit

Max.: 2147483647

Data Type: Int32

Default: -2147483648

Change: Real-time

Value Range:

-2147483648 to 2147483647

Description

E958.0 can occur when the motor operates reversely with position reference exceeding the setpoint of H22.06 during positioning in the process segment mode.

H22.08 Process segment number

Address:	2022-09h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Indicates the process segment number in progress in the process segment mode.

H22.09 Process segment function switch

Address:	2022-0Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

bit0:

0: Keep interrupt positioning state

1: Exit interrupt positioning state when triggering technology segment

H22.10 Process segment state

Address:	2022-0Bh	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Used for process segment state feedback.

The process segment number will be read back when commands in the positioning mode are not done executing.

The process segment number + 10000 will be read back when commands in the positioning mode are done executing.

The process segment number + 20000 will be read back when commands in the positioning mode are done executing and positioning has been completed.

H22.19**Target speed**

Address:	2022-14h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	50.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

Eight groups of target speed are available for each process segment command. Target speed refers to the constant operating speed when the motor is not in the acceleration/deceleration process. If the displacement is too small in the positioning mode, the actual motor speed will be lower than the setpoint of H22.19.

H22.20**Target speed 1**

Address:	2022-15h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	200.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.21**Target speed 2**

Address:	2022-16h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	500.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.22**Target speed 3**

Address:	2022-17h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]

Max.:	6000.0	Data Type:	UInt16
Default:	1000.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.23 Target speed 4

Address:	2022-18h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	1500.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.24 Target speed 5

Address:	2022-19h	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	2000.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.25 Target speed 6

Address:	2022-1Ah	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	2500.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.26 Target speed 7

Address:	2022-1Bh	Effective mode:	Real time
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	6000.0	Data Type:	UInt16
Default:	3000.0	Change:	Real-time

Value Range:

0.1[mm/s]/[rpm]–6000.0[mm/s]/[rpm]

Description

See H22.19.

H22.35 Accel/Decel time

Address:	2022-24h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	50	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Eight groups of acceleration/deceleration time are available for each process segment command.

Acceleration/Deceleration time refers to the time for the motor to change from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed.

H22.36 Acceleration/Deceleration time 1

Address:	2022-25h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.37 Acceleration/Deceleration time 2

Address:	2022-26h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16

Default: 500

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.38 Acceleration/Deceleration time 3

Address: 2022-27h

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 1000

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.39 Acceleration/Deceleration time 4

Address: 2022-28h

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 1500

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.40 Acceleration/Deceleration time 5

Address: 2022-29h

Effective mode: Real time

Min.: 0

Unit: ms

Max.: 65535

Data Type: UInt16

Default: 2000

Change: Real-time

Value Range:

0 ms–65535 ms

Description

See H22.35.

H22.41 Acceleration/Deceleration time 6

Address: 2022-2Ah

Effective mode: Real time

Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	2500	Change:	Real-time
Value Range:			
0 ms–65535 ms			
Description			
See H22.35.			

H22.42 Acceleration/Deceleration time 7

Address:	2022-2Bh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	3000	Change:	Real-time
Value Range:			
0 ms–65535 ms			
Description			
See H22.35.			

H22.51 Delay after completion of the process segment

Address:	2022-34h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time
Value Range:			
0 ms–65535 ms			
Description			
Eight groups of delay time are available for each process segment command. The delay time refers to the delay that starts from the end of current command to the operation of the next command in the process segment. See section 2.2 Process Segment Function.			

H22.52 Delay time 1 after completion of the process segment

Address:	2022-35h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	50	Change:	Real-time
Value Range:			
0 ms–65535 ms			

Description

See H22.51.

H22.53 Delay time 2 after completion of the process segment

Address:	2022-36h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	200	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See H22.51.

H22.54 Delay time 3 after completion of the process segment

Address:	2022-37h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	500	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See H22.51.

H22.55 Delay time 4 after completion of the process segment

Address:	2022-38h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	1000	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

See H22.51.

H22.56 Delay time 5 after completion of the process segment

Address:	2022-39h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16

Change: Real-time

0 ms–65535 ms

Description

See H22.51.

See H22.51.

H22.57 Delay time 6 after completion of the process segment

Effective	Real time
mode:	

mode:

Unit: ms

Data Type: UInt16

Change: Real-time

0 ms–65535 ms

Description

See H22.51.

See H22.51.

H22.58 Delay time 7 after completion of the process segment

Effective Real time
mode:

mode:

Unit: ms

Data Type: UInt16

Change: Real-time

0 ms–65535 ms

Description

See H22.51.

See H22.51.

H22.70 Process segment homing mode

Effective Real time
mode:

mode:

Unit: -

Data Type: Int16

Change: Real-time

-32768-32767

Description

Defines the default motor direction of rotation, deceleration point, and home during homing.

When H22.70 is set to a value from -2 to 35, 402 homing is used (6098h = -2...35). See section "Homing Function" in SV680P Series Servo Drive Function Guide for details.

When H22.70 is set to a value lower than or equal to -200, local homing is used (H22.70 = -200 + H05.31). See section "Homing Function" in SV680P Series Servo Drive Function Guide for details.

H22.71 Speed of high-speed search for home switch signal

Address:	2022-48h	Effective	Real time
		mode:	
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	3000	Data Type:	UInt16
Default:	100	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–3000[mm/s]/[rpm]

Description

Defines the motor speed for searching for the deceleration point signal during homing.

H22.72 Speed of low-speed search for home switch signal

Address:	2022-49h	Effective	Real time
		mode:	
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Defines the motor speed for searching for the home signal during homing.

H22.73 Acceleration/Deceleration time during homing

Address:	2022-4Ah	Effective	Real time
		mode:	
Min.:	0	Unit:	ms
Max.:	1000	Data Type:	UInt16
Default:	1000	Change:	Real-time

Value Range:

0 ms–1000 ms

Description

Defines the time for the motor to accelerate from 0 [mm/s]/[rpm] to 1000 [mm/s]/[rpm] at a constant speed during homing.

H22.74 Home search time limit

Address:	2022-4Bh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	10000	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the maximum homing time.

H22.75 Mechanical home offset

Address:	2022-4Ch	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the absolute position of the motor after homing.

H22.79 Relative/Absolute homing

Address:	2022-50h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

Defines the offset relationship between the mechanical home and mechanical zero point, and the action upon overtravel during homing.

When H22.79 is set to 0, the value of H05.40 is 2.

When H22.79 is set to 1, the value of H05.40 is 3.

H22.83 Jump count threshold

Address:	2022-54h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65534

Description

Eight jump count thresholds are provided for each process segment command. Jump count threshold: There are two jump process segments for the jump command. When the cumulative number of jumps executed by the jump command is lower than the jump count threshold, you will jump to process segment A, otherwise jump to process segment B. For details, see section 2.2.

H22.84 Jump count threshold 1

Address:	2022-55h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	20	Change:	Real-time

Value Range:

0–65534

Description

See H22.83.

H22.85 Jump count threshold 2

Address:	2022-56h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	40	Change:	Real-time

Value Range:

0–65534

Description

See H22.83.

H22.86 Jump count threshold 3

Address:	2022-57h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	80	Change:	Real-time

Value Range:

0–65534

Description

See H22.83.

H22.87	Jump count threshold 4		
Address:	2022-58h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	160	Change:	Real-time
Value Range:			
0–65534			
Description			
See H22.83.			

H22.88	Jump count threshold 5		
Address:	2022-59h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	320	Change:	Real-time
Value Range:			
0–65534			
Description			
See H22.83.			

H22.89	Jump count threshold 6		
Address:	2022-5Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	640	Change:	Real-time
Value Range:			
0–65534			
Description			
See H22.83.			

H22.90	Jump count threshold 7		
Address:	2022-5Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65534	Data Type:	UInt16
Default:	1280	Change:	Real-time
Value Range:			
0–65534			

Description

See H22.83.

4.27 H23 Technology Segment

H23.00

Definition of homing

Address:	2023-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

For details about this parameter, see section 2.2.3 Homing Mode in SV680N Series Servo Drive Function Guide.

H23.02

Homing data

Address:	2023-03h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

Not used.

H23.04

Definition of process segment 1

Address:	2023-05h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

bit0 to bit3: Mode (process segment operation mode option)

Mode = 1: The fixed speed mode applies. Mode = 2: The positioning mode applies, which stops after positioning is done. Mode = 3: The next segment is executed automatically after positioning is done. Mode = 7: The jump mode applies, which is used to jump to the designated process segment. Mode = 8: The parameter-write mode applies, which allows you to write specific parameters.

For details on each mode, see section 2.2.4 in the SV680P Series Servo Drive Function Guide.

H23.06 Data of process segment 1

Address:	2023-07h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

Different modes selected in process segment 1 correspond to different process segment data. For details on each mode, see section 2.2.4 of the SV680P Series Servo Drive Function Guide.

H23.08 Definition of process segment 2

Address:	2023-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.10 Data of process segment 2

Address:	2023-0Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.12 Definition of process segment 3

Address:	2023-0Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.14 Data of process segment 3

Address:	2023-0Fh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.16 Definition of process segment 4

Address:	2023-11h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.18 Data of process segment 4

Address:	2023-13h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32

Address:	2023-15h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time
Value Range: 0—4294967295			
Description See definition of technology segment 1.			

Address:	2023-17h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time
Value Range: -2147483648–2147483647			
Description See that of technology segment 1.			

Address:	2023-19h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time
Value Range:			
0–4294967295			
Description			
See definition of technology segment 1.			

H23.26 Data of process segment 6

Address:	2023-1Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.28 Definition of process segment 7

Address:	2023-1Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.30 Data of process segment 7

Address:	2023-1Fh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.32 Definition of process segment 8

Address:	2023-21h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.34 Data of process segment 8

Address:	2023-23h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.36 Definition of process segment 9

Address:	2023-25h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.38 Data of process segment 9

Address:	2023-27h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.40 Definition of process segment 10

Address:	2023-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32

Change: Real-time

Value Range:

0-4294967295

Description

See definition of technology segment 1.

H23.42 Data of process segment 10

Address: 2023-2Bh

Effective mode:	Real time
$\frac{1}{2} \left(\frac{1}{\tau_{\text{eff}}} + \frac{1}{\tau_{\text{eff}}} \right)$	$\frac{1}{2} \left(\frac{1}{\tau_{\text{eff}}} + \frac{1}{\tau_{\text{eff}}} \right)$

Min.: -2147483648

Unit: -

Max.: 2147483647

Data Type: Int32

Default: 0

Change: Real-time

Value Range:

-2147483648-2147483647

Description

See that of technology segment 1.

H23.44 Definition of process segment 11

Address: 2023-2Dh

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 4294967295

Data Type: UInt32

Default: 0

Change: Real-time

Value Range:

0-4294967295

Description

See definition of technology segment 1.

H23.46 Data of process segment 11

Address: 2023-2Fh

Effective Real time
mode:

Min.: -2147483648

Unit: -

Max.: 2147483647

Data Type: Int32

Default: 0

Change: Real-time

Value Range:

-2147483648-2147483647

Description

See that of technology segment 1.

H23.48 Definition of process segment 12

Address:	2023-31h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.50 Data of process segment 12

Address:	2023-33h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.52 Definition of process segment 13

Address:	2023-35h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.54 Data of process segment 13

Address:	2023-37h	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.56 Definition of process segment 14

Address:	2023-39h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.58 Data of process segment 14

Address:	2023-3Bh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648–2147483647

Description

See that of technology segment 1.

H23.60 Definition of process segment 15

Address:	2023-3Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0–4294967295

Description

See definition of technology segment 1.

H23.62 Data of process segment 15

Address:	2023-3Fh	Effective mode:	Real time
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32

Change: Real-time

Value Range:

-2147483648-2147483647

Description

See that of technology segment 1.

4.28 H30 Related Variables Read through Communication

H30.00 Servo state read via communication

Effective -

mode:

Unit: -

Data Type: UInt16

Change: Unchangeable

Value Range:

0-65535

Description

Displays the current running state of the drive to be communicated to the software.

H30.01 DO function status 1 read through communication

Effective -

mode:

Unit: -

Data Type: UInt16

Change: Unchangeable

Value Range:

0-65535

Description

Bit 0 corresponds to DO function 1.

Bit 1 corresponds to DO function 2.

Bit 2 corresponds to DO function 3.

...

By analogy

H30.02 DO function status 2 read through communication

Effective -

mode:

Unit: -

Data Type: UInt16

Default: 0

Change: Unchangeable

Value Range:

0–65535

Description

Bit 0 corresponds to DO function 17.

Bit 1 corresponds to DO function 18.

Bit 2 corresponds to DO function 19.

...

By analogy

H30.16 1st encoder communication timeout count

Address: 2030-11h

Effective -

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: Unchangeable

Value Range:

0–65535

Description

It indicates the total number of communication timeout errors of the first encoder after the latest power-on.

H30.17 1st encoder communication CRC error count

Address: 2030-12h

Effective -

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: Unchangeable

Value Range:

0–65535

Description

It indicates the total number of communication CRC errors of the first encoder after the latest power-on.

H30.18 1st encoder communication frame stop bit error count

Address: 2030-13h

Effective -

mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: Unchangeable

Value Range:

0–65535

Description

It indicates the total number of communication frame stop bit errors of the encoder after the latest power-on.

4.29 H31 Communication Setting

H31.00 VDI virtual level set through communication

Address:	2031-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

When H17.90 is set to 1, the VDI state is defined by this parameter.
The VDI logic is determined by H17.91 (Default VDI virtual level value upon power-on) upon initial power-on. Then, H31.00 is determined by the VDI logic. "bit(n) = 1" of H31.00 indicates the logic of VDI (n+1) is "1". "bit(n)=0" indicates the logic of VDI (n+1) is "0".

H31.01 Frequency-division output frequency set through communication

Address:	2031-02h	Effective mode:	Real time
Min.:	0	Unit:	Hz
Max.:	16000000	Data Type:	UInt32
Default:	0	Change:	Real-time

Value Range:

0 Hz–16000000 Hz

Description

When H05.38 is set to 4, H31.01 sets the frequency of the frequency division output port.

H31.04 DO status set through communication

Address:	2031-05h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

Sets DO output status.

H31.05 AO status set through communication

Address:	2031-06h	Effective mode:	Real time
Min.:	-10000	Unit:	mV
Max.:	10000	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-10000 mV–10000 mV

Description

Set H04.50 to 10 to define AO through H31.05 (in mV).

H31.09 Speed reference set through communication

Address:	2031-0Ah	Effective mode:	Real time
Min.:	-9999.000	Unit:	[mm/s]/[rpm]
Max.:	9999.000	Data Type:	Int32
Default:	0.000	Change:	Real-time

Value Range:

-9999.000[mm/s]/[rpm]–9999.000[mm/s]/[rpm]

Description

Set H06.02 to 4 to define the speed reference in the speed control mode (unit: 0.001 [mm/s]/[rpm]).

H31.11 Torque reference set through communication

Address:	2031-0Ch	Effective mode:	Real time
Min.:	-100.000	Unit:	%
Max.:	100.000	Data Type:	Int32
Default:	0.000	Change:	Real-time

Value Range:

-100.000% to 100.000%

Description

Set H07.02 to 4 to define the torque reference in the torque control mode through this parameter (unit: 0.001%). The setpoint 100.000% corresponds to the rated torque of the motor.

4.30 H32 Direct Drive Parameters

H32.00 Encoder interpolator mismatch alarm (E124)

Address:	2032-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

The T2 interpolator matches the HipeFace encoder. The power-on check switch is turned on by default.

0: Disabled

1: Enabled

H32.01 Encoder interface switchover switch

Address:	2032-02h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Default encoder interface

1: Switching encoder interface

Description

Encoder interface

0: Default encoder interface

1: Switching encoder interface

H32.02 Angle auto-tuning upon power-on

Address:	2032-03h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

Angle auto-tuning starts after the drive switches to the rdy state and the time (in seconds) defined by H32.41 elapses.

0: Disabled

1: Enabled

H32.03 Angle auto-tuning switch controlled by control word

Address:	2032-04h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Control word 6

2: Control word 7

Description

Used to enable the angle auto-tuning switchover switch through the control word.

0: Disabled

1: Control word 6

2: Control word 7

H32.04 Angle auto-tuning state

Address:	2032-05h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

bit0: bit7 of 6041

bit1: E602.9

Description

Display an alarm or status bit when the incremental encoder is not angle auto-tuned.

Bit0: bit7 of 6041

Bit1: E602.9

H32.05 Pre-positioning retract selection

Address:	2032-06h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Default: 0 Change: At stop

Value Range:

0: Disabled

1: Enabled

Description

Used to retract by a certain distance after auto-tuning through pre-positioning is done.

0: Disabled

1: Enabled

H32.06 Position feedback

Address: 2032-07h Effective Real time

mode:

Min.: 0

Unit: -

Max.: 1

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0: Disabled

1: Enabled

Description

Used to align the position feedback to the position before angle auto-tuning for incremental encoders.

0: Disabled

1: Enabled

H32.07 Incremental homing method

Address: 2032-08h Effective Real time

mode:

Min.: 0

Unit: -

Max.: 9

Data Type: UInt16

Default: 1

Change: At stop

Value Range:

0: Z Signal short circuit

1: Only first short circuit

Description

Set Z signal of the increment encoder during Z signal homing.

0: Z Signal short circuit

1: Only first short circuit

Note: The width of the Z signal is set based on H32.08.

H32.08 Homing signal width

Address:	2032-09h	Effective mode:	Real time
Min.:	100	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	800	Change:	At stop

Value Range:

100–65535

Description

The setpoint is active after the position is latched by Z signal.

H32.10 Max. reference current in angle auto-tuning through inching

Address:	2032-0Bh	Effective mode:	At stop
Min.:	10.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	100.0	Change:	At stop

Value Range:

10.0% to 300.0%

Description

Defines the maximum reference current during auto-tuning.

H32.13 Motor operation threshold (ROT/DDR) in angle auto-tuning through inching

Address:	2032-0Eh	Effective mode:	At stop
Min.:	0.001	Unit:	deg
Max.:	20.000	Data Type:	UInt16
Default:	0.200	Change:	At stop

Value Range:

0.001deg to 20.000deg

Description

Sets motor operation threshold for position lock angle auto-tuning.

Usually no change is required. If you have special requirements for the operation range, you can adjust this parameter accordingly. The smaller the value, the smaller the operation range during auto-tuning, but the greater the auto-tuning error.

H32.14 Motor standstill threshold (ROT/DDR) in angle auto-tuning through inching

Address:	2032-0Fh	Effective mode:	At stop

Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.15 Motor operation threshold (DDL) in angle auto-tuning through inching

Address:	2032-10h	Effective	At stop
		mode:	
Min.:	0.001	Unit:	mm
Max.:	20.000	Data Type:	UInt16
Default:	0.200	Change:	At stop

Value Range:

0.001 millimeters–20.000 millimeters

Description

Sets motor operation threshold for position lock angle auto-tuning. Usually no change is required. If you have special requirements for the operation range, you can adjust this parameter accordingly. The smaller the value, the smaller the operation range during auto-tuning, but the greater the auto-tuning error.

H32.16 Motor standstill threshold (DDL) in angle auto-tuning through inching

Address:	2032-11h	Effective	At stop
		mode:	
Min.:	0.1	Unit:	mm/s
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1 mm/s–100.0 mm/s

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.18 Motor standstill threshold for inching angle auto-tuning

Address:	2032-13h	Effective	At stop
		mode:	
Min.:	0.1	Unit:	s
Max.:	10.0	Data Type:	UInt16
Default:	0.5	Change:	At stop

Value Range:

0.1s to 10.0s

Description

Sets motor standstill threshold for auto-tuning. Usually no change is required.

H32.20 Max. reference current in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-15h	Effective mode:	At stop
Min.:	10.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	100.0	Change:	At stop

Value Range:

10.0% to 300.0%

Description

Defines the maximum reference current during auto-tuning.

H32.22 Electrical angle reference in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-17h	Effective mode:	At stop
Min.:	0.0	Unit:	deg
Max.:	360.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0deg to 360.0deg

Description

Defines the electrical angle during auto-tuning through pre-positioning.

H32.23 Electrical angle reference change range in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-18h	Effective mode:	At stop
Min.:	10.0	Unit:	deg
Max.:	170.0	Data Type:	UInt16
Default:	90.0	Change:	At stop

Value Range:

10.0deg to 170.0deg

Description

Defines the electrical angle change range during auto-tuning.

H32.24 Motor stop threshold (ROT/DDR) in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-19h	Effective mode:	At stop
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.25 Motor stop threshold (DDL) in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-1Ah	Effective mode:	At stop
Min.:	0.1	Unit:	mm/s
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1 mm/s–100.0 mm/s

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.26 Damping in angle auto-tuning through pre-positioning (closed-loop)

Address:	2032-1Bh	Effective mode:	At stop
Min.:	0.00	Unit:	$[N/(m/s)]/[N \cdot m/rpm]$
Max.:	655.35	Data Type:	UInt16
Default:	0.00	Change:	At stop

Value Range:0.00 $[N/(m/s)]/[N \cdot m/rpm]$ –655.35 $[N/(m/s)]/[N \cdot m/rpm]$ **Description**

Sets the damping coefficient for motor auto-tuning. The appropriate coefficient ensures a smooth and impact-free operation.

(1) This coefficient is usually related to the load characteristics. Larger load requires a larger coefficient.

(2) When the coefficient is too small, the auto-tuning process may be prone to strong impact, which is normal. When it is too large, motor operation may be sluggish or even stops, which is also normal and a timeout alarm will be raised.

H32.29 Motor standstill threshold for close-loop pre-positioning angle auto-tuning

Address:	2032-1Eh	Effective mode:	At stop
Min.:	0.1	Unit:	s
Max.:	10.0	Data Type:	UInt16
Default:	0.5	Change:	At stop

Value Range:

0.1s to 10.0s

Description

Sets motor standstill threshold for auto-tuning. Usually no change is required.

H32.30 Max. reference current in angle auto-tuning through position lock

Address:	2032-1Fh	Effective mode:	At stop
Min.:	10.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	100.0	Change:	At stop

Value Range:

10.0% to 300.0%

Description

Defines the maximum reference current during auto-tuning.

H32.33 Motor operation threshold (ROT/DDR) in angle auto-tuning through position lock

Address:	2032-22h	Effective mode:	At stop
Min.:	0.001	Unit:	deg
Max.:	20.000	Data Type:	UInt16
Default:	0.200	Change:	At stop

Value Range:

0.001deg to 20.000deg

Description

Sets motor operation threshold for position lock angle auto-tuning. Usually no change is required. If you have special requirements for the operation range, you can adjust this parameter accordingly. The smaller the value, the smaller the operation range during auto-tuning, but the greater the auto-tuning error.

H32.34 Motor standstill threshold (ROT/DDR) in angle auto-tuning through position lock

Address:	2032-23h	Effective mode:	At stop
Min.:	0.1	Unit:	[mm/s]/[rpm]
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1[mm/s]/[rpm]–100.0[mm/s]/[rpm]

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.35 Motor operation threshold (DDL) in angle auto-tuning through position lock

Address:	2032-24h	Effective mode:	At stop
Min.:	0.001	Unit:	mm
Max.:	20.000	Data Type:	UInt16
Default:	0.200	Change:	At stop

Value Range:

0.001 millimeters–20.000 millimeters

Description

Sets motor operation threshold for position lock angle auto-tuning. Usually no change is required. If you have special requirements for the operation range, you can adjust this parameter accordingly. The smaller the value, the smaller the operation range during auto-tuning, but the greater the auto-tuning error.

H32.36 Motor standstill threshold (DDL) in angle auto-tuning through position lock

Address:	2032-25h	Effective mode:	At stop
Min.:	0.1	Unit:	mm/s
Max.:	100.0	Data Type:	UInt16
Default:	1.0	Change:	At stop

Value Range:

0.1 mm/s–100.0 mm/s

Description

Sets motor stop threshold for auto-tuning. Usually no change is required.

H32.37 Angle gain in angle auto-tuning through position lock

Address:	2032-26h	Effective mode:	At stop
Min.:	0	Unit:	deg/(p/s)
Max.:	10000	Data Type:	UInt16
Default:	1000	Change:	At stop

Value Range:

0deg/(p/s)–10000deg/(p/s)

Description

Defines the angle gain during auto-tuning. A proper setpoint improves the auto-tuning angle accuracy. The default value applies to most of applications.

H32.38 Inertia ratio in angle auto-tuning through position lock

Address:	2032-27h	Effective mode:	At stop
Min.:	0.00	Unit:	-
Max.:	120.00	Data Type:	UInt16
Default:	0.00	Change:	At stop

Value Range:

0.00–120.00

Description

Sets the inertia ratio gain for auto-tuning. A proper value can ensure smooth and jitter-free operation and reduce the operation range.

(1) This coefficient is usually related to the load characteristics. You can just set it to the actual inertia ratio.

(2) A small value may lead to long movement during auto-tuning, which is a normal phenomenon. A large value may lead to gain mismatch oscillation.

H32.39 Gain class in angle auto-tuning through position lock

Address:	2032-28h	Effective mode:	At stop
Min.:	4	Unit:	level
Max.:	31	Data Type:	UInt16
Default:	16	Change:	At stop

Value Range:

4level to 31level

Description

Defines the loop stiffness level gain for auto-tuning. A proper value can ensure smooth and jitter-free operation and reduce the operation range.

(1) A small value may lead to long movement during auto-tuning, which is a normal phenomenon. A large value may lead to gain mismatch oscillation.

H32.40 Left/Right limit function

Address:	2032-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

1. Left limit being positive
2. Left limit being negative

Description

Enables the left and right limit function for the motor.

1. Left limit being positive
2. Left limit being negative

H32.41 Angle auto-tuning delay after power-on

Address:	2032-2Ah	Effective mode:	Real time
Min.:	0	Unit:	s
Max.:	65535	Data Type:	UInt16
Default:	3	Change:	Real-time

Value Range:

0s to 65535s

Description

Used to set automatic angle auto-tuning delay upon power-on.

H32.45 Black box channel 26 function

Address:	2032-2Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: Real-time target speed (60Ffh)
1: Electric angle

Description

Select the black box channel 21 function.

- 0: Real-time target speed (607Ah)
1: Electric angle

H32.50 32-bit range compatibility

Address:	2032-33h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	99	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

0–99

Description

32-bit range compatibility.

H32.53 Motor standstill threshold for position lock angle auto-tuning

Address:	2032-36h	Effective mode:	At stop
Min.:	0.1	Unit:	s
Max.:	10.0	Data Type:	UInt16
Default:	0.5	Change:	At stop

Value Range:

0.1s to 10.0s

Description

Sets motor standstill threshold for auto-tuning. Usually no change is required.

H32.54 Hall auto-tuning selection

Address:	2032-37h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

When this parameter is enabled, the Hall auto-tuning will be started automatically after basic angle auto-tuning is done.

H32.55 Hall signal UVW manual adjustment

Address:	2032-38h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	7	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–7

Description

Set Hall level state.

H32.56 UVW filter time of Hall signal

Address:	2032-39h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	10	Data Type:	UInt16
Default:	5	Change:	Real-time

Value Range:

0 ms–10 ms

Description

Set UVW filter time of Hall signal.

H32.57 Hall closed-loop locked-rotor speed

Address:	2032-3Ah	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	65535	Data Type:	UInt16
Default:	2	Change:	At stop

Value Range:

0[mm/s]/[rpm]–65535[mm/s]/[rpm]

Description

Set the Hall closed loop angle auto-tuning locked-rotor speed.

H32.58 Hall closed-loop locked-rotor current

Address:	2032-3Bh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	300.0	Data Type:	UInt16
Default:	120.0	Change:	At stop

Value Range:

0.0% to 300.0%

Description

Set the Hall closed loop angle auto-tuning locked-rotor current.

H32.59 Hall closed-loop locked-rotor window time

Address:	2032-3Ch	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	2000	Data Type:	UInt16
Default:	10	Change:	At stop

Value Range:

0 ms–2000 ms

Description

Set the Hall closed loop angle auto-tuning locked-rotor window time.

H32.60 Hall closed-loop inertia ratio

Address:	2032-3Dh	Effective mode:	Real time
Min.:	0.00	Unit:	-
Max.:	120.00	Data Type:	UInt16
Default:	0.00	Change:	At stop

Value Range:

0.00–120.00

Description

Set the Hall closed loop angle auto-tuning Inertia ratio.

H32.61 Hall closed-loop rigidity

Address:	2032-3Eh	Effective mode:	Real time
Min.:	4	Unit:	-
Max.:	31	Data Type:	UInt16
Default:	16	Change:	At stop

Value Range:

4–31

Description

Set the Hall closed loop angle auto-tuning rigidity level.

H32.62 Electrical angle save flag

Address:	2032-3Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0–65535

Description

Automatic reset will be performed after the electrical angle is saved when dynamic Hall auto-tuning is done.

H32.63 Hall1 electric angle

Address:	2032-40h	Effective mode:	Real time
Min.:	0	Unit:	-

Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall1 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.64 Hall2 electric angle

Address:	2032-41h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall2 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.65 Hall3 electric angle

Address:	2032-42h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall3 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.66 Hall4 electric angle

Address:	2032-43h	Effective mode:	Real time

Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall4 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.67**Hall5 electric angle**

Address:	2032-44h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall5 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.68**Hall6 electric angle**

Address:	2032-45h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

The hall6 electrical angle corresponding to the Hall three-phase state after Hall auto-tuning is completed.

H32.70**Motor overload protection mode**

Address:	2032-47h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	-
Max.:	3	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

- 0: Internal motor overload curve
- 1: External motor overload curve
- 2: Current limit overload protection
- 3: Hide motor overload protection

Description

Set motor overload protection mode

0: Internal motor overload curve

1: External motor overload curve

2: Current limit overload protection

3: Hide motor overload protection

H32.73 Thermal threshold current of overload current limit

Address:	2032-4Ah	Effective mode:	Upon the next power-on
Min.:	10.0	Unit:	%
Max.:	750.0	Data Type:	UInt16
Default:	115.0	Change:	At stop

Value Range:

10.0% to 750.0%

Description

Thermal limit current is a percentage of motor rated current defaulted to 100%, above which the motor starts to heat continuously. The motor current will be finally maintained at this value.

H32.74 Peak current of overload current limit

Address:	2032-4Bh	Effective mode:	Upon the next power-on
Min.:	100.0	Unit:	%
Max.:	750.0	Data Type:	UInt16
Default:	300.0	Change:	At stop

Value Range:

100.0% to 750.0%

Description

Defines the ratio of the peak current that can be reached by the motor to the rated current of the motor.

H32.75 Max. current duration of overload protection

Address:	2032-4Ch	Effective mode:	Real time
Min.:	0.01	Unit:	s
Max.:	655.35	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.01s to 655.35s

Description

Calculate the maximum heat that can be reached by the motor based on the maximum current continuous time, and take this value as the motor overload alarm threshold.

H32.76 Current limit time constant of overload protection

Address:	2032-4Dh	Effective mode:	Real time
Min.:	0.01	Unit:	-
Max.:	655.35	Data Type:	UInt16
Default:	1.00	Change:	At stop

Value Range:

0.01–655.35

Description

It is related to the maximum current continuous time. The higher the setpoint, the longer the maximum current continuous time will be.

H32.77 Current limit alarm threshold of overload protection

Address:	2032-4Eh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	750.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0% to 750.0%

Description

If current limit protection is effective, and the limited current is lower than this value, the drive will raise an alarm.

H32.78 Current limit fault threshold of overload protection

Address:	2032-4Fh	Effective mode:	Real time
Min.:	0.0	Unit:	%
Max.:	750.0	Data Type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0% to 750.0%

Description

If current limit protection is effective, and the limited current is lower than this value, the drive will report an error.

H32.79 Thermal threshold current of overload

Address:	2032-50h	Effective mode:	Upon the next power-on
Min.:	10.0	Unit:	%
Max.:	750.0	Data Type:	UInt16
Default:	115.0	Change:	At stop

Value Range:

10.0% to 750.0%

Description

Set thermal threshold current of overload.

H32.80 Thermal current interval of overload

Address:	2032-51h	Effective mode:	Upon the next power-on
Min.:	0.1	Unit:	%
Max.:	204.8	Data Type:	UInt16
Default:	6.4	Change:	At stop

Value Range:

0.1% to 204.8%

Description

Set the thermal current interval of overload.

H32.81 Overload heat dissipation current interval

Address:	2032-52h	Effective mode:	Upon the next power-on
Min.:	0.1	Unit:	%
Max.:	204.8	Data Type:	UInt16
Default:	6.4	Change:	At stop

Value Range:

0.1% to 204.8%

Description

Set the overload heat dissipation current interval.

H32.82 Length of overload heat dissipation curve

Address:	2032-53h	Effective mode:	Upon the next power-on
Min.:	1	Unit:	-
Max.:	200	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–200

Description

Set the length of overload heat dissipation curve.

H32.83 Length of overload heat dissipation curve

Address:	2032-54h	Effective mode:	Upon the next power-on
Min.:	1	Unit:	-
Max.:	200	Data Type:	UInt16
Default:	1	Change:	At stop

Value Range:

1–200

Description

Set the length of overload heat dissipation curve.

4.31 H33 Compensation Parameters**H33.00 Compensation data BUFFER0**

Address:	2033-01h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER0.

H33.01 Compensation data BUFFER1

Address:	2033-02h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER1.

H33.02	Compensation data BUFFER2		
	Address:	2033-03h	Effective mode:
	Min.:	0	Unit:
	Max.:	65535	Data Type:
	Default:	0	Change:
	Value Range:		
	0–65535		
H33.03	Compensation data BUFFER3		
	Address:	2033-04h	Effective mode:
	Min.:	0	Unit:
	Max.:	65535	Data Type:
	Default:	0	Change:
	Value Range:		
	0–65535		
H33.04	Compensation data BUFFER4		
	Address:	2033-05h	Effective mode:
	Min.:	0	Unit:
	Max.:	65535	Data Type:
	Default:	0	Change:
	Value Range:		
	0–65535		
H33.05	Compensation data BUFFER5		
	Address:	2033-06h	Effective mode:
	Min.:	0	Unit:
	Max.:	65535	Data Type:
	Default:	0	Change:
	Value Range:		
	0–65535		

Description
Set compensation data BUFFER2.

Description
Set compensation data BUFFER3.

Description
Set compensation data BUFFER4.

Description

Set compensation data BUFFER5.

H33.06 Compensation data BUFFER6

Address:	2033-07h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER6.

H33.07 Compensation data BUFFER7

Address:	2033-08h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER7.

H33.08 Compensation data BUFFER8

Address:	2033-09h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER8.

H33.09 Compensation data BUFFER9

Address:	2033-0Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

Set compensation data BUFFER9.

H33.10 Compensation data BUFFER10

Address: 2033-0Bh

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

Set compensation data BUFFER10.

H33.11 Compensation data BUFFER11

Address: 2033-0Ch

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

Set compensation data BUFFER11.

H33.12 Compensation data BUFFER12

Address: 2033-0Dh

Effective mode: Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–65535

Description

Set compensation data BUFFER12.

H33.13 Compensation data BUFFER13

Address:	2033-0Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER13.

H33.14 Compensation data BUFFER14

Address:	2033-0Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER14.

H33.15 Compensation data BUFFER15

Address:	2033-10h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER15.

H33.16 Compensation data BUFFER16

Address:	2033-11h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER16.

H33.17 Compensation data BUFFER17

Address:	2033-12h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER17.

H33.18 Compensation data BUFFER18

Address:	2033-13h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER18.

H33.19 Compensation data BUFFER19

Address:	2033-14h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER19.

H33.20 Compensation data BUFFER20

Address:	2033-15h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Change: At stop

Value Range:

0-65535

Description

Set compensation data BUFFER20.

H33.21 Compensation data BUFFER21

Address: 2033-16h

Effective mode:	Real time

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0-65535

Description

Set compensation data BUFFER21.

H33.22 Compensation data BUFFER22

Address: 2033-17h

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0-65535

Description

Set compensation data BUFFER22.

H33.23 Compensation data BUFFER23

Address: 2033-18h

Effective Real time
mode:

Min.: 0

Unit: -

Max.: 65535

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0-65535

Description

Set compensation data BUFFER23.

H33.24

Compensation data BUFFER24

Address:	2033-19h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER24.

H33.25

Compensation data BUFFER25

Address:	2033-1Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER25.

H33.26

Compensation data BUFFER26

Address:	2033-1Bh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER26.

H33.27

Compensation data BUFFER27

Address:	2033-1Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER27.

H33.28 Compensation data BUFFER28

Address:	2033-1Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER28.

H33.29 Compensation data BUFFER29

Address:	2033-1Eh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER29.

H33.30 Compensation data BUFFER30

Address:	2033-1Fh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER30.

H33.31 Compensation data BUFFER31

Address:	2033-20h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16

Default:	0	Change:	At stop
Value Range:			
0–65535			
Description			
Set compensation data BUFFER31.			

H33.32 Compensation data BUFFER32

Address:	2033-21h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop
Value Range:			
0–65535			
Description			
Set compensation data BUFFER32.			

H33.33 Compensation data BUFFER33

Address:	2033-22h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop
Value Range:			
0–65535			
Description			
Set compensation data BUFFER33.			

H33.34 Compensation data BUFFER34

Address:	2033-23h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop
Value Range:			
0–65535			
Description			
Set compensation data BUFFER34.			

H33.35 Compensation data BUFFER35

Address:	2033-24h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER35.

H33.36 Compensation data BUFFER36

Address:	2033-25h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER36.

H33.37 Compensation data BUFFER37

Address:	2033-26h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER37.

H33.38 Compensation data BUFFER38

Address:	2033-27h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER38.

H33.39 Compensation data BUFFER39

Address:	2033-28h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Set compensation data BUFFER39.

H33.40 Current Compensation BUFFER group number

Address:	2033-29h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–65535

Description

Current Compensation BUFFER group number

H33.41 Compensation data sum

Address:	2033-2Ah	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	32767	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–32767

Description

Set compensation data sum.

H33.44 Data command

Address:	2033-2Dh	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16

Default: 1

Change: At stop

Value Range:

0–1

Description

Data command.

H33.45 Data storage position

Address: 2033-2Eh

Effective mode: Real time

Min.: 0

Unit: -

Max.: 2

Data Type: UInt16

Default: 1

Change: At stop

Value Range:

0: Servo RAM

1: Servo FLASH

2: Encoder FLASH

Description

Set data storage position

0: Servo RAM

1: Servo FLASH

2: Encoder FLASH

H33.46 Data clear

Address: 2033-2Fh

Effective mode: Real time

Min.: 0

Unit: -

Max.: 3

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–3

Description

Data clear.

H33.47 Software tool write status

Address: 2033-30h

Effective mode: Real time

Min.: 0

Unit: -

Max.: 2

Data Type: UInt16

Default: 0

Change: At stop

Value Range:

0–2

Description

Display software write status: 0 - Idle; 1 - Writing BUFFER; 2 - Writing BUFFER completed

H33.48

Servo read status

Address:	2033-31h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display servo read status: 0 - Idle; 1 - Reading BUFFER; 2 - Reading BUFFER completed

H33.49

Software tool read status

Address:	2033-32h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	2	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–2

Description

Display software read status: 0 - Idle; 1 - Reading BUFFER; 2 - Reading BUFFER completed

H33.50

Servo write status

Address:	2033-33h	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Display servo write status: 0 - Idle; 1 - Writing BUFFER; 2 - Writing BUFFER completed

H33.51 Data transmission completed flag

Address:	2033-34h	Effective	Real time
Min.:	0	mode:	
Max.:	1	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	At stop

Value Range:

0–1

Description

Data transmission completed flag.

H33.52 Servo data transfer completed flag

Address:	2033-35h	Effective	-
Min.:	0	mode:	
Max.:	65535	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	Unchangeable

Value Range:

0–65535

Description

Servo data transfer completed flag: 0: Uncompleted; 1: Completed

H33.60 Accuracy compensation function

Address:	2033-3Dh	Effective	Upon the next power-on
Min.:	0	mode:	
Max.:	1	Unit:	-
Default:	0	Data Type:	UInt16
		Change:	At stop

Value Range:

0–1

Description

Used to enable accuracy compensation.

H33.61 Accuracy compensation sum

Address:	2033-3Eh	Effective	Upon the next power-on
Min.:	0	mode:	
Max.:	2048	Unit:	count
Default:	0	Data Type:	UInt16
		Change:	At stop

Value Range:

0count to 2048count

Description

Total accuracy compensation points.

H33.62 Starting offset address of accuracy compensation

Address:	2033-3Fh	Effective mode:	Upon the next power-on
Min.:	-21474836.48	Unit:	[mm]/[deg]
Max.:	21474836.47	Data Type:	Int32
Default:	0.00	Change:	At stop

Value Range:

-21474836.48[mm]/[deg]–21474836.47[mm]/[deg]

Description

The direct-drive motor compensation home of incremental encoder is the home of the mechanical system coordinate.

H33.64 Accuracy compensation data interval

Address:	2033-41h	Effective mode:	Upon the next power-on
Min.:	-327.67	Unit:	[mm]/[deg]
Max.:	327.67	Data Type:	Int16
Default:	0.00	Change:	At stop

Value Range:

-327.67[mm]/[deg]–327.67[mm]/[deg]

Description

Interval of adjacent compensation points of accuracy compensation.

H33.65 Accuracy compensation dial phase sequence

Address:	2033-42h	Effective mode:	Upon the next power-on
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	At stop

Value Range:

0x0 to 0xFFFF

Description

Phase sequence record of accuracy compensation dial stage.

H33.66 Accuracy compensation dial reference direction

Address:	2033-43h	Effective mode:	Upon the next power-on

Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–1

Description

Reference direction record of accuracy compensation dial stage.

H33.67 Servo homing completed

Address:	2033-44h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Accuracy compensation homing completion signal.

H33.68 Current acting index of accuracy compensation

Address:	2033-45h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0–65535

Description

Current compensation position of accuracy compensation.

H33.69 Forced homing start

Address:	2033-46h	Effective	Real time
		mode:	
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0–1

Description

Enables accuracy compensation forced homing.

H33.70 Forced homing mode

Address:	2033-47h	Effective mode:	Upon the next power-on
Min.:	-32768	Unit:	-
Max.:	32767	Data Type:	Int16
Default:	-2	Change:	At stop

Value Range:

-32768–32767

Description

Homing mode record of accuracy compensation dial stage.

H33.71 Forced homing at low speed

Address:	2033-48h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	1000	Data Type:	UInt16
Default:	10	Change:	At stop

Value Range:

0[mm/s]/[rpm]–1000[mm/s]/[rpm]

Description

Homing speed record of accuracy compensation dial stage.

H33.72 Single-turn absolute position of accuracy compensation home of absolute encoder

Address:	2033-49h	Effective mode:	Upon the next power-on
Min.:	0	Unit:	Encoder unit
Max.:	4294967295	Data Type:	UInt32
Default:	0	Change:	At stop

Value Range:

0 to 4294967295

Description

Single-turn absolute value of direct-drive motor compensation home of absolute encoder.

H33.74 Min.pulse width of frequency-division output accuracy compensation

Address:	2033-4Bh	Effective mode:	Upon the next power-on
Min.:	2	Unit:	count
Max.:	7	Data Type:	UInt16
Default:	3	Change:	At stop

Value Range:

2count to 7count

Description

Defines the minimum pulse width of accuracy compensation frequency-division output.

H33.75 Accuracy compensation data unit

Address:	2033-4Ch	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	1	Data Type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: [um]/[arcsec]

1: [mm]/[mrad]

Description

Defines the accuracy compensation data unit.

For DDL: 0-um; 1-mm;

For DDR: 0-arcsec; 2-mrad

H33.81 Motor cogging torque ripple compensation sum

Address:	2033-52h	Effective mode:	Real time
Min.:	0	Unit:	count
Max.:	65535	Data Type:	UInt16
Default:	2000	Change:	At stop

Value Range:

0count to 65535count

Description

Motor cogging torque ripple compensation sum

4.32 H34 Servo Motor Parameters 2**H34.12 Error type supported by EnDat2.2 encoder**

Address:	2034-0Dh	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

bit0: Light source; bit1: Signal amplitude; bit2: Position; bit3: Overvoltage; bit4: Undervoltage; bit5: Overcurrent; bit6: Battery

H34.13 Alarm types supported by EnDat2.2 encoders

Address:	2034-0Eh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

bit0: Transmission rate too high, bit1: Overtemperature, bit2: Interior light source approaching limit position, bit3: Battery voltage low, bit4: Reference point not reached, bit5: Reserved, bit6: Approaching limit position, bit7: Probe not at position, bit8: Value change too small

H34.14 Error value output by EnDat2.2 encoder

Address:	2034-0Fh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

bit0: Light source; bit1: Signal amplitude; bit2: Position; bit3: Overvoltage; bit4: Undervoltage; bit5: Overcurrent; bit6: Battery

H34.15 Alarm value output by EnDat2.2 encoder

Address:	2034-10h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

bit0: Transmission rate too high, bit1: Overtemperature, bit2: Interior light source approaching limit position, bit3: Battery voltage low, bit4: Reference point not reached, bit5: Reserved, bit6: Approaching limit position, bit7: Probe not at position, bit8: Value change too small

4.33 1000h Object Dictionary**1000.00h Device type**

Address:	1000-00h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Device type

1001.00h Error Register

Address:	1001-00h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFF	Data Type:	UInt8
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFF

Description

Error Register

1018.01h Vendor ID

Address:	1018-01h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Vendor ID

1018.02h Product Code

Address:	1018-02h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Product Code			

1018.03h Revision

Address:	1018-03h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Revision			

1018.04h Serial number

Address:	1018-04h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Serial number			

1600.00h Number of valid mapped objects in RPDO1

Address:	1600-00h	Effective	-
		mode:	
Min.:	0	Unit:	-
Max.:	20	Data Type:	UInt8
Default:	0	Change:	Unchangeable
Value Range:			
0–20			

Description

This object can be modified only when PDO is inactive. When 0 is written, the mapping objects of other sub-indexes are cleared.

1600.01h Mapped object 1 in RPDO1

Address:	1600-01h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

The total length of a mapping object cannot exceed 64 bits. Mapping based on bytes instead of bits is supported. The indexes and sub-indexes of mapping objects must exist in the object dictionary list. The attribute of mapping objects is readable and the objects can be mapped.

Sub-indexes are written in the following format:

bit31 to bit16: index

bit15 to bit8:

Object Length

bit7 to bit0:

Sub-index

1600.02h Mapped object 2 in RPDO1

Address:	1600-02h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.03h Mapped object 3 in RPDO1

Address:	1600-03h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.04h Mapped object 4 in RPDO1

Address: 1600-04h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.05h Mapped object 5 in RPDO1

Address: 1600-05h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.06h Mapped object 6 in RPDO1

Address: 1600-06h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.07h Mapped object 7 in RPDO1

Address: 1600-07h

Effective -

mode:

Min.: 0x0
 Max.: 0xFFFFFFFF
 Default: 0x0

Unit: -
 Data Type: UInt32
 Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.08h Mapped object 8 in RPDO1

Address: 1600-08h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.09h Mapped object 9 in RPDO1

Address: 1600-09h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.0Ah Mapped object 10 in RPDO1

Address: 1600-0Ah

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.0Bh Mapped object 11 in RPDO1

Address:	1600-0Bh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Same as 1600.01h.			

1600.0Ch Mapped object 12 in RPDO1

Address:	1600-0Ch	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Same as 1600.01h.			

1600.0Dh Mapped object 13 in RPDO1

Address:	1600-0Dh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Same as 1600.01h.			

1600.0Eh Mapped object 14 in RPDO1

Address:	1600-0Eh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			

Description

Same as 1600.01h.

1600.0Fh Mapped object 15 in RPDO1

Address: 1600-0Fh

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.10h Mapped object 16 in RPDO1

Address: 1600-10h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.11h Mapped object 17 in RPDO1

Address: 1600-11h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1600.01h.

1600.12h Mapped object 18 in RPDO1

Address: 1600-12h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

1A00.01h Mapped object 1 in TPDO1

Address:	1A00-01h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

The total length of a mapping object cannot exceed 64 bits. Mapping based on bytes instead of bits is supported. The indexes and sub-indexes of mapping objects must exist in the object dictionary list. The attribute of mapping objects is readable and the objects can be mapped.

Sub-indexes are written in the following format:

bit31 to bit16: index

bit15 to bit8:

Object Length

bit7 to bit0:

Sub-index

1A00.02h Mapped object 2 in TPDO1

Address:	1A00-02h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.03h Mapped object 3 in TPDO1

Address:	1A00-03h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.04h Mapped object 4 in TPDO1

Address:	1A00-04h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Same as 1A00.01h.			

1A00.05h Mapped object 5 in TPDO1

Address:	1A00-05h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Same as 1A00.01h.			

1A00.06h Mapped object 6 in TPDO1

Address:	1A00-06h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Same as 1A00.01h.			

1A00.07h Mapped object 7 in TPDO1

Address:	1A00-07h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			

Description

Same as 1A00.01h.

1A00.08h Mapped object 8 in TPDO1

Address: 1A00-08h

Effective -

mode:

Unit: -

Min.: 0x0

Data Type: UInt32

Max.: 0xFFFFFFFF

Change: Unchangeable

Default: 0x0

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.09h Mapped object 9 in TPDO1

Address: 1A00-09h

Effective -

mode:

Unit: -

Min.: 0x0

Data Type: UInt32

Max.: 0xFFFFFFFF

Change: Unchangeable

Default: 0x0

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.0Ah Mapped object 10 in TPDO1

Address: 1A00-0Ah

Effective -

mode:

Unit: -

Min.: 0x0

Data Type: UInt32

Max.: 0xFFFFFFFF

Change: Unchangeable

Default: 0x0

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.0Bh Mapped object 11 in TPDO1

Address: 1A00-0Bh

Effective -

mode:

Unit: -

Min.: 0x0

Data Type: UInt32

Max.: 0xFFFFFFFF

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.0Ch **Mapped object 12 in TPDO1**

Effective -

mode:

Unit: -

Data Type: UInt32

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.0Dh Mapped object 13 in TPDO1

Effective -

mode:

Unit: -

Data Type: UInt32

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.0Eh **Mapped object 14 in TPDO1**

Effective -

mode:

Unit: -

Data Type: UInt32

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.0Fh **Mapped object 15 in TPDO1**

Effective -

mode:

Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.10h Mapped object 16 in TPD01

Address:	1A00-10h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.11h Mapped object 17 in TPD01

Address:	1A00-11h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.12h Mapped object 18 in TPD01

Address:	1A00-12h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Same as 1A00.01h.

1A00.13h Mapped object 19 in TPD01

Address:	1A00-13h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Same as 1A00.01h.			

1A00.14h Mapped object 20 in TPD01

Address:	1A00-14h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable
Value Range:			
0x0 to 0xFFFFFFFF			
Description			
Same as 1A00.01h.			

1C12.00h Number of assigned PDOs

Address:	1C12-00h	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0x2	Data Type:	UInt8
Default:	0x2	Change:	Unchangeable
Value Range:			
0x0 to 0x2			
Description			
Number of PDOs assigned.			

1C12.01h PDO mapping object index of assigned RxPDO1

Address:	1C12-01h	Effective	-
		mode:	
Min.:	0x1600	Unit:	-
Max.:	0x17FF	Data Type:	UInt16
Default:	0x1701	Change:	Unchangeable
Value Range:			
0x1600 to 0x17FF			

Description

The PDO mapping object of assigned RxPDO1.

1C12.02h PDO mapping object index of assigned RxPDO2

Address:	1C12-02h	Effective mode:	-
Min.:	0x1600	Unit:	-
Max.:	0x17FF	Data Type:	UInt16
Default:	0x170A	Change:	Unchangeable

Value Range:

0x1600 to 0x17FF

Description

The PDO mapping object of assigned RxPDO2.

1C13.00h Number of assigned PDOs

Address:	1C13-00h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0x2	Data Type:	UInt8
Default:	0x2	Change:	Unchangeable

Value Range:

0x0 to 0x2

Description

Number of PDOs assigned.

1C13.01h PDO mapping object index of assigned TxPDO1

Address:	1C13-01h	Effective mode:	-
Min.:	0x1A00	Unit:	-
Max.:	0x1BFF	Data Type:	UInt16
Default:	0x1B01	Change:	Unchangeable

Value Range:

0x1A00 to 0x1BFF

Description

The PDO mapping object of assigned TxPDO1.

1C13.02h PDO mapping object index of assigned TxPDO2

Address:	1C13-02h	Effective mode:	-
Min.:	0x1A00	Unit:	-
Max.:	0x1BFF	Data Type:	UInt16

Default: 0x1B0A

Change: Unchangeable

Value Range:

0x1A00 to 0x1BFF

Description

The PDO mapping object of assigned TxPDO2.

1C32.01h Sync mode

Address: 1C32-01h

Effective mode: -

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Synchronization mode.

1C32.02h Cycle time

Address: 1C32-02h

Effective mode: -

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Cycle time

1C32.04h Sync modes supported

Address: 1C32-04h

Effective mode: -

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFF

Description

The synchronization modes that are supported.

1C32.05h Minimum cycle time

Address: 1C32-05h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

The minimum cycle time.

1C33.01h Sync mode

Address: 1C33-01h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Synchronization mode.

1C33.02h Cycle time

Address: 1C33-02h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Cycle time

1C33.04h Sync modes supported

Address: 1C33-04h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFF

Description

The synchronization modes that are supported.

1C33.05h Minimum cycle time

Address:	1C33-05h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

The minimum cycle time.

4.34 6000h Object Dictionary

603Fh Error code

Address:	603Fh	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

When an error described in the DSP402 profile occurs on the servo drive, 603Fh is as described in DSP402.

When an error specified by the user occurs on the servo drive, 603Fh is 0xFF00.

The value of 603Fh is in hexadecimal.

In addition, the object dictionary 203Fh displays auxiliary bytes of fault codes in hexadecimal.

203Fh is a UInt32 value, in which the high 16 bits indicate the internal fault code of the manufacturer, and the low 16 bits indicate the external fault code of the manufacturer.

6040h Control word

Address:	6040h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0xFFFF

Description

For details on the control word, see the Communication Guide.

6041h**Status word**

Address: 6041h

Effective -

mode:

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFF

Description

For details on the control word, see the Communication Guide.

605Ah**Quick stop mode**

Address: 605Ah

Effective At stop

mode:

Min.: 0

Unit: -

Max.: 7

Data Type: Int16

Default: 2

Change: Real-time

Value Range:

0: Coast to stop, keeping de-energized state

1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state

2: Ramp to stop as defined by 6085h, keeping de-energized state

3: Stop at emergency stop torque, keeping de-energized state

5: Ramp to stop as defined by 6084h/609Ah (HM), keeping position lock state

6: Ramp to stop as defined by 6085h, keeping position lock state

7: Stop at emergency stop torque, keeping position lock state

Description

Defines the deceleration mode of the motor for stopping rotating upon quick stop and the motor status after stop.

0: Coast to stop, keeping de-energized state

1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state

2: Ramp to stop as defined by 6085h, keeping de-energized state

3: Stop at emergency stop torque, keeping de-energized state

5: Ramp to stop as defined by 6084h/609Ah (HM), keeping position lock state

6: Ramp to stop as defined by 6085h, keeping position lock state

7: Stop at emergency stop torque, keeping position lock state

Note: When the brake function is enabled and the value of 605Ah is lower than 4, the stop mode is forcibly set to "2: Ramp to stop as defined by 6085h, keeping de-energized state".

605Ch

Stop mode at S-OFF

Address:	605Ch	Effective mode:	At stop
Min.:	-4	Unit:	-
Max.:	2	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-4: Ramp to stop as defined by 6085h, keeping dynamic braking state

-3: at zero speed, keeping dynamic braking state

-2: Ramp to stop as defined by 6084h/609Ah (HM), keeping dynamic braking state

-1: Dynamic braking stop, keeping dynamic braking state

0: Coast to stop, keeping de-energized state

1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state

2: Dynamic braking stop, keeping de-energized state

Description

Defines the deceleration mode of the motor for stopping rotating upon S-ON OFF and the motor status after stop.

-4: Ramp to stop as defined by 6085h, keeping dynamic braking state

-3: Stop at zero speed, keeping dynamic braking state

-2: Ramp to stop as defined by 6084h/609Ah, keeping dynamic braking state

-1: Dynamic braking stop, keeping dynamic braking state

0: Coast to stop, keeping de-energized state

1: Ramp to stop as defined by 6084h/609Ah, keeping de-energized status

2: Dynamic braking stop, keeping de-energized state

Note: After the brake is enabled, 605Ch is forced to "4: Ramp to stop as defined by 6085h, keeping dynamic braking state".

605Dh**Halt mode**

Address:	605Dh	Effective mode:	At stop
Min.:	1	Unit:	-
Max.:	3	Data Type:	Int16
Default:	1	Change:	Real-time

Value Range:

- 1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping position lock state
- 2: Ramp to stop as defined by 6085h, keeping position lock state
- 3: Stop at emergency stop torque, keeping position lock state

Description

Defines the deceleration mode of the motor for stopping rotating upon S-ON pause and the motor status after stop.

- 1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping position lock state
- 2: Ramp to stop as defined by 6085h, keeping position lock state
- 3: Stop at emergency stop torque, keeping position lock state

605Eh**Stop mode at No. 2 fault**

Address:	605Eh	Effective mode:	At stop
Min.:	-5	Unit:	-
Max.:	4	Data Type:	Int16
Default:	2	Change:	Real-time

Value Range:

- 5: Stop at zero speed, keeping dynamic braking state
- 4: Stop at emergency stop torque, keeping dynamic braking state
- 3: Ramp to stop as defined by 6085h, keeping dynamic braking state
- 2: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping dynamic braking state
- 1: Dynamic braking stop, keeping dynamic braking state
- 0: Coast to stop, keeping de-energized state
- 1: Ramp to stop as defined by 6084h/ 609Ah (HM), keeping de-energized state
- 2: Ramp to stop as defined by 6085h, keeping de-energized state
- 3: Stop at emergency stop torque, keeping de-energized state
- 4: Dynamic braking stop, keeping de-energized state

Description

Defines the deceleration mode of the servo motor for stopping rotating and the servo motor status when a No. 2 fault occurs.

- 5: Stop at zero speed, keeping dynamic braking state
- 4: Stop at emergency stop torque, keeping dynamic braking state
- 3: Ramp to stop as defined by 6085h, keeping dynamic braking state

–2: Ramp to stop as defined by 6084h/609Ah (HM), keeping dynamic braking state

–1: Dynamic braking stop, keeping dynamic braking state

0: Coast to stop, keeping de-energized state

1: Ramp to stop as defined by 6084h/609Ah (HM), keeping de-energized state

2: Ramp to stop as defined by 6085h, keeping de-energized state

3: Stop at emergency stop torque, keeping de-energized state

4: Dynamic braking stop, keeping de-energized state

Note: If the brake is enabled, 605Eh is forced to "3: Ramp to stop as defined by 6085h, keeping dynamic braking state".

6060h

Servo drive mode

Address:	6060h	Effective mode:	Real time
Min.:	0	Unit:	-
Max.:	10	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

1: Profile position (PP) mode

3: Profile velocity (PV) mode

4: Profile torque (PT) mode

6: Homing (HM) mode

8: CSP mode

9: CSV mode

10: CST mode

Description

It defines the operation mode of the servo drive.

1: Profile position (PP) mode

3: Profile velocity (PV) mode

4: Profile torque (PT) mode

6: Homing (HM) mode

8: CSP mode

9: CSV mode

10: CST mode

An SDO error will be returned if you have selected an unsupported servo mode through SDO.

If an unsupported operation mode is selected through a PDO, the change of the operation mode will be invalid.

6061h

Operation mode display

Address:	6061h	Effective mode:	-

Min.:	0	Unit:	-
Max.:	10	Data Type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

1: Profile position (PP) mode
 3: Profile velocity (PV) mode
 4: Profile torque (PT) mode
 6: Homing (HM) mode
 8: CSP mode
 9: CSV mode
 10: CST mode

Description

Indicates the actual operation mode.

1: Profile position (PP) mode
 3: Profile velocity (PV) mode
 4: Profile torque (PT) mode
 6: Homing (HM) mode
 8: CSP mode
 9: CSV mode
 10: CST mode

6062h**Position reference**

Address:	6062h	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the real-time position reference (reference unit).

6063h**Position actual value**

Address:	6063h	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the absolute position feedback (encoder unit) of the motor in real time.

6064h

Position actual value

Address:	6064h	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the absolute position feedback (reference unit) in real time.

Position actual value in user-defined unit (6064h) x Gear ratio (6091h) = Position actual value in encoder unit (6063h)

6065h

Following error window

Address:	6065h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit
Max.:	4294967295	Data Type:	UInt32
Default:	219895614	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the threshold of excessive position deviation (reference unit).

When the difference value between position demand value (6062h) and position actual value (6064h) keeps exceeding $\pm 6065h$ after the time defined by 6066h elapses, B00.0 (Position deviation too large) occurs.

6066h

Defines the time lapse to trigger excessive position deviation (EB00.0).

Address:	6066h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the time lapse to trigger excessive position deviation (EB00.0), which must be used together with 6065h.

6067h Position window

Address:	6067h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit
Max.:	4294967295	Data Type:	UInt32
Default:	46976	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the threshold for position reach.

If the difference between 6062h and 6064h is within $\pm 6067h$ and the time reaches 6068h, the position is reached. In this case, bit 10 of 6041h is set to 1 in the profile position mode.

This flag bit is valid only when the S-ON signal is valid in profile position control mode.

6068h Position window time

Address:	6068h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the window time for position reach, which must be used together with 6067h.

606Ch Actual speed

Address:	606Ch	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit/s
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to +2147483647

Description

It indicates the velocity actual value.

606Dh Velocity window

Address:	606Dh	Effective mode:	Real time

Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–65535[mm/s]/[rpm]

Description

Defines the threshold for speed reach.

If the difference value between the target speed 60FFh and the actual speed 606Ch is within $\pm 606Dh$ and the time reaches 606Eh, the speed is reached and bit 10 of the status word 6041h is set to 1 in the profile velocity (PV) mode.

This flag bit is meaningful only when the servo drive is enabled in PV mode.

606Eh Velocity window time

Address:	606Eh	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the time window for speed reach, which must be used together with 606Dh.

606Fh Zero speed signal threshold

Address:	606Fh	Effective mode:	Real time
Min.:	0	Unit:	[mm/s]/[rpm]
Max.:	65535	Data Type:	UInt16
Default:	10	Change:	Real-time

Value Range:

0[mm/s]/[rpm]–65535[mm/s]/[rpm]

Description

Defines the threshold for determining whether the user velocity is 0.

When 606Ch is within $\pm 606Fh$ and the time reaches the value set by 6070h, the user velocity is 0. When either condition is not met, the user velocity is not 0.

This flag bit is valid only in PV mode.

This flag bit is unrelated to the enable/disable state of the servo drive.

6070h Velocity threshold time

Address:	6070h	Effective mode:	Real time
Min.:	0	Unit:	ms
Max.:	65535	Data Type:	UInt16
Default:	0	Change:	Real-time

Value Range:

0 ms–65535 ms

Description

Defines the time window for determining whether the user velocity is 0, which must be used together with 606Fh.

6071h Target torque

Address:	6071h	Effective mode:	Real time
Min.:	-4000	Unit:	0.10%
Max.:	4000	Data Type:	Int16
Default:	0	Change:	Real-time

Value Range:

-4000.%–4000.%

Description

Defines the target torque of the servo drive in the profile torque mode. The value 1000 corresponds to the rated torque of the motor.

6072h Max. torque reference

Address:	6072h	Effective mode:	Real time
Min.:	0	Unit:	0.10%
Max.:	4000	Data Type:	UInt16
Default:	3500	Change:	Real-time

Value Range:

0.%–4000.%

Description

Defines the maximum torque reference limit. The value 1000 corresponds to the rated torque of the motor.

6074h Torque reference

Address:	6074h	Effective mode:	-
Min.:	-4000	Unit:	0.10%
Max.:	4000	Data Type:	Int16

Default: 0

Change: Unchangeable

Value Range:

-4000.%–4000.%

Description

Defines the target torque value.

The value 1000 corresponds to the rated torque of the motor.

6077h**Actual torque**

Address: 6077h

Effective mode: -

Min.: -4000

Unit: 0.10%

Max.: 4000

Data Type: Int16

Default: 0

Change: Unchangeable

Value Range:

-4000.%–4000.%

Description

It displays the internal actual torque of the servo drive.

The value 1000 corresponds to the rated torque of the motor.

607Ah**Target position**

Address: 607Ah

Effective mode: Real time

Min.: -2147483648

Unit: Reference unit

Max.: 2147483647

Data Type: Int32

Default: 0

Change: Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the target position of the servo drive in the profile position mode.

When bit 6 of 6040h is set to 0, 607Ah indicates the absolute target position of current segment.

After positioning of current segment is done, the value of 6064h will be the same as the value of 607Ah.

When bit 6 of 6040h is set to 1, 607Ah indicates the target increment displacement of current segment.

After positioning of current segment is done, user displacement increment will be the same as the value of 607Ah.

607Ch**Home offset**

Address: 607Ch

Effective mode: At stop

Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the physical location of mechanical zero that deviates from the home of the motor in position control modes (profile position mode, interpolation mode, and homing mode).

The home offset takes effect in the following conditions: The device is powered on, the homing operation is complete, and bit15 of 6041h is set to 1.

After homing is done, the position actual value (6064h) will be the same as the value of 607Ch.

If 607Ch is outside the value of 607Dh (Software position limit), E09.1 (Home setting error) will occur.

607D.01h Min. position limit

Address:	607D-01h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	-2147483648	Change:	Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the minimum software position limit relative to the mechanical zero point.

Minimum software position limit = (607D.01h)

The software position limit is used to judge the absolute position. When homing is not performed, the internal software position limit is invalid.

The condition for activating the software position limit is set in H0A.01 (object dictionary 0x200A.02h).

607D.02h Max. position limit

Address:	607D-02h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	2147483647	Change:	Real-time

Value Range:

-2147483648 to 2147483647

Description

Defines the maximum software position limit relative to the mechanical zero.
Maximum software position limit = (607D.02h)

607Eh**Reference polarity**

Address:	607Eh	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFF	Data Type:	UInt16
Default:	0x0	Change:	Real-time

Value Range:

0x0 to 0xFF

Description

Defines the polarity of position or speed references.

When bit 7 is 1, it indicates the position reference is multiplied by "-1" and the motor direction is reversed in the standard position mode or interpolation mode.

When bit 6 is 1, it indicates the speed reference (60FFh) is multiplied by "-1" and the motor direction is reversed in the speed mode.

When bit 5 is 1, it indicates the torque demand value (6071h) is multiplied by "-1" and the motor direction is reversed in the torque mode.

Other bits are meaningless.

607Fh**Max. speed**

Address:	607Fh	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the maximum user running speed.

Set a proper gear ratio (8:1 recommended) when using a 26-bit encoder.

Otherwise, the motor speed will be limited to 3840 [mm/s]/[rpm].

6081h**Profile velocity**

Address:	6081h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s
Max.:	4294967295	Data Type:	UInt32
Default:	111848106	Change:	Real-time

Value Range:

0 to 4294967295

Description

It sets the average velocity normally attained at the end of the acceleration ramp during a profiled motion.

The setpoint takes effect after the slave receives the displacement reference.

6083h**Profile acceleration**

Address:	6083h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the acceleration rate in the acceleration stage of the displacement reference in the profile position mode.

The following formula applies if a motor equipped with 23-bit encoder needs to run at 400 [mm/s]/[rpm] (6081h: $400 \times 8388608/60$) with acceleration rate being 400 [mm/s]/[rpm]/s (6083h: $400 \times 8388608/60$) and deceleration rate being 200 [mm/s]/[rpm]/s (6084h: $200 \times 8388608/60$) under a gear ratio of 1:1:

Acceleration time $t_{up} = \Delta 6081h / \Delta 6083h = 1$ (s); Deceleration time $t_{down} = \Delta 6081h / \Delta 6084h = 2$ (s).

The setpoint 0 will be forcibly changed to 1.

6084h**Profile deceleration**

Address:	6084h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the deceleration rate in the deceleration stage of the displacement reference in the profile position mode.

The following formula applies if a motor equipped with 23-bit encoder needs to run at 400 [mm/s]/[rpm] (6081h: $400 \times 8388608/60$) with acceleration rate being 400 [mm/s]/[rpm]/s (6083h: $400 \times 8388608/60$) and deceleration rate being 200 [mm/s]/[rpm]/s (6084h: $200 \times 8388608/60$) under a gear ratio of 1:1:

Acceleration time $t_{up} = \Delta 6081h / \Delta 6083h = 1$ (s); Deceleration time $t_{down} = \Delta 6081h / \Delta 6084h = 2$ (s).
The setpoint 0 will be forcibly changed to 1.

6085h Quick stop deceleration

Address:	6085h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	2147483647	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the deceleration rate when the quick stop command (6040h = 0x0002) is active and 605Ah (Quick stop option code) is set to 2 or 5.

The setpoint 0 will be forcibly changed to 1.

6087h Torque slope

Address:	6087h	Effective mode:	Real time
Min.:	0	Unit:	0.1%/s
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0.%/s–4294967295.%/s

Description

It sets the rate of change of torque in profile torque mode, in unit of torque increment per second.

In the profile torque mode, if 605Ah is set to 1, 2, 5, or 6, or 605Dh is set to 1 or 2, the servo drive decelerates to stop as defined by 6087h.

If the value exceeds the torque reference limit, the servo drive runs at the limit.

The setting value 0 will be forcibly changed into 1.

6091.01h Motor resolution

Address:	6091-01h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	1	Change:	At stop

Value Range:

1–4294967295

Description

Defines the numerator of the gear ratio.

Defines the proportional relation between the load shaft displacement designated by the user and the motor shaft displacement.

The relation between motor position feedback (encoder unit) and load shaft position feedback (reference unit) is as follows.

Motor position feedback = Load shaft position feedback x Gear ratio

The relation between the motor speed ([mm/s]/[rpm]) and the load shaft speed (reference unit/s) is as follows:

Motor speed ([mm/s]/[rpm]) = Load shaft speed * 6091h * 60/Encoder resolution

The motor acceleration ([mm/s]/[rpm]/ms) and the load shaft acceleration (reference unit/s²) is in the following relationship:

Motor acceleration ([mm/s]/[rpm]/ms) = Load shaft acceleration * 6091h * 1000 / Encoder resolution / 60

6091.02h Shaft resolution

Address:	6091-02h	Effective mode:	Real time
Min.:	1	Unit:	-
Max.:	4294967295	Data Type:	UInt32
Default:	1	Change:	At stop

Value Range:

1–4294967295

Description

Defines the denominator of the gear ratio.

6098h Homing method

Address:	6098h	Effective mode:	Real time
Min.:	-3	Unit:	-
Max.:	35	Data Type:	Int8
Default:	1	Change:	Real-time

Value Range:

-3–35

Description

It selects the homing method.

-3 Nearby, Z signal as home.

-2 Forward, positive mechanical limit as deceleration point and Z signal as home.

-1 Reverse, negative mechanical limit as deceleration point and Z signal as home.

- 1 Reverse, negative limit switch as deceleration point and Z signal as home, falling edge of the negative limit switch signal must be reached before Z signal.
 - 2 Forward, positive limit switch as deceleration point and Z signal as home, falling edge of positive limit switch signal must be reached before Z signal.
 - 3 Forward, home switch as deceleration point and Z signal as home, falling edge on the same side of the home switch signal must be reached before Z signal.
 - 4 Reverse, home switch as deceleration point and Z signal as home, rising edge on the same side of the home switch signal must be reached before Z signal.
 - 5 Reverse, home switch as deceleration point and Z signal as home, falling edge on the same side of the home switch signal must be reached before Z signal.
 - 6 Forward, home switch as deceleration point and Z signal as home, rising edge on the same side of the home switch signal must be reached before Z signal.
 - 7 Forward, home switch as deceleration point and Z signal as home, falling edge on the same side of the home switch signal must be reached before Z signal.
 - 8 Forward, home switch as deceleration point and Z signal as home, rising edge on the same side of the home switch signal must be reached before Z signal.
 - 9 Forward, home switch as deceleration point and Z signal as home, rising edge on the other side of the home switch signal must be reached before Z signal.
 - 10 Forward, home switch as deceleration point and Z signal as home, falling edge on the other side of the home switch signal must be reached before Z signal.
 - 11 Reverse, home switch as deceleration point and Z signal as home, falling edge on the same side of the home switch signal must be reached before Z signal.
 - 12 Reverse, home switch as deceleration point and Z signal as home, rising edge on the same side of the home switch signal must be reached before Z signal.
 - 13 Reverse, home switch as deceleration point and Z signal on the other side of the home switch signal as home, rising edge on the other side of the home switch signal must be reached before Z signal.
 - 14 Reverse, home switch as deceleration point and Z signal on the other side of the home switch signal as home, falling edge on the other side of the home switch signal must be reached before Z signal.
 - 17–32 are similar to 1–14 except that the deceleration point coincides with the home.
 - 33 Reverse, Z signal as home.
 - 34 Forward, Z signal as home.
- Current position as the home
- When 6098h is set to 15, 16, 31 or 32, it is meaningless and the servo drive does not perform the homing operation.

6099.01h Speed during search for switch

Address:	6099-01h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s
Max.:	4294967295	Data Type:	UInt32
Default:	111848106	Change:	At stop

Value Range:

0 to 4294967295

Description

Defines the speed during search for the deceleration point signal. A large setpoint helps prevent E601.0 (Homing timeout).

6099.02h Speed during search for zero

Address:	6099-02h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s
Max.:	4294967295	Data Type:	UInt32
Default:	11184810	Change:	At stop

Value Range:

0 to 4294967295

Description

Defines the speed in searching for the home signal. Setting this speed to a low value prevents overshoot during stop at high speed, avoiding excessive deviation between the stop position and the set mechanical home.

609Ah Homing acceleration

Address:	609Ah	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

It sets the acceleration during the homing operation.

60B0h Position offset

Address:	60B0h	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32

Default: 0

Change: Real-time

Value Range:

-2147483648 to 2147483647

Description

Sets the position offset.

60B1h**Velocity offset**

Address: 60B1h

Effective mode: Real time

Min.: -2147483648

Unit: Reference unit/s

Max.: 2147483647

Data Type: Int32

Default: 0

Change: Real-time

Value Range:

-2147483648 to +2147483647

Description

Set the velocity offset.

60B2h**Torque offset**

Address: 60B2h

Effective mode: Real time

Min.: -4000

Unit: 0.10%

Max.: 4000

Data Type: Int16

Default: 0

Change: Real-time

Value Range:

-4000.%—4000.%

Description

Sets the torque offset.

60B8h**Touch probe function**

Address: 60B8h

Effective mode: Real time

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Real-time

Value Range:

0x0 to 0xFFFF

Description

-

bit	Name	Description
0	Touch probe 1 function selection 0: Probe 1 disabled 1: Probe 1 enabled	Bit0 to bit5: settings related to probe 1 When a DI is used to trigger the touch probe function, the DI source cannot be changed once the touch probe function is enabled. For absolute encoders, Z signal refers to the zero point of the single-turn position feedback.
1	Touch probe 1 trigger mode 0: Single trigger mode (Latches the position at the first trigger event.) 1: Continuous trigger mode	
2	Touch probe 1 trigger signal selection 0: DI signal 1: Z signal	
3	N/A	
4	Touch probe 1 positive edge 0: Latching at positive edge disabled 1: Latching at positive edge enabled	
5	Touch probe 1 negative edge 0: Latching at negative edge disabled 1: Latching at negative edge enabled	
6–7	N/A	-
8	Touch probe 2 function selection 0: Probe 2 disabled 1: Probe 2 enabled	Bit8 to bit13: settings related to probe 2
9	Touch probe 2 trigger mode 0: Single trigger mode (Latches the position at the first trigger event.) 1: Continuous trigger mode	
10	Touch probe 2 trigger signal selection 0: DI signal 1: Z signal	
11	N/A	
12	Touch probe 2 positive edge 0: Latching at positive edge disabled 1: Latching at positive edge enabled	
13	Touch probe 2 negative edge 0: Latching at negative edge disabled 1: Latching at negative edge enabled	
14–15	N/A	-

60B9h**Touch probe status**

Address: 60B9h

Effective mode: -

Min.: 0x0

Unit: -

Max.: 0xFFFF

Data Type: UInt16

Default: 0x0

Change: Unchangeable

Value Range:

0x0 to 0xFFFF

Description

Defines the functions of touch probe 1 and touch probe 2.

See the following table for descriptions of each bit of 60B9h.

bit	Name	Description
0	Touch probe 1 function selection 0: Probe 1 disabled 1: Probe 1 enabled	Bit0 to bit2: Status of probe 1
1	Touch probe 1 positive edge value 0: No positive edge value latched 1: Edge value latched	
2	Touch probe 1 negative edge value 0: No negative edge value latched 1: Negative edge value latched	
3–5	N/A	-
6–7	When the function of probe 1 is selected as continuous sampling, the total number of times the probe is triggered	When the function of probe 1 is selected as continuous sampling, the total number of times (0–3) the probe is triggered
8	Probe 2 enable: 0: Probe 2 disabled 1: Probe 2 enabled	Bit8 to bit10: Status of probe 2
9	Touch probe 2 positive edge value 0: No positive edge value latched 1: Edge value latched	
10	Touch probe 2 negative edge value 0: No negative edge value latched 1: Negative edge value latched	
11–13	N/A	-
14–15	When the function of probe 2 is selected as continuous sampling, the total number of times the probe is triggered	When the function of probe 2 is selected as continuous sampling, the total number of times (0–3) the probe is triggered

60BAh**Touch probe 1 positive edge position value**

Address: 60BAh

Effective -

mode:

Min.: -2147483648

Unit: Reference unit

Max.: 2147483647

Data Type: Int32

Default: 0

Change: Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position feedback value (reference unit) latched at positive edge of touch probe 1 signal.

60BBh

Touch probe 1 negative edge position value

Address:	60BBh	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position feedback value (reference unit) latched at negative edge of touch probe 1 signal.

60BCh

Touch probe 2 positive edge position value

Address:	60BCh	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position feedback value (reference unit) latched at positive edge of touch probe 2 signal.

60BDh

Touch probe 2 negative edge position value

Address:	60BDh	Effective mode:	-
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position feedback value (reference unit) latched at negative edge of touch probe 2 signal.

60C5h**Max. acceleration**

Address:	60C5h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the maximum permissible acceleration rate of the acceleration segment in the profile position mode, profile velocity mode, and homing mode.

The setpoint 0 will be forcibly changed to 1.

60C6h**Max. deceleration**

Address:	60C6h	Effective mode:	Real time
Min.:	0	Unit:	Reference unit/s ²
Max.:	4294967295	Data Type:	UInt32
Default:	4294967295	Change:	Real-time

Value Range:

0 to 4294967295

Description

Defines the maximum permissible deceleration in the profile position mode, profile velocity mode, and homing mode.

The setpoint 0 will be forcibly changed to 1.

60D5h**Touch probe 1 positive edge counter**

Address:	60D5h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

The counting value is added by "1" each time this object is triggered.

60D6h**Touch probe 1 negative edge counter**

Address:	60D6h	Effective mode:	-
Min.:	0x0	Unit:	-

Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

The counting value is added by "1" each time this object is triggered.

60D7h Touch probe 2 positive edge counter

Address:	60D7h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

The counting value is added by "2" each time this object is triggered.

60D8h Touch probe 2 negative edge counter

Address:	60D8h	Effective mode:	-
Min.:	0x0	Unit:	-
Max.:	0xFFFF	Data Type:	UInt16
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFF

Description

The counting value is added by "2" each time this object is triggered.

60E0h Positive torque limit

Address:	60E0h	Effective mode:	Real time
Min.:	0	Unit:	0.10%
Max.:	4000	Data Type:	UInt16
Default:	3000	Change:	Real-time

Value Range:

0.0%—4000.0%

Description

It sets the maximum positive torque in the motor.

60E1h**Negative torque limit**

Address:	60E1h	Effective	Real time
		mode:	
Min.:	0	Unit:	0.10%
Max.:	4000	Data Type:	UInt16
Default:	3000	Change:	Real-time

Value Range:

0.0%–4000.0%

Description

It sets the maximum negative torque in the motor.

60F4h**Position deviation**

Address:	60F4h	Effective	-
		mode:	
Min.:	-2147483648	Unit:	Reference unit
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648 to 2147483647

Description

Indicates the position deviation (reference unit).

60FCh**Position reference**

Address:	60FCh	Effective	-
		mode:	
Min.:	-2147483648	Unit:	-
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Unchangeable

Value Range:

-2147483648–2147483647

Description

Indicates the position reference (encoder unit).

If no alarm is detected when the S-ON signal is active, the relation between the position reference in reference unit and that in encoder unit is as follows:

60FCh (in encoder unit) = 6062h (in reference unit) x 6091h

60FDh**DI state**

Address:	60FDh	Effective	-
		mode:	
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32
Default:	0x0	Change:	Unchangeable

Value Range:

0x0 to 0xFFFFFFFF

Description

Indicates current DI logic of the drive.

0: Inactive

1: Active

The signal indicated by each bit is described as follows:

Bit signal

0: Reverse overtravel signal active

1: Forward overtravel signal active

2: Home signal active

3–15: N/A

16: DI1 input active

17: DI2 input active

18: DI3 input active

19: DI4 input active

20: DI5 input active

21–26: N/A

27: STO1 signal input

28: STO2 signal input

29: EDM output active

30: Z signal is active

31: N/A

60FFh PV, CSV mode speed reference

Address:	60FFh	Effective mode:	Real time
Min.:	-2147483648	Unit:	Reference unit/s
Max.:	2147483647	Data Type:	Int32
Default:	0	Change:	Real-time

Value Range:

–2147483648 to +2147483647

Description

Defines the target speed in the cyclic synchronous velocity mode/profile velocity mode.

60FE.01h Physical output

Address:	60FE-01h	Effective mode:	Real time
Min.:	0x0	Unit:	-
Max.:	0xFFFFFFFF	Data Type:	UInt32

Default: 0x0

Change: Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

Indicates the DO logic.

The signal indicated by each bit is described as follows:

Description of bits

0–15: N/A

16: DO1 forced output (0: off, 1: on), when bit16 of 60FE.02h is set to 1

17: DO2 forced output (0: off, 1: on), when bit17 of 60FE.02h is set to 1

18–25: N/A

26: Gain switching performs P/PI switching, only when bit 26 of 60FE.02h is set to 1

27–31: N/A

60FE.02h Bitmask

Address: 60FE-02h

Effective mode: Real time

Min.: 0x0

Unit: -

Max.: 0xFFFFFFFF

Data Type: UInt32

Default: 0x0

Change: Real-time

Value Range:

0x0 to 0xFFFFFFFF

Description

0 to 15: N/A

16: Forced DO1 output enable

17: Forced DO2 output enable

18 to 25: N/A

26: P/PI switchover enable

27 to 31: N/A



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