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MD520-INT Series High-Protection (IP55) AC Drive

User Guide

Industrial Automation | New Energy Vehicle | Intelligent Elevator | Intelligent Robot | Digital Energy | Rail Transit

Data code PS00022366A00

Legal Information

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Waste Disposal

The storage, use, and disposal of this product (including optional accessories) must comply with local laws and regulations.

Qualified Personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel can identify the risks of the product/system and prevent possible dangers.

Proper Use of the Product

Proper transportation, storage, assembly, installation, commissioning, operation, and maintenance are required to ensure the safe operation of the product without any problems. The required ambient conditions must be met. All operations must follow the guidelines provided in this documentation.

Preface

Introduction

The MD520 series is a general-purpose high-performance vector control AC drive for accurate speed and torque control in high-demand applications. It can drive asynchronous AC induction motors (IM), permanent magnet synchronous motors (PMSM), and synchronous reluctance motors (SynRM). It is also equipped with the STO, limp mode upon fault, and tension control functions.

This guide describes product selection, mechanical design, electrical design, installation, communication, commissioning, function application, troubleshooting, and compliant certifications and standards.

Revision history

Date	Document version	Software version	Revision
March 2026	A00	Firmware code: 0302D338 Version: A00 Version tag: F7-10= L60.12/F7-11= L61.12/F7-15= 001.20/F7-16=055.06	Initial release.

Access to the guide

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

- Visit https://www.inovance.com/global, and choose Service&Support > Support > Documentation Download.
- Scan the QR code on the product with your smart 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 caused by proper operation of the user. Maintenance will be charged after the warranty expires.

Even within the warranty period, maintenance can be charged for the following product damage:

- Damage caused by operations not following the instructions in the guide
- Damage caused by fire, flood, or abnormal voltage
- Damage caused by using the product for unintended functions
- Damage caused by using the product outside the specified scope
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

When applicable, relevant maintenance fee will be charged according to the latest Price List of Inovance. If otherwise agreed upon, the agreed terms and conditions shall prevail.

For details, see the Warranty Card.

Table of Contents

1 Fundamental Safety Instructions

1.1 Fundamental Safety Instructions

Safety disclaimer

- This chapter provides essential safety instructions for proper use of the product. Before using this product, read through the guide and comprehend all the safety instructions. Failure to comply with the safety instructions may result in death, severe injury, or equipment damage.
- "DANGER", "WARNING", and "CAUTION" signs in this guide are only supplements to the safety instructions, and do not reflect all safety instructions to be followed.
- Use this product according to the designated environment requirements. Damage caused by improper use is not covered by warranty.
- Inovance shall take no responsibility for any personal injury or property damage caused by improper use.

Safety levels and definitions

DANGER Indicates that failure to comply with the notice can result in death or severe personal injuries.

WARNING Indicates that failure to comply with the notice may result in severe personal injuries or even death.

CAUTION Indicates that failure to comply with the notice may result in minor or moderate injury or equipment damage.

Fundamental Safety Instructions

- Drawings in the guide are sometimes shown without covers or protective guards. Remember to install the covers or protective guards as specified, and then perform operations in accordance with the instructions.
- The drawings in the guide are shown for illustration only and may be different from the product you purchased.
- Operators must take mechanical protection measures to protect their safety. For example, they must wear safety shoes, safety clothing, safety glasses, protective gloves and sleeves, or other protective equipment.

Unpacking
⚠ WARNING • Do not install the product in the case of any damage, rust, or signs of use on the product or accessories upon unpacking. • Do not install the product in the case of water seepage into the product or missing or damaged components upon unpacking. • Do not install the product in the case of any discrepancy between the product you received and the product name on the packing list.
⚠ CAUTION • Check whether the packing is intact and whether there is damage, water seepage, dampness, and deformation before unpacking. • Unpack the package by following the unpacking sequence. Do not strike the package violently. • Check for damage, rust, or scratches on the surfaces of the product and accessories upon unpacking. • Check whether the package contents are consistent with the packing list after unpacking.

Storage and transportation
WARNING • Large-scale or heavy equipment must be transported by qualified professionals using specialized hoisting equipment. Failure to comply may result in personal injury or equipment damage. • Before hoisting the equipment, ensure that components such as the front cover and terminal blocks are secured firmly with screws. Loosely-connected components may fall off and result in personal injury or equipment damage. • Never stand or stay below the product which is being hoisted. • Hoist the equipment at a constant speed with a steel rope to prevent any vibration or shock to the equipment. Never turn the equipment over or keep it suspended for a long time. Failure to comply may result in personal injury or equipment damage.
CAUTION • Handle the equipment with care and mind your steps during transportation to prevent personal injury or equipment damage. • When carrying the equipment with bare hands, hold the enclosure firmly with care to prevent parts from falling. Failure to comply may result in personal injury. • Store and transport the equipment based on the storage and transportation requirements. Failure to comply may result in equipment damage. • Do not store or transport the equipment in equipment exposed to splashing water or rain, direct sunlight, strong electric field, strong magnetic field, or strong vibration. • Do not store the equipment for more than three months. Long-term storage requires stricter protection and necessary inspections. • Pack the equipment securely and properly before transportation. Use a sealed container for long-distance transportation. • Never transport the equipment with other devices or items that could impact or cause harm to the equipment.

Installation

DANGER

- The equipment must be operated only by professionals with electrical knowledge. Non-professionals are not allowed.

WARNING

- Read through the guide and safety instructions before installation.
- Do not install this equipment in places with strong electric or magnetic field.
- Before installation, check that the mechanical strength of the installation site can bear the weight of the equipment. Failure to comply may result in mechanical hazards.
- Do not wear loose clothes or accessories during installation. Failure to comply may result in an electric shock.
- Before installing the equipment in an enclosed environment (such as a cabinet or case), use a cooling device (such as a fan or air conditioner) to cool the environment to the required temperature. Failure to comply may result in equipment over-temperature or a fire.
- Do not retrofit the equipment.
- Do not fiddle with the bolts used to fix equipment components or the bolts marked in red.
- When the equipment is installed in a cabinet or terminal device, appropriate guard devices (guards for fire, electrical, and mechanical protection) meeting applicable IEC standards and local laws and regulations must be provided.
- Before installing devices with strong electromagnetic interference, such as a transformer, install a shielding device for the equipment to prevent malfunction.
- Install the equipment onto an incombustible object such as a metal. Keep the equipment away from combustible objects. Failure to comply may result in a fire.

CAUTION

- Cover the top of the equipment with a piece of cloth or paper during installation. This is to prevent unwanted objects such as metal chippings, oil, and water from falling into the equipment and causing faults. After installation, remove the covering to prevent it from blocking the vent, which may affect the heat dissipation and cause the equipment to overheat.
- Resonance may occur when the equipment operating at a constant speed executes variable speed operations. In this case, install the vibration-proof rubber under the motor frame or use the vibration suppression function to reduce resonance.

Wiring
DANGER • Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed only by professionals. • Before wiring, switch off all power supplies of the device. Wait for at least the time designated on the equipment warning label before further operations because residual voltage still exists after power-off. Measure the DC voltage of the main circuit and make sure that it is below the safety voltage. Failure to comply may result in an electric shock. • Do not perform wiring, remove the equipment cover, or touch the circuit board with power-on. Failure to comply may result in an electric shock. • Make sure that the equipment and product are grounded properly. Failure to comply can result in the risk of electric shock.
WARNING • Never connect the power cable to output terminals of the equipment or product. Failure to comply may damage the equipment or even cause a fire. • When connecting a drive with the motor, make sure that the phase sequences of the drive and motor terminals are consistent to prevent reverse motor rotation. • Cables used for wiring must meet cross-sectional area and shielding requirements. The shield of the cable must be reliably grounded at one end. • Fix the terminal screws with the tightening torque specified in the guide. Improper tightening torque may cause the connecting part over-temperature or damage, resulting in a fire. • After wiring, be sure that all cables are connected properly with no screws, gaskets, or exposed cables inside the product, or it may result in an electric shock or equipment damage.
CAUTION • During wiring, follow the proper electrostatic discharge (ESD) procedures, and wear an antistatic wrist strap. Failure to comply may result in damage to the equipment or internal circuits. • Use the shielded twisted pair cable to wire the control circuit, and connect the shield to the grounding terminal of the equipment. Failure to comply may result in equipment malfunction.

Power-on
DANGER
• Before power-on, check that the equipment is installed properly with secure wiring and the motor can be restarted. • Before power-on, make sure that the power supply meets equipment requirements to prevent equipment damage or even a fire. • After power-on, do not open the cabinet door or protective cover of the equipment. Do not touch any terminals, or remove any part of the equipment at power-on. Failure to comply will result in an electric shock.
WARNING
• Perform a trial run after wiring and parameter setting to ensure that the equipment operates safely. Failure to comply may result in personal injuries or equipment damage. • Before power-on, check that the rated voltage of the equipment is consistent with that of the power supply. Failure to comply may result in a fire. If the power supply voltage is used incorrectly, it will result in a fire. • Before power-on, check that no one is near the equipment, motor, or other mechanical parts. Failure to comply may result in personal injuries or even death.

Operation
DANGER
• The equipment must be operated only by professionals. Failure to comply can result in death or personal injury. • Do not touch any connecting terminals or disassemble any unit or component of the equipment during operation. Failure to comply may result in an electric shock.
WARNING
• Never touch the enclosure, fan, or resistor with a bare hand. Failure to comply may result in burns. • Prevent metal or other objects from falling into the equipment during operation. Failure to comply may result in a fire or equipment damage.

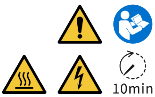
Maintenance
DANGER
• Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed only by professionals. • Never maintain the equipment with power-on. Failure to comply may result in an electric shock. • Before maintenance, disconnect all the power supplies of the equipment and wait for at least the time specified on the warning label. • In case of a permanent magnet motor, do not touch the motor terminals even after power-off because there is still induced voltage generated during rotation. Failure to comply will result in an electric shock.
WARNING
• Perform routine and periodic inspection and maintenance on the equipment according to maintenance requirements and keep a maintenance record.

Repair
DANGER
• Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed only by professionals. • Never repair the equipment with power-on. Failure to comply may result in electric shock. • Before inspection or repair, disconnect all the power supplies of the equipment and wait for at least the time specified on the warning label.
WARNING
• Submit a request for repair based on the warranty agreement. • When the fuse is blown or the circuit breaker or earth leakage current breaker (ELCB) trips, wait for at least the time specified on the warning label before power-on or other operations. Failure to comply may result in personal injury or death and equipment damage. • Troubleshooting and repair of a faulty or damaged equipment must be performed by professionals based on the repair instructions, with the repair records kept properly. • Replace quick-wear parts of the product in accordance with the replacement instructions. • Do not operate the damaged equipment. Failure to comply may result in death, personal injury, or severe equipment damage. • Recheck the wiring and reset the parameters after equipment replacement.

Disposal
WARNING • Dispose of retired equipment in accordance with local regulations and standards. Failure to comply may result in death, personal injury, or property damage. • Recycle retired equipment in accordance with industry waste disposal standards to avoid environmental pollution.

Safety labels

To ensure safe operation, comply with safety labels on the equipment and do not damage or remove the labels. The following table describes the meaning of the safety labels.

Safety labels	Description
	• Before using the equipment, read the guide and safety precautions carefully. Failure to comply may result in personal injury, death, or equipment damage. • Do not touch the terminals or remove the cover with power-on or within 10 min after power-off. Failure to comply may result in an electric shock.

1.2 Industrial Information Security

The product provides interfaces for network connection and data transmission. To protect factories, systems, machines, and networks from cyber attacks, it is essential to implement proper protection mechanism for industrial security.

Customers are responsible for providing and maintaining a secure connection between the product and their network or any other network to protect their factories, systems, machines, and networks from unauthorized access. Such systems or machines can be connected to an enterprise network or the Internet only when a secure connection is established and appropriate security measures (such as using antivirus software or installing firewalls) are in place.

Inovance continuously develops and improves products and solutions to enhance safety. It is strongly recommended that you update the product promptly and always use the latest version.

CAUTION

Tampering with software (such as viruses, Trojans, and Worms) can lead to unsafe drivestate, which can put the device in an unsafe operation state. This may result in death,serious injury, and property damage. Observe the following strictly.

- Always use the latest software version. If the product version is no longersupported or the latest version of the program is not applied, customers are atincreased risk of cyber-attacks.
- Take proper protection measures (including but not limited to deploying antivirussoftware, firewall, WAF, IPS/IDS, situational awareness system, IDverification, and data encryption) to prevent files in the mobile storage devicefrom being damaged by malware and protect products, networks, systems, andinterfaces from unauthorized access, disturbance, intrusion, data disclosure, orinformation theft.
- Check all safety-related interfaces and settings after commissioning.

2 Product Information

2.1 Product Positioning and Features

The MD520-INT series is the new-generation general-purpose AC drive with high protection. Employing high-performance vector control technologies, the drive delivers motor speed and torque control in complex applications. In addition, it integrates multiple protective mechanisms including STO safety function, limp mode upon fault, and tension control. The MD520-INT series can be used to drive asynchronous AC induction motors (IM), permanent magnet synchronous motors (PMSM), and synchronous reluctance motors (SynRM).

Figure 2-1 Product appearance

The AC drive highlights the following:

- Various types of motors supported: The AC drive can drive asynchronous induction motors (IM), permanent magnet synchronous motors (PMSM), and synchronous reluctance motors (SynRM), facilitating energy saving and device upgrade.
- Performance improvement: The AC drive is fully upgraded with the maximum output of 150% at 0 Hz and an open-loop vector speed regulation range of 1:500, which facilitates high-quality and high-efficiency production.
- Rich functions: Featuring the STO, limp mode upon fault, brake control, programming, and tension control functions, the AC drive is suitable for various applications such as fans and pumps.
- Flexible expansion: The AC drive supports seven types of communication cards, four types of I/O expansion cards, two types of positioning expansion cards, and programmable multi-function expansion cards, which makes the AC drive more flexible and easy to use.

2.2 Components

2.2.1 Overview

The AC drive is structured in either of the following types:

- Die-cast structure, corresponding to T1 to T2 models (7.5 kW to 30 kW).
- Sheet metal structure, corresponding to T3 to T4 models (37 kW to 90 kW).

2.2.2 Components of T1 to T2 (7.5 kW to 30 kW)

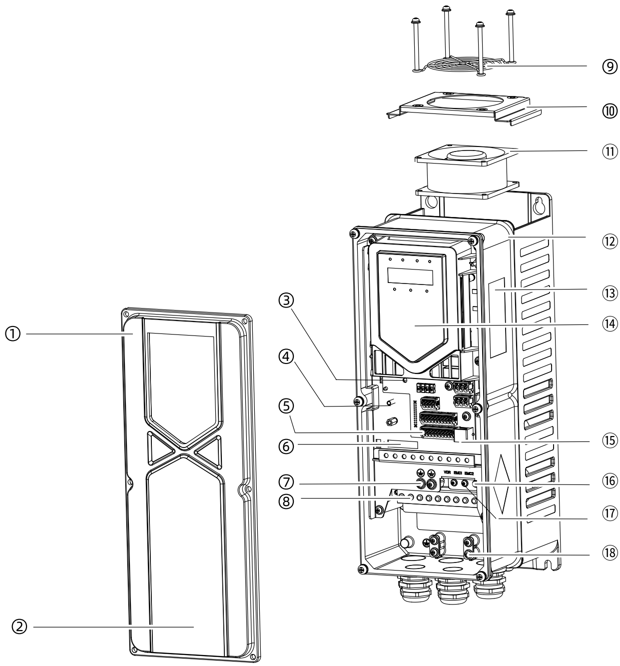


Figure 2-2 Product components

No.	Name	No.	Name
①	Upper cover	⑩	Cooling fan baffle
②	Mark	⑪	Cooling fan
③	EMC selective grounding screw location on the control board	⑫	Enclosure
④	Expansion card installation hole	⑬	Nameplate
⑤	Control circuit terminal	⑭	Operating panel

No.	Name	No.	Name
⑥	Bar code	⑮	External operating panel interface
⑦	Control board grounding	⑯	EMC2
⑧	Main circuit terminals	⑰	EMC1
⑨	Cooling fan cover	⑱	Grounding terminal

Note

- The actual position of the equipment bar code may vary with models.
- Connect the control board ground cable to the grounding sheet metal only when the system is reliably grounded; otherwise, connect the control board ground cable to the fixing hole.
- Do not disassemble the machine or perform wiring when the main circuit power supply indicator is ON.

2.2.3 Components of T3 to T4 (37 kW to 90 kW)

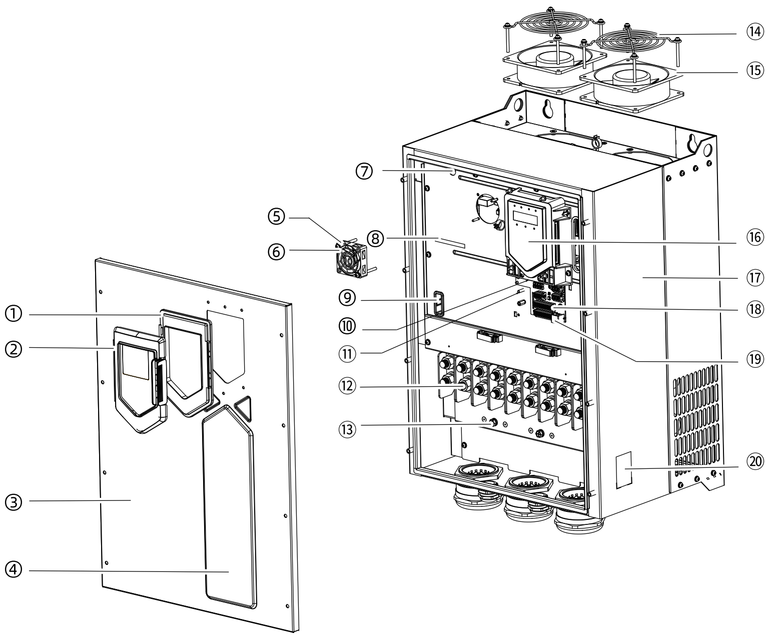


Figure 2-3 Product components

No.	Name	No.	Name
①	Plastic protective component	⑪	Expansion card installation hole
②	Transparent PC cover	⑫	Main circuit terminals
③	Cover plate	⑬	Grounding terminal
④	Mark	⑭	Cooling fan cover
⑤	Internal turbulence fan	⑮	Cooling fan
⑥	Turbulence fan cover	⑯	Operating panel
⑦	Selective grounding screw location on the driver board	⑰	Enclosure
⑧	Bar code	⑱	Control circuit terminal
⑨	EMC selective grounding screw location on the surge protection board	⑲	External operating panel interface
⑩	EMC selective grounding screw location on the control board	⑳	Nameplate

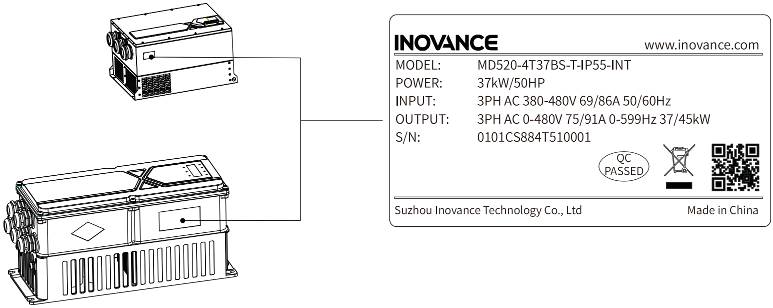
Note

- The actual position of the equipment bar code may vary with models.
- Connect the control board ground cable to the grounding sheet metal only when the system is reliably grounded; otherwise, connect the control board ground cable to the fixing hole.
- The quantity and layout of cooling fans vary with models.

2.3 Nameplate and Model

Note

The following nameplate is used as an example. The actual nameplate is subject to the product.



MD520 - 4T 37 B S - T - IP55 - INT

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① **Product name** MD520: AC drive series	⑤ **Safety function** Null: N/A S: with the STO function
② **Voltage class** 4T: three-phase 380 V to 480 V	⑥ **Reactor** T: with the DC reactor
③ **Power rating (kW)** 7.5: 7.5 ... 90: 90	⑦ **Model configuration** IP55: IP55-certified models
④ **Braking Unit** Null: N/A B: with the braking unit	⑧ INT: international version

2.4 Product Model List

The following table lists the mapping between product models and structures.

Table 2–1 Relationship between product models and structures

Structure	Power (kW)	Model (three-phase 380 V to 480 V)	Code
T1	7.5	MD520-4T7.5BS-T-IP55-INT	0101E445
	11	MD520-4T11BS-T-IP55-INT	0101E443
T2	15	MD520-4T15BS-T-IP55-INT	0101E442
	18.5	MD520-4T18.5BS-T-IP55-INT	0101E446
	22	MD520-4T22BS-T-IP55-INT	0101E449
	30	MD520-4T30BS-T-IP55-INT	0101E448

Structure	Power (kW)	Model (three-phase 380 V to 480 V)	Code
T3	37	MD520-4T37BS-T-IP55-INT	0101E451
	45	MD520-4T45BS-T-IP55-INT	0101E444
	55	MD520-4T55BS-T-IP55-INT	0101E441
T4	75	MD520-4T75BS-T-IP55-INT	0101E447
	90	MD520-4T90S-T-IP55-INT	0101E450

Note:

- B: With the braking unit
- S: With the STO function
- -T: With the DC reactor

3 Unpacking, Storage, and Handling

3.1 Storage

- The drive must be stored in a clean and dry room, where the temperature ranges from -20°C and +60°C and temperature change rate is smaller than 1°C/min.
- If the drive needs to be stored for a long period of time, cover it up or take similar measures to prevent the drive from being polluted or affected by the surrounding environment.
- Pack the drive with the original packing box provided by Inovance.
- Do not expose the equipment to environments with moisture, high temperatures, or direct sunlight for a long time.
- The electrolytic capacitor will deteriorate after being stored for a long time. Therefore, switch on the drive at least once every six months and keep the power-on time for at least five hours each time. Increase the input voltage gradually until the rated value is reached through a voltage regulator. Contact Inovance for technical support if necessary.

3.2 Transportation Before Unpacking

Precautions for transportation of T1 to T4 models:

- T1 to T2 models (7.5 kW to 30 kW) are compact and lightweight, allowing manual handling. T3 to T4 models (37 kW to 90 kW) must be handled using a suitable lifting device.
- When handling the drive with a forklift truck, fix the drive to a wooden pallet. When handling the drive with a crane, fix the drive to the pallet and lift them together, as shown below.

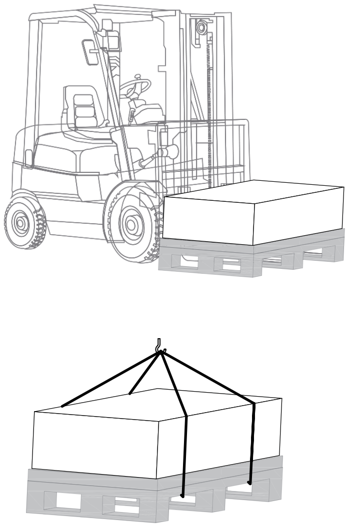


Figure 3-1 Lifting the drive

- Transport the AC drive only when it is upright as indicated on the packaging box, as shown in the following figure. Never turn it upside down or place it on its side.

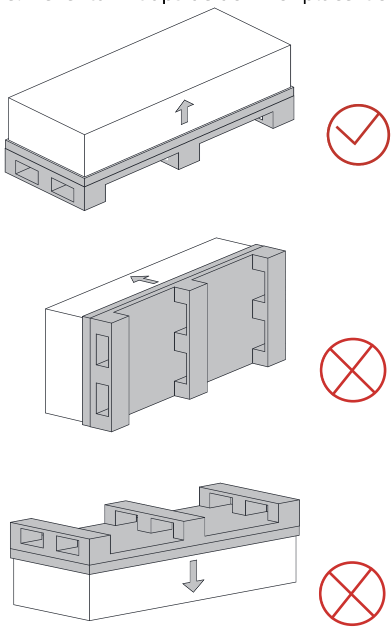


Figure 3-2 Placing the drive

3.3 Unpacking Inspection

When receiving goods from the shipping company, check that you have received all the items specified on the delivery note. Notify the shipping company immediately of any missing components or damage. If necessary, seek support from the Inovance office or your local agent.

AC drives of different structural dimensions are different in size and weight, and hence are packed in different methods with different components incorporated.

CAUTION

If the equipment is damaged during transportation, its electrical safety can no longer be ensured. Do not connect the equipment before a professional high-voltage test is performed.

Packing list for T1 to T4 models

- For T1 to T2 models (7.5 kW to 30 kW), use carton for packaging.
- For T3 to T4 models (37 kW to 90 kW), use carton and plywood pallet for packaging.

The following figure shows the packing list.

- Packing list for T1 to T2 models (7.5 kW to 30 kW)

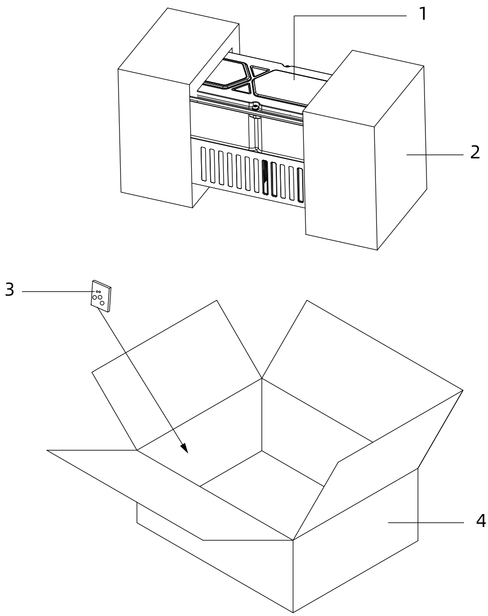


Figure 3-3 Packing list for T1 to T2 models

Table 3–1 Packing list for T1 to T2 models

No.	Name
1	AC drive
2	PE foam
3	Waterproof plug
4	Carton

- Packing list for T3 to T4 models (37 kW to 90 kW)

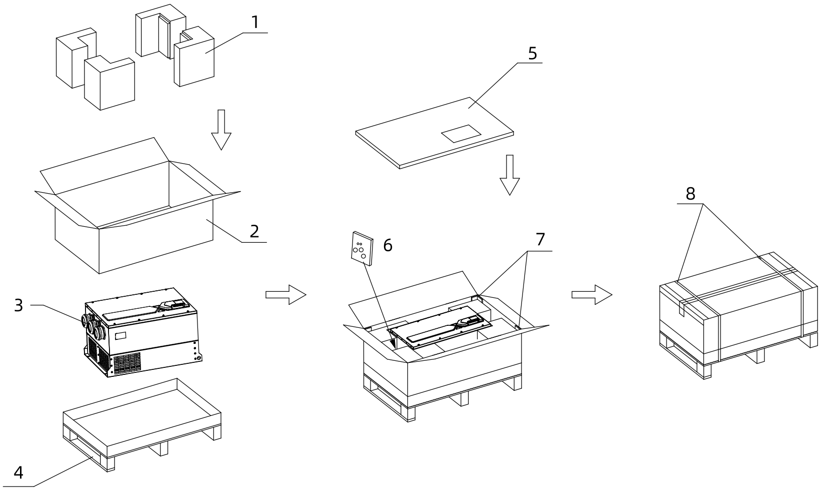


Figure 3-4 Packing list for T3 to T4 models

Table 3–2 Packing list for T3 to T4 models

No.	Name
1	PE foam
2	Carton
3	AC drive
4	Wooden pallet
5	Honeycomb board
6	Waterproof plug
7	Paper corner protector
8	Ties

3.4 Handling and Hoisting After Unpacking

T1 to T2 models (7.5 kW to 30 kW) are compact and lightweight, allowing manual handling. T3 to T4 models (37 kW to 90 kW) must be handled using a suitable lifting device.

Weight of AC Drive	Number of Persons Required
< 15 kg	1
≥ 15 kg	> 2; with an appropriate lifting device

Precautions for handling and hoisting:

- Handle the equipment in accordance with local laws and regulations.

- Avoid handling the AC drive by directly holding its upper cover or enclosure. Before handling, check that all screws have been tightened. Failure to comply may result in AC drive fall-off, causing personal injury.
- Make the equipment in the vertical position before hoisting and handling.
- The load-carrying capacity of the crane must be greater than the weight of the equipment.
- Before a vertical lift, check that all components of the AC drive including the upper access cover and terminals have been securely fixed with screws. Failure to comply can lead to personal injury.
- When lifting the AC drive with the lifting rope, avoid subjecting the AC drive to excessive vibration or impact. Failure to comply can lead to personal injury.
- When lifting the AC drive with the lifting rope, do not turn the AC drive over or leave it suspended for long time. Failure to comply can lead to personal injury.

T3 to T4 models (37 kW to 90 kW)

To lift T3 to T4 models, do as follows:

1. Hook the lifting rope to the two auxiliary lifting lugs at the top of the drive.
   It is recommended to hoist the drive at an angle greater than 45°, with the relief height not higher than 0.3 m.

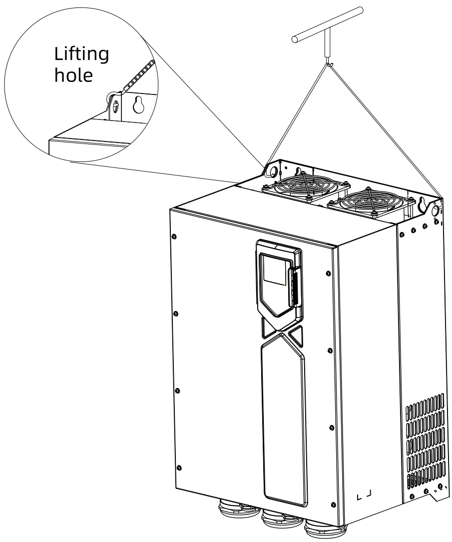


Figure 3-5 Hoisting diagram

2. Roll up the lifting rope slowly with a crane. After the lifting rope is fully stressed, lift the drive up.

3. Lower the drive down slowly, with a pause at a certain height midway, then continue until the drive reaches the ground or mounting surface. Finally, install the drive to the control cabinet.

3.5 Unpacking

The documentation suite and accessories are placed in different partitions in the package. To unpack, perform the following operations:

1. Remove all the straps and open the cover of the carton.
2. Remove all filler materials.
3. Take out the AC drive.
4. Remove the plastic wrap around the AC drive by cutting.
5. Check that the drive is not damaged.
6. Dispose of or recycle the packaging materials according to local regulations.

4 Mechanical Design

4.1 Product Dimensions

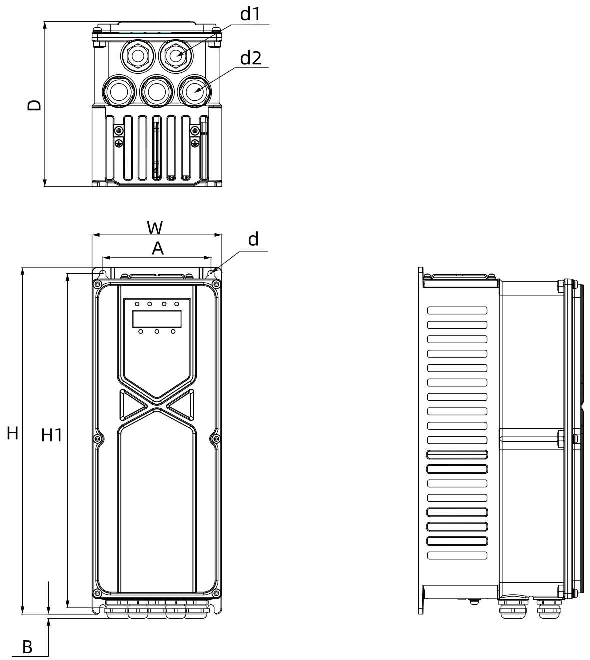


Figure 4-1 Overall and mounting dimensions for T1 to T2 (7.5 kW to 30 kW) models

Table 4–1 Dimensions for T1 to T2 (7.5 kW to 30 kW) models

Structure	Model	Overall dimension (mm)									Net weight (kg)
		W	A	H	H1	B	D	d	d1	d2	
T1	MD520-4T7.5BS-T-IP55-INT	144	120	385	371	7.8	183.4	4-Φ7.0	13 to 18		9
	MD520-4T11BS-T-IP55-INT										
T2	MD520-4T15BS-T-IP55-INT	195	150	460	446	16	218.9	4-Φ7.0	13 to 18	20 to 25	14.5
	MD520-4T18.5BS-T-IP55-INT										
	MD520-4T22BS-T-IP55-INT										
	MD520-4T30BS-T-IP55-INT										

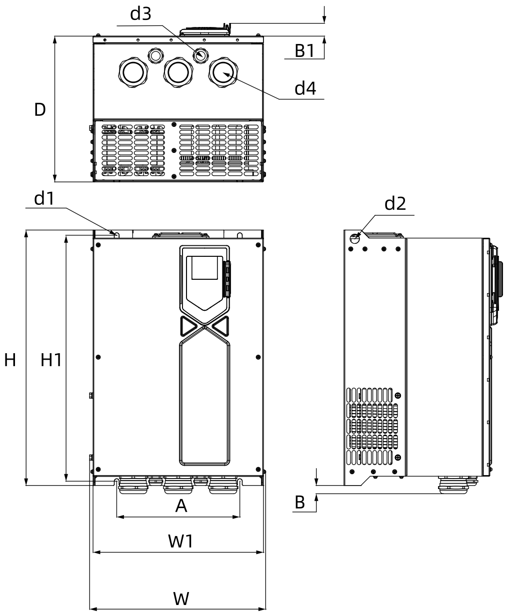


Figure 4-2 Overall and mounting dimensions for T3 to T4 (37 kW to 90 kW) models

Table 4–2 Dimensions for T3 to T4 (37 kW to 90 kW) models

Structure	Model	Overall dimension (mm)												Net weight (kg)
		W	W1	A	H	H1	B	B1	D	d1	d2	d3	d4	
T3	MD520-4T37BS-T-IP55-INT	371.8	360	260	540	520	28	27.1	308.2	4-Φ10.0	Φ20.0	13 to 18	30 to 38	38
	MD520-4T45BS-T-IP55-INT													
	MD520-4T55BS-T-IP55-INT													
T4	MD520-4T75BS-T-IP55-INT	411.8	400	302	580	560	28.5	27.1	315.7	Φ10.0	Φ20.0	13 to 18	37 to 44	47.4
	MD520-4T90S-T-IP55-INT													47.2

4.2 Installation Description

4.2.1 Precautions Before Installation

- Ensure the installation location is sturdy enough to bear the mechanical strength of the drive.
- Cover the top of the AC drive with cloth or paper during installation to prevent metal shavings, oil, and water from entering during drilling. Failure to comply may result in drive faults. After installation is done, remove the cloth or paper. This is to prevent the drive from being overheated due to poor ventilation.
- Reserve sufficient clearance for heat dissipation, including heat dissipation of other components in the cabinet. For details, see "Installing one drive" in *"5.3.2 Cabinet space requirement" on page 39*.
- Install the drive vertically upward to facilitate heat dissipation. If multiple drives need to be installed inside the cabinet, install them side by side. When multiple drives need to be installed at different layers, install a heater deflector. For details, see "Multi-layer installation" in *"5.3.2 Cabinet space requirement" on page 39*.
- The mounting bracket (if needed) must be made of incombustible materials.
- If the application site is exposed to metal dust, install the drive in an enclosed cabinet as large as possible to isolate the drive from metal dust. In this case, install the heatsink to the outside of the cabinet.
- Do not allow foreign objects such as various fibers, paper scraps, wood chips (shavings), or metal fragments to enter the drive or adhere to the cooling fan.
- Tighten all screws with specified tightening torque. Failure to comply may result in an electric shock or a fire.
- Keep flammables or explosives away from the drive.

4.2.2 Installation Method

T1 to T4 (7.5 kW to 90 kW) models support only backplate mounting. Refer to *"5.3.2 Cabinet space requirement" on page 39* for details.

4.3 Installation Requirements on Options

4.3.1 Input Reactor

Installing the input reactor on the input side of the drive can improve the input power factor, suppress the high harmonics of the input current of the drive, and reduce external conduction and radiation interference. The AC input reactor is an option. In applications where harmonics need to be suppressed, install an external AC input reactor to meet requirements of the EN IEC 6100032/12 standard.

If an AC input reactor is required, ensure that sufficient installation space is reserved in the cabinet.

4.3.2 Output Reactor

With an output reactor installed on the output side of the drive, the excessive dV/dt can be reduced. This can reduce the voltage stress on the motor winding to protect it, lower the motor temperature, and prolong the service life of the motor.

4.3.3 Fuse, Contactor, and Circuit Breaker

CAUTION

When the fuse is damaged or the circuit breaker trips, do not immediately energize the product or operate the peripheral equipment. Wait at least for the time specified on the warning label. Failure to comply will result in personal injury and equipment damage.

To comply with IEC/EN 61800-5-1 and UL 61800-5-1 standards, install a fuse/circuit breaker on the input side of the drive to prevent accidents caused by short circuit in the internal circuit.

4.3.4 Magnetic Ring and Ferrite Clamp

The magnetic ring can be used on the input or output side of the AC drive. Install it as close to the AC drive as possible. When installed on the input side, the magnetic ring can suppress the noise in the input power supply system of the drive. When installed on the output side, the magnetic ring can suppress interference generated by the AC drive to external devices and reduce the bearing current.

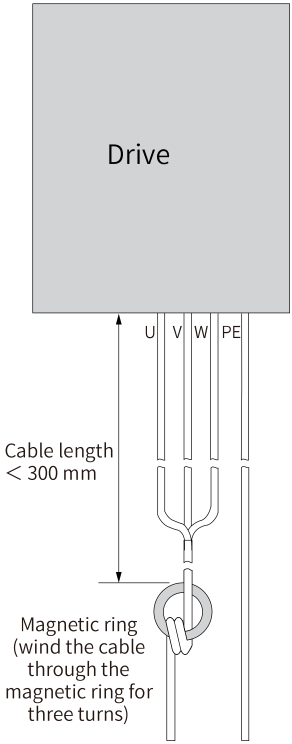


Figure 4-3 Installing the magnetic ring

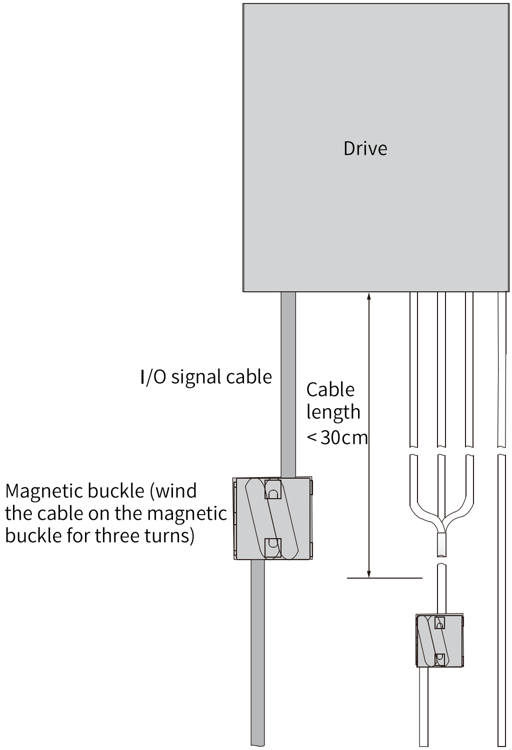
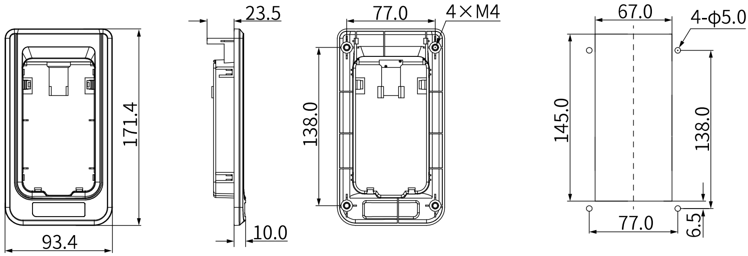


Figure 4-4 Installing the ferrite clamp

Note

The R/S/T or U/V/W cables must pass through the same ferrite core to suppress the common mode noise.

4.3.5 MDKE-10 External Operating Panel



Dimensions for the mounting bracket

Hole dimensions

Figure 4-5 Dimensions and opening sizes (mm) of the MDKE-10 mounting base bracket

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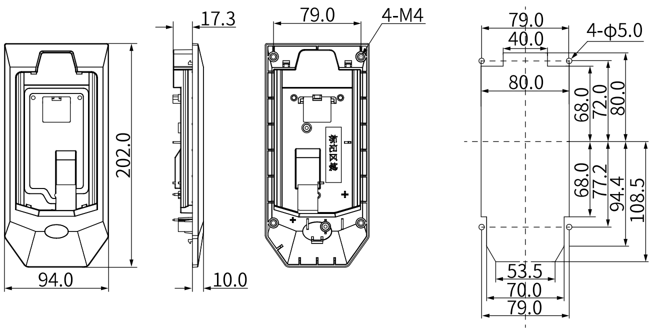
Note

If the thickness of the door is 1.5 mm, no bolts are required.

4.3.6 SOP-20 External Operating Panel



Dimensions of the mounting bracket

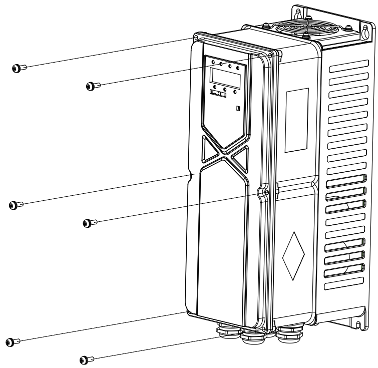
Hole dimensions

Figure 4-6 Dimensions and opening sizes (mm) of the SOP-20 mounting base bracket

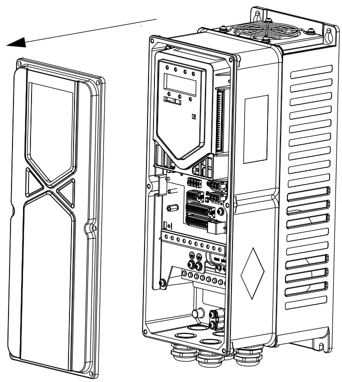
4.4 Cover Removal and Installation

Removing the front cover

1. Remove the screws on the front cover with a screwdriver.

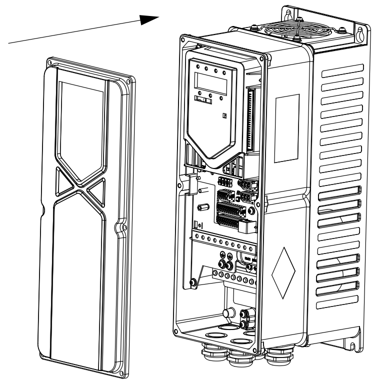


2. Hold the cover with both hands, and lift it in the arrow direction to remove it.

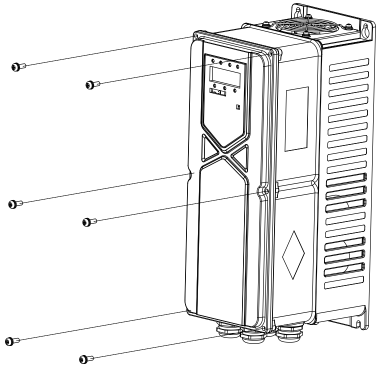


Installing the cover

1. Hold the cover with both hands, and lift it in the arrow direction.



2. Install the fixing screws with a screwdriver to fasten the cover.



Note

Torque for T1 to T2 (7.5 kW to 30 kW): 28±2.8 kgf.cm; torque for T3 to T4 (37 kW to 90 kW): 12±1.2 kgf.cm.

5 Electrical Design

5.1 Electrical Wiring Diagram

The standard wiring diagram for T1 to T4 models (7.5 kW to 90 kW) is shown in *"Figure 5-1 " on page 38*.

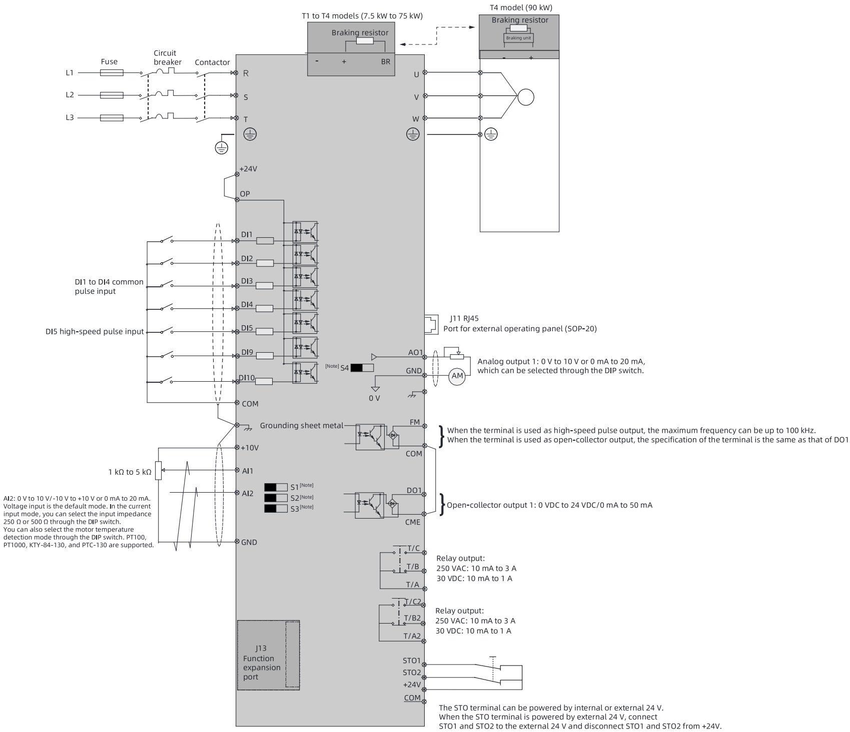


Figure 5-1 Standard wiring diagram

Note

For details on S1 to S4 DIP switches, see *"Table 5-11 Description of control circuit terminals" on page 61*.

5.2 Pre-wiring Inspection

Check the following items before wiring.

No.	Item
1	Cables used during wiring comply with the requirements on the cross-sectional area and the shield.
2	The device and the drive are grounded properly.
3	Take proper electrostatic discharge (ESD) measures and wear an antistatic wrist strap.
4	Wiring-related options are available immediately.

5.3 Cabinet Design

5.3.1 Overview

Before installing the AC drive in the cabinet, design the cabinet to ensure sufficient clearances for installation and heat dissipation. Take the following factors into consideration:

- Cabinet space requirement
- Mounting backplate requirement
- Cabinet heat dissipation design

5.3.2 Cabinet space requirement

For T1 to T4 models (7.5 kW to 90 kW), single-layer mounting is recommended. When multiple drives are installed in two layers, the minimum spacing between the two layers shall comply with the values given in the table below. In addition, install a heat deflector above the lower-layer drive.

- Installing one drive

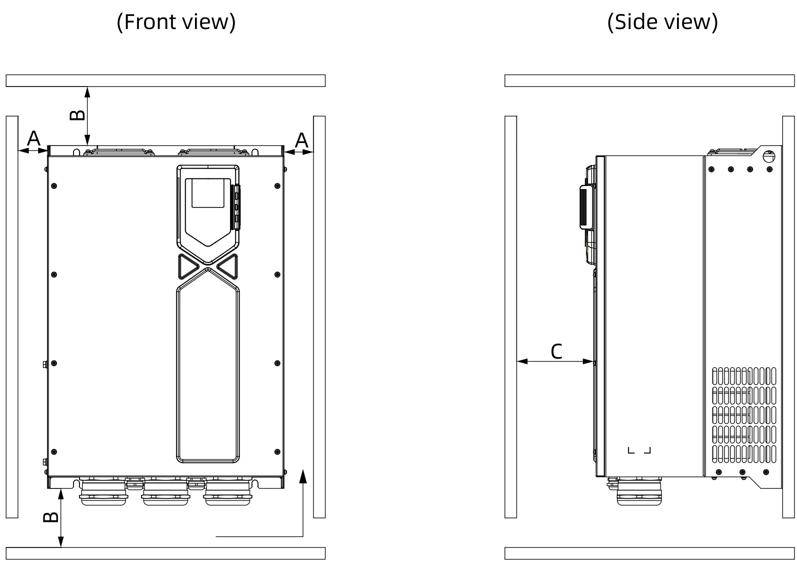


Figure 5-2 Single-drive installation

Table 5–1 Installation clearance

Power rating	Clearance (mm)		
T1 (7.5 kW to 11 kW)	A ≥ 30	B ≥ 100	C ≥ 40
T2 (15 kW to 30 kW)	A ≥ 30	B ≥ 200	C ≥ 40
T3 (37 kW to 55 kW)	A ≥ 50	B ≥ 200	C ≥ 40
T4 (75 kW to 90 kW)	A ≥ 50	B ≥ 300	C ≥ 40

- Multi-drive installation

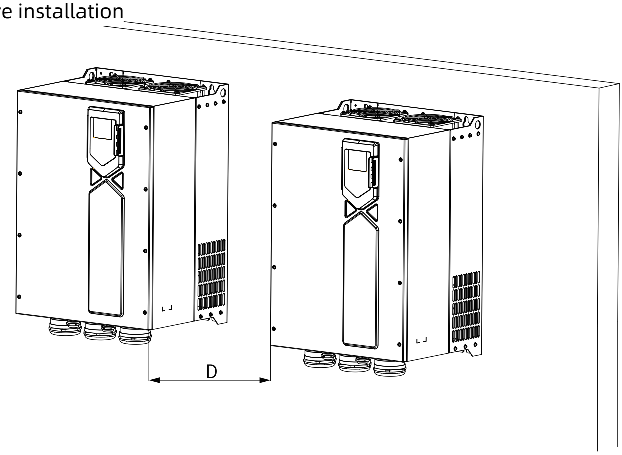


Figure 5-3 Installing multiple drives side by side

Table 5–2 Installation clearance

Power rating	Clearance (mm)
T1 (7.5 kW to 11 kW)	D ≥ 30
T2 (15 kW to 30 kW)	D ≥ 30
T3 (37 kW to 55 kW)	D ≥ 50
T4 (75 kW to 90 kW)	D ≥ 50

- Multi-layer mounting

Table 5–3 Minimum clearance (mm) for multi-layer installation

Item	T1	T2	T3	T4
S1	≥ 100	≥ 200	≥ 300	≥ 300
S2	≥ 100	≥ 200	≥ 300	≥ 300
...	≥ 100	≥ 200	≥ 300	≥ 300
Sn	≥ 100	≥ 200	≥ 300	≥ 300

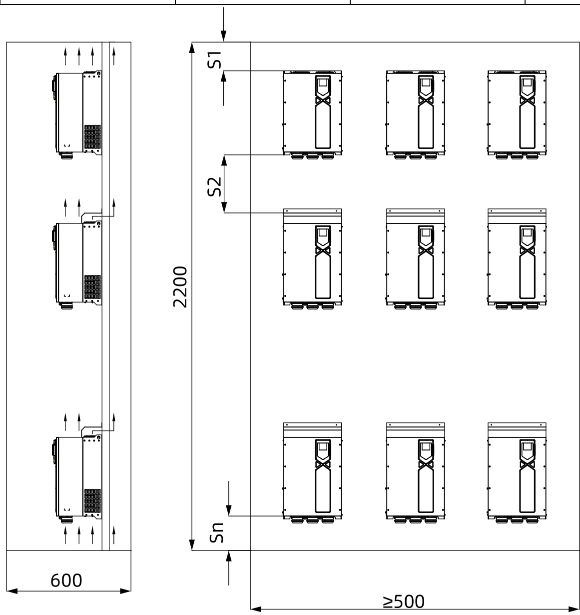


Figure 5-4 Minimum clearance (mm) for multi-layer installation

Note

When installing a fan, ensure that the fan can exhaust hot air in the cabinet to the outside. Failure to comply may cause accumulation of hot air, leading to over-temperature or damage to the drive. Ensure that the distance between the top cover of the air outlet and the fan outlet is at least 200 mm. Otherwise, the fan cooling performance may deteriorate.

The following table describes the minimum effective ventilation area of the cabinet air inlet after the drive is installed in the cabinet.

Table 5–4 Minimum effective ventilation area of the cabinet air inlet

AC drive	Minimum effective ventilation area of the cabinet air inlet (cm^2)
T1 (7.5 kW to 11 kW)	75
T2 (15 kW to 30 kW)	200
T3 (37 kW to 55 kW)	102
T4 (75 kW to 90 kW)	204

5.3.3 Mounting Backplate Requirements

Thickness and stiffness of the mounting backplate

To avoid damage to the AC drive during transportation and ensure proper operation of the AC drive, use a mounting plate with excellent stiffness and strength performance, and a thickness of at least 2 mm. Reinforce the backplate where appropriate. For example, weld a lateral reinforcing beam on the back of the backplate, as shown in the following figure.

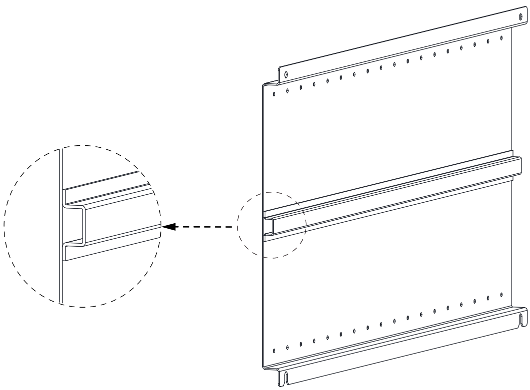


Figure 5-5 Reinforced beam welded to the back of the backplate

Requirement on the mounting holes

- You can drill mounting holes on the backplate in advance. For detailed mounting hole dimensions, see *"4.1 Product Dimensions" on page 29*.
- To avoid damage to the AC drive during transportation, fix the drive to the mounting backplate by using screws. In addition, use self-clinching nuts or independent nuts on the back of the backplate to enhance screw-thread fitting and fastening effect.

5.3.4 Cabinet heat dissipation design

Heat dissipation design for the cabinet door

The AC drive is forcibly cooled by a built-in fan. To ensure that enough cooling air enters the cabinet, open an air inlet with an appropriate size on the cabinet door.

The air flows from bottom to top after being heated. Therefore, the cabinet air inlet must be at least 50 mm lower than the air inlet of the drive, as shown below.

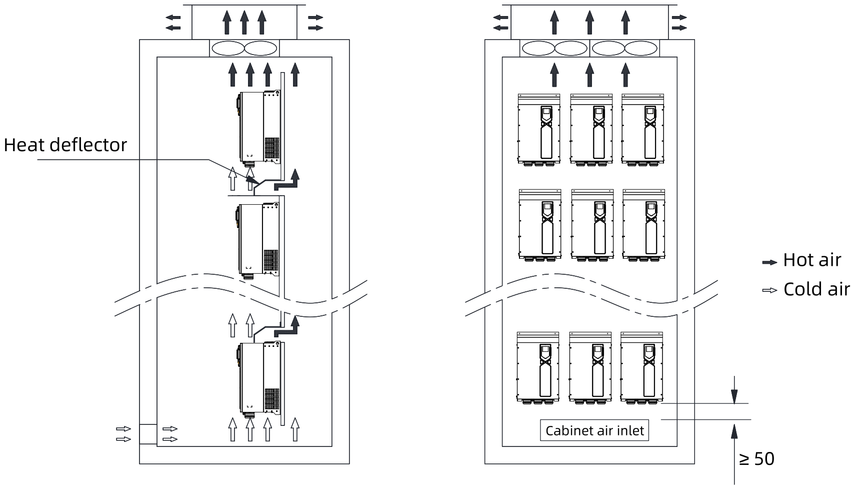


Figure 5-6 Position of the cabinet air inlet

CAUTION

Where multiple AC drives are installed in one cabinet, if the fan blows air into the air inlet from the outside, air distribution for the drives in the cabinet will be affected, resulting in poor cooling performance. Therefore, do not install a fan at the air inlet of the cabinet to blow air into the cabinet.

The following table describes the minimum effective ventilation area of the cabinet air inlet after the drive is installed in the cabinet.

Table 5–5 Minimum effective ventilation area of the cabinet air inlet

AC drive	Minimum effective ventilation area of the cabinet air inlet (cm^2)
T1 (7.5 kW to 11 kW)	75
T2 (15 kW to 30 kW)	200

AC drive	Minimum effective ventilation area of the cabinet air inlet (cm^2)
T3 (37 kW to 55 kW)	170
T4 (75 kW to 90 kW)	204

The preceding table applies to situations where only one AC drive is mounted in the cabinet. For a cabinet containing multiple AC drives, calculate the total ventilation area by adding the ventilation area of each drive according to the table. For example, if eight T1 models (7.5 kW), two T2 models, and one T3 model are placed inside the cabinet, the minimum effective ventilation area of the cabinet air inlet is 8 x 75 + 2 x 200 + 1 x 170 = 1170 cm^2.

If an air filter is installed at the air inlet, the air inlet resistance will rise significantly. Therefore, the ventilation area of the air inlet must be increased to 1.2 to 1.5 times the value indicated in the table.

The effective area in *"Table 5-5 Minimum effective ventilation area of the cabinet air inlet" on page 43* refers to the actual through-hole area in the opening area, which means the effective area = opening area x opening rate.

Air Outlet on the Top

To ensure sufficient heat dissipation of the drive, hot air in the cabinet must be exhausted to the outside. The passive or active exhaust mode can be adopted.

- Forcible air exhaust (direct air exhaust)
  The air flows from bottom to top after being heated. In this mode, the hot air discharged by the drive is exhausted to the outside from the air outlet at the top of the cabinet.

  This may cause accumulated hot air at the top of the cabinet, rising the air pressure in this region. The air pressure at the cabinet air inlet is low due to suction of the fan for the drive. Therefore, there is an air pressure difference between the air outlet and air inlet of the cabinet to form an air flow in the cabinet. The air flow forces hot air at the air outlet to flow towards the air inlet so that it is absorbed into the drive again, causing a great temperature rise and an adverse effect on the performance of the drive.

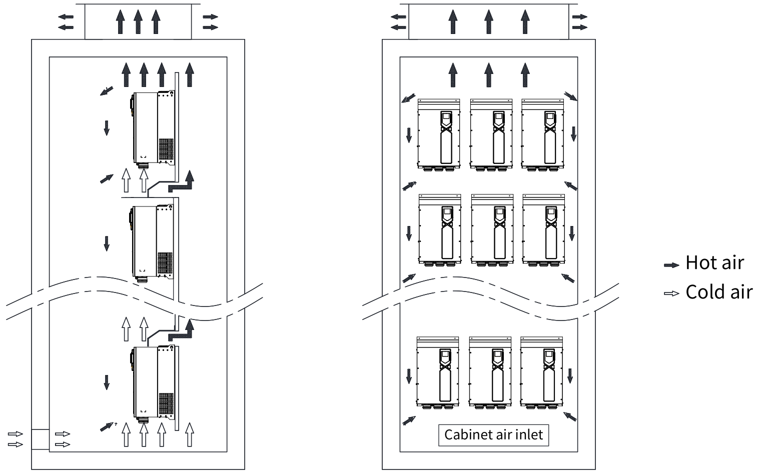


Figure 5-7 Hot air backflow in forcible air exhaust mode (without isolation device)

For cabinets that adopt the passive exhaust mode, use an isolation device to prevent hot air backflow, as shown below. The isolation device can be a plate or exhaust duct.

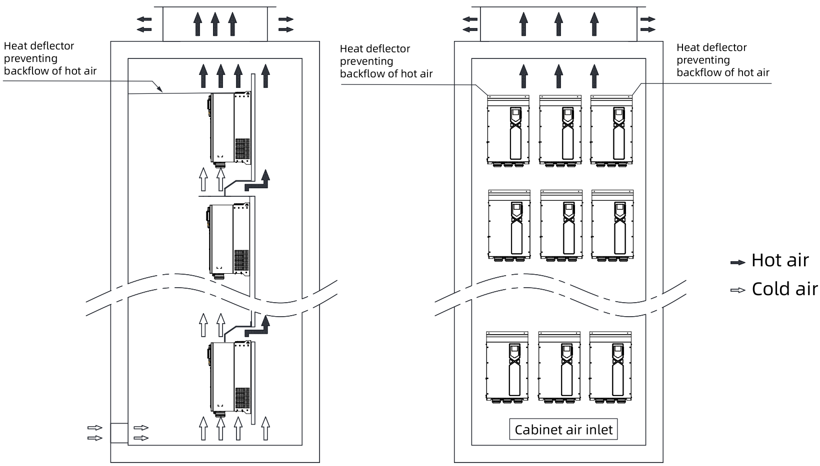


Figure 5-8 Hot air backflow in forcible air exhaust mode (with isolation device)

The temperature at the air outlet of the drive is higher than that at the air inlet and the density at the air outlet is lower than that at the air inlet. To ensure that hot air in the cabinet can be exhausted to the outside, the minimum effective ventilation areas of the cabinet air outlet must meet the requirements in *"Table 5-6 Minimum effective area of the cabinet air outlet in passive exhaust mode" on page 46* when passive air ventilation is used.

Table 5–6 Minimum effective area of the cabinet air outlet in passive exhaust mode

AC drive	Minimum effective area of the cabinet air output in passive exhaust mode (cm^2)
T1 (7.5 kW to 11 kW)	120
T2 (15 kW to 30 kW)	300
T3 (37 kW to 55 kW)	240
T4 (75 kW to 90 kW)	310

"Table 5-6 Minimum effective area of the cabinet air outlet in passive exhaust mode" on page 46 applies to situations where only one AC drive is mounted in the cabinet. For a cabinet containing multiple AC drives, calculate the total ventilation inlet area by adding the ventilation area of each drive according to the table.

If the air outlet is installed with a filter screen, the air outlet resistance increases substantially. In this case, the minimum effective area of the air outlet is 1.2...1.5 x values listed in the preceding table.

The effective area in *"Table 5-6 Minimum effective area of the cabinet air outlet in passive exhaust mode" on page 46* refers to the actual through-hole area in the opening area, which means the effective area = opening area x opening rate.

- Active air exhaust
  In the active air ventilation mode, a fan is installed at the top of the cabinet to draw hot air out of the cabinet. This is a commonly used ventilation mode.

  To ensure that the hot air can be exhausted to the outside, the total air volume of the fan cannot be smaller than that of all drives in the cabinet. *"Table 5-7 Cooling air flow for the AC drive" on page 46* lists the cooling air flow required by the drive.

Table 5–7 Cooling air flow for the AC drive

Drive power	Cooling Air Flow for the AC Drive (CFM)
T1 (7.5 kW to 11 kW)	84
T2 (15 kW to 30 kW)	149
T3 (37 kW to 55 kW)	158
T4 (75 kW to 90 kW)	255
Note: 1 CFM = 0.02832 m^3/min	

Cabinet fan

Cabinet fan selection procedure:

1. Calculate the sum of the cooling air volume required by all AC drives based on *"Table 5-7 Cooling air flow for the AC drive" on page 46*.
2. Determine the maximum air volume (Qmax) of the cabinet fan.
3. Determine the specification and quantity of the fan based on the maximum air volume (Qmax).

Where:

- Maximum air volume of the cabinet = 1.3 to 1.5 times the total cooling air volume
- Maximum air volume of the cabinet = 1.6 to 2.2 times the sum of the cooling air volume (if mesh filters, shutters, or other components are installed at the cabinet air outlet)

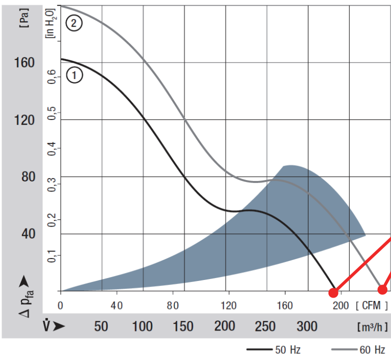
Note

- The air volume of the selected fan cannot be smaller than the maximum air volume Qmax. If a single fan cannot meet this requirement, multiple fans can be used.
- AC fans are prone to significant airflow attenuation under high inlet or outlet resistance. It is recommended to use a DC fan with a higher rotational speed.

The common specifications of the fan air volume is shown below.

Air flow	Air flow	Nominal voltage	Frequency	Sound pressure level	Sound power level	Sintec sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L_{10} at 40 °C	at T_{max}	Curve
m^3/h	CFM	V	Hz	dB(A)	Bel(A)	□/■	Watts	RPM	°C	Hours	Hours	
320	188,3	**230**	**50**	51	6,4	■	27,0	2 800	-25...+55	60 000 / 32 000		1
380	223,6	**115**	**60**	56	6,8	■	28,0	3 350	-25...+65	55 000 / 18 000		2

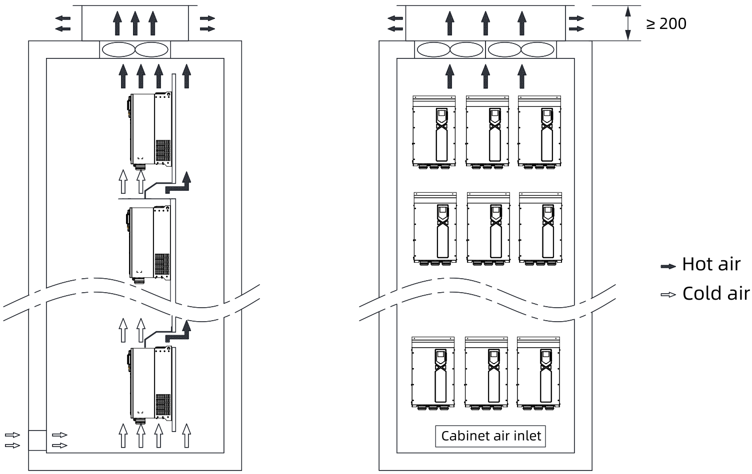
Maximum fan air volume (Qmax)



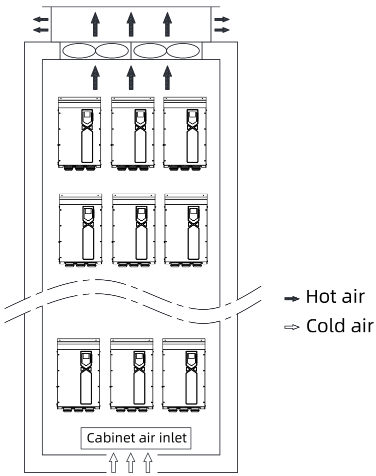
Maximum fan air volume (Qmax)

Figure 5-9 Q max of a system fan

1. The air inlet is on the front door at the bottom of the cabinet and the air output is at the top of the cabinet.



2. The air inlet is at the bottom of the cabinet and the air output is at the top of the cabinet.



3. The air inlet is at the bottom of the cabinet and the air outlet is on the top side of the cabinet.

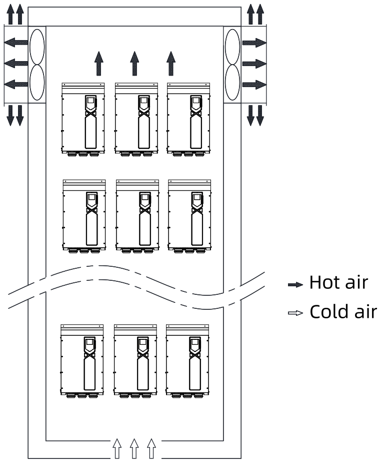


Figure 5-10 Cabinet air outlet system

The air duct layout of the cabinet can be adjusted properly if the installation dimensions are met.

Note

- When installing the fan, ensure a proper direction and smooth flow of hot air. Failure to comply may cause accumulation of hot air, leading to over-temperature or damage to the AC drive.
- Ensure a distance of at least 200 mm between the top vent and the fan outlet to avoid adverse effect on the cooling performance of the fan.

5.4 Main Circuit Connection

5.4.1 Descriptions of Main Circuit Terminals

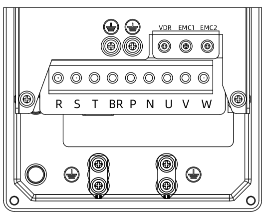


Figure 5-11 Main circuit terminal layout for T1 models (7.5 kW to 11 kW)

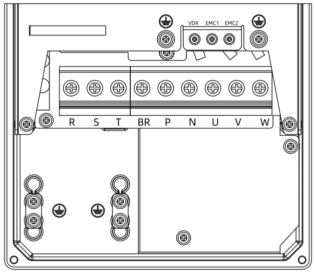


Figure 5-12 Main circuit terminal layout for T2 models (15 kW to 30 kW)

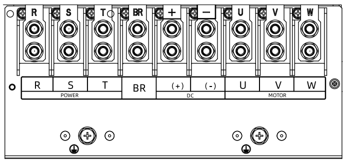


Figure 5-13 Main circuit terminal layout for T3 models (37 kW to 55 kW)

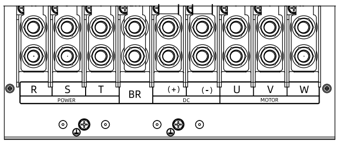


Figure 5-14 Main circuit terminal layout for T4 models (75 kW to 90 kW)

Table 5–8 Descriptions of Main Circuit Terminals

Mark	Name	Function
R, S, T	Three-phase power input terminals	Connected to the three-phase AC power supply.
(+), (-)	Positive and negative terminals of DC bus	The terminals are used to connect to the common DC bus and external braking unit.
(+), BR	Braking resistor connection terminals	It is used to connect the braking resistor. Note: Only models with the name containing "B" are equipped with brake resistor terminals. For models with the name excluding "B", external brake units are required.

Mark	Name	Function
U, V, W	Output terminal	Connected to the three-phase motor.
⏚	Grounding terminal (PE)	Protective grounding

5.4.2 Dimensions of Main Circuit Terminals

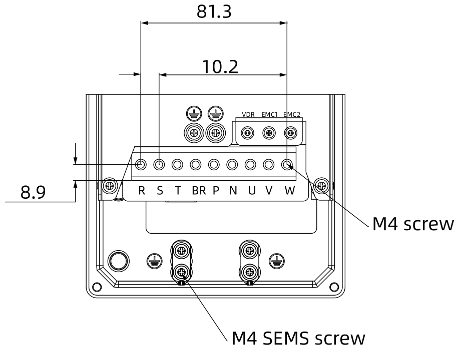


Figure 5-15 Main circuit terminal dimensions for T1 models (7.5 kW to 11 kW, in mm)

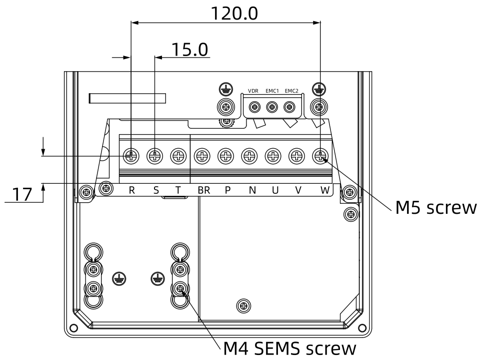


Figure 5-16 Main circuit terminal dimensions for T2 models (15 kW to 30 kW, in mm)

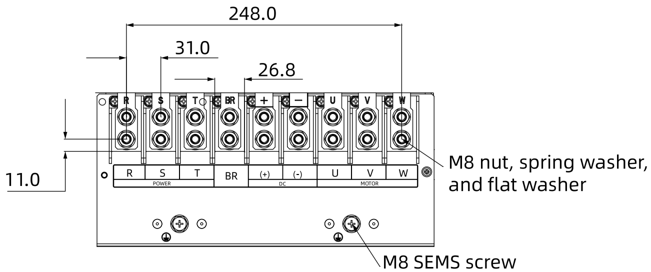


Figure 5-17 Main circuit terminal dimensions for T3 models (37 kW to 55 kW, in mm)

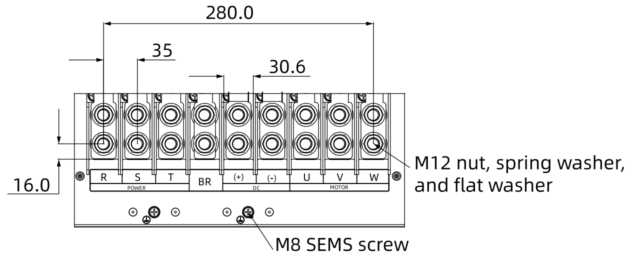


Figure 5-18 Main circuit terminal dimensions for T4 models (75 kW to 90 kW, in mm)

5.4.3 Main Circuit Terminal Connection

This section describes the requirements for wiring main circuit terminals. For requirements on the selection, routing, and wiring of main circuit cables, see *"5.4.4 Main Circuit Connection" on page 53*.

To prevent accidents caused by short circuit, install a fuse on the input side of the drive.

R, S, and T terminals of the input power supply

- The cable connection on the input side of the drive has no requirements on the phase sequence.
- The specifications and installation method of external main circuit cables must comply with local regulations and related IEC standards.
- For main circuit cables, select copper conductors of appropriate size according to the recommended specifications.

DC bus (+), (-)

- After the drive is switched off, DC bus terminals (+) and (-) have residual voltage. After the CHARGE indicator goes off, wait at least 10 minutes before operating the drive. Failure to comply will result in electric shock.
- When wiring an external braking component for a model with the power of 90 kW or above, ensure correct polarity (+)/(-). Failure to comply will result in damage to the AC drive and braking components or even fire.

- The cable length of the braking unit must not be longer than 10 m. Use twisted pair cables or closely-paired cables for parallel connection.
- Do not connect the braking resistor directly to the DC bus. Otherwise, the device may be damaged and even a fire may occur.

Terminals U, V, W on the output side

- The specification and installation method of external main circuit cables must comply with the local regulations and related IEC standards.
- Use copper lead cables with appropriate dimensions for main circuit cables.
- Do not connect any capacitor or surge protection device at the output side. Failure to comply will result in malfunction or even damage to the AC drive.
- An excessively long motor cable may result in electrical resonance due to the distributed capacitance. The electrical resonance may in turn damage motor insulation or generate high leakage current, triggering overcurrent protection of the drive. When using a motor cable longer than 100 m, install an AC output reactor close to the AC drive.

Grounding terminal (PE)

For grounding requirements, see *"5.6.1 Grounding Requirements" on page 81*.

5.4.4 Main Circuit Connection

Wiring Requirements of Main Circuit

- Terminals BR, (-), and (+) are used to connect options. Do not connect these terminals to an AC power supply.
- To protect the main circuit, isolate and cover it from surfaces that may come into contact.
- The control circuit is the internal safety extra-low voltage (SELV) circuit, which must be insulated and isolated from other circuits. Make sure that the control circuit is connected to an external SELV circuit.
- Prevent foreign matters from entering the wiring part of the terminal block.
- Do not solder the twisted conductors.
- The tightening torque may vary with terminals. Tighten terminal screws with the specified tightening torque. You can use the torque screwdriver, ratchet, or wrench.
- When using an electric screwdriver to tighten terminal screws, set a low speed to prevent damage to the terminal screws.
- Tighten the terminal screws at an angle within 5 degrees. Failure to comply may result in screw damage.

Power cable selection requirements

For selection of power cables, follow national or regional regulations. Select IEC cables according to the following requirements:

- Compliant with EN 60204-1 and IEC 60364-5-52 standards
- PVC insulated cables with copper conductors
- Max. cable surface temperature not exceeding 70℃ at an ambient temperature of 40℃ (Contact the manufacturer if the ambient temperature exceeds 40℃).
- Symmetric cable with copper-braided shield

Note

If the recommended cables for peripheral equipment or options are not suitable for the product, contact Inovance.

To meet the EMC requirements, the cable with the shield must be used. The shielded cables are divided into three-conductor cables and four-conductor cables, as shown below. If the conductivity of three-conductor cable shield cannot meet requirements, add an independent PE cable. Alternatively, use a four-conductor cable with one conductor as the PE. The shield of the shielded cable consists of coaxial cooper braids to suppress radio frequency interference. The braided density of the cooper braid should be greater than 90% to enhance the shielding efficiency and conductivity.

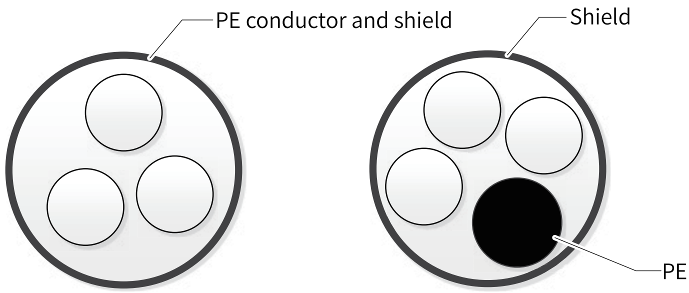


Figure 5-19 Recommended power cable

Main circuit routing requirements

The power supply input cable of the AC drive and motor cable can generate strong electromagnetic interference. To avoid electromagnetic interference caused by long-distance parallel coupling between the strong disturbing cable and control circuit cable, ensure a distance longer than 30 cm between main circuit cables and signal cables when cabling. Main circuit cables include the input R/S/T cable, output U/V/W cable, DC bus, and braking cable. Signal cables include the I/O signal cable and communication cable.

Cable ducts must be in good connection and well grounded. Aluminum cable ducts can be used to ensure equipotentiality of the device. Connect the filter, AC drive, and motor to the system (machines or devices) properly. Protect all connections with spray coating and ensure good contact of conductive metal.

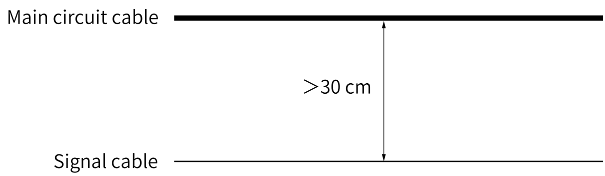


Figure 5-20 Cable layout

Wiring in an IT or angular grid system

Note

Before wiring in an IT or angular grid system, disconnect the optional EMC grounding screw. Failure to comply will result in damage to the AC drive or even personal injury.

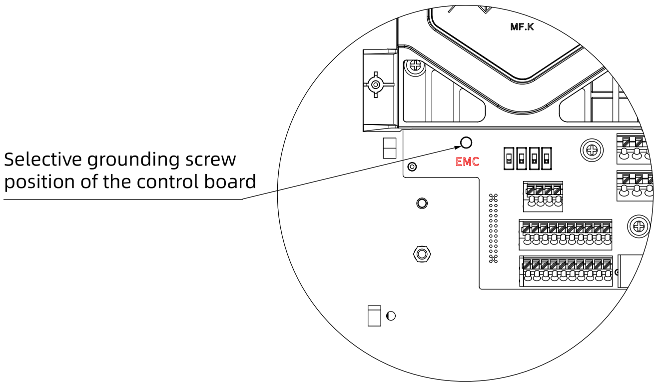


Figure 5-21 Disconnecting EMC selective grounding screw

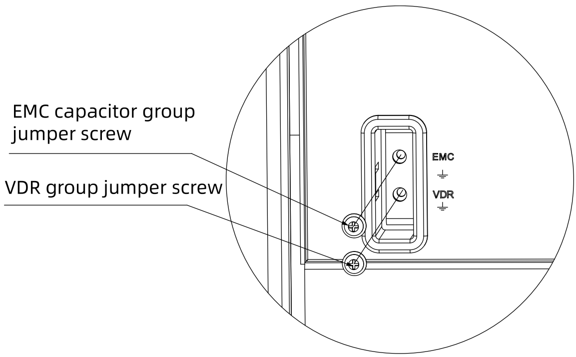


Figure 5-22 Disconnecting the VDR and EMC grounding screw

Motor cable shield requirements

It is recommended to use the shielded cable as the motor output cable. Perform a 360° connection on the shield structure by using the shield grounding bracket, and crimp the drain wire of the shield to the PE terminal. The following figure shows wiring of the shield.

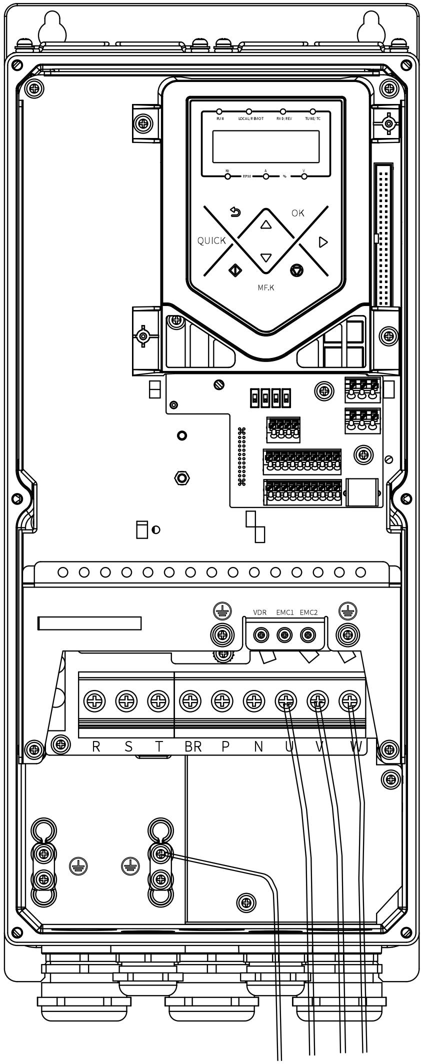


Figure 5-23 Shield wiring (T1 to T2, 7.5 kW to 30 kW)

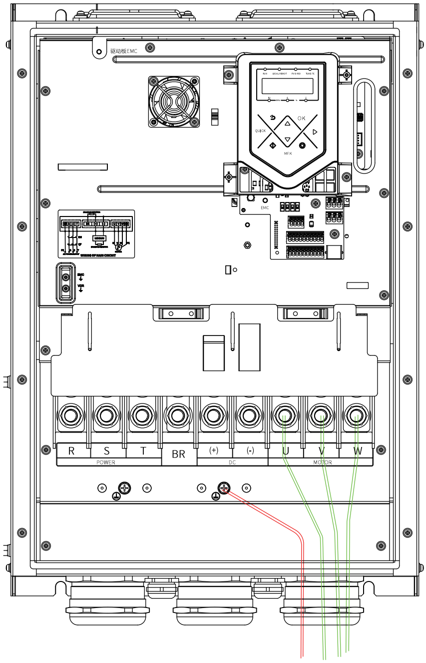


Figure 5-24 Shield wiring (T3 to T4, 37 kW to 90 kW)

Keep the lead wire of the motor cable shield as short as possible, with its width (b in the following figure) no shorter than 1/5 of its length (a in the following figure).

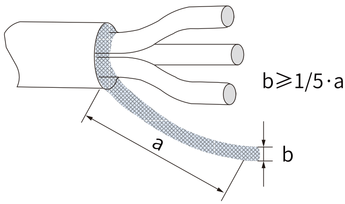


Figure 5-25 Drain wire of the motor cable shield""

Motor cable length requirements

When the AC drive is working, the quick on-off of its power switch triode can lead to excessively large dU/dt at the output side. If the motor cable is too long, the motor winding will experience excessive voltage stress that may cause insulation breakdown. Use motors that comply with technical specifications in IEC 60034-25 IVIC B or motors with high voltage resistance. In addition, with the increase of cable length, the distributed capacitance of the cable increases linearly, resulting in high-order harmonic current.

When the length of the motor cable is longer than the maximum length recommended in the following table, install an output reactor on the output side of the AC drive, or use a motor conforming to technical specifications in IEC 60034-25 IVIC B. The output reactor can reduce the voltage stress on the motor winding.

Table 5–9 Requirement for output reactor based on cable length and motor types

Drive rated power (kW)	Maximum Cable Length of the Common Asynchronous Motor (Without Output Reactor) (m)	Output Reactor Required (Motor Complying with IEC 60034-25 IVIC B)	Output Reactor Required (Common Asynchronous Induction Motor)
7.5	100	Not required	Required
11	110	Not required	Required
15	125	Not required	Required
18.5	135	Not required	Required
22	150	Not required	Required
≥ 30	150	Not required	Required

Recommended terminal

The following table describes the appearances of the GTNR and BC series cable lugs of Suzhou Yuanli.

Table 5–10 Appearance of cable lugs

Series	Appearance
GTNR series	
TNR series	
BC	

5.4.5 Protection Requirements

Main circuit cable protection

Use the heat-shrinkable tube to wrap the copper tube of the main circuit cable terminal and the cable conductor and ensure the conductor is completely wrapped, as shown in *"Figure 5–26 Cable conductor added with heat-shrink tube" on page 59*.

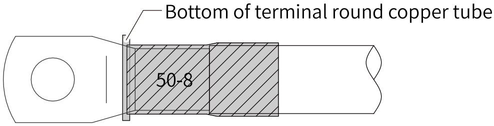


Figure 5-26 Cable conductor added with heat-shrink tube

Upstream protective device

- Install proper protective devices on the power input side to provide electrical isolation and protections against overcurrent protection and short-circuit.
- When selecting the protective devices, take the main circuit cable current capacity, system overload capacity, and short circuit capacity of upstream power distribution into account. The recommended values in the selection guide of peripheral components apply to most applications.

5.5 Control Circuit Connection

5.5.1 Descriptions of Control Circuit Terminals

"Table 5-13 " on page 63 shows the layout of control circuit terminals.

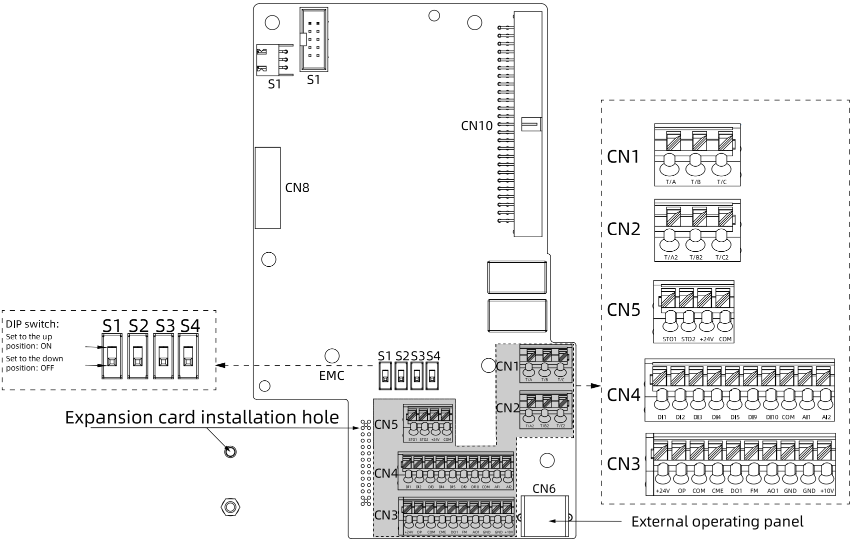


Figure 5-27 Arrangement of control circuit terminals

Table 5–11 Description of control circuit terminals

Type	Mark	Name	**Function**
Power	+10V-GND	External +10 V power supply	The terminal is used to provide +10 V power supply to external devices with the maximum output current of 10 mA. Generally, it is used to power an external potentiometer with resistance ranging from 1 kΩ to 5 kΩ.
	+24V-COM	+24 V external power supply	The terminal is used to provide +24 V power supply to external devices. Generally, it is used to power the DI/DO and external sensor. The maximum output current is 200 mA[Note 1].
	OP	Input terminal for external power supply	Connected to +24V by default. To use an external signal to drive terminals DI1 to DI5, disconnect OP from +24V and connect it to an external power supply.
Analog input (AI)	AI1-GND	AI1	Input voltage range: -10 VDC to +10 VDC Input impedance: 22 kΩ
	AI2-GND	AI2	The terminal supports voltage input (default), current input, and temperature input. When used as voltage/current input, the terminal supports 0 V to 10 V, -10 V to +10 V, or 0 mA to 20 mA, and supports 12-bit resolution and the correction accuracy of 1%. The input impedance is 22 kΩ for voltage input and 500 Ω or 250 Ω[Note 2] for current input, which is set by S2 and S3 DIP switches.
Digital input	DI1-OP	DI1	Optocoupler isolation, compatible with dual-polarity input Input impedance: 1.72 kΩ Operating voltage range: 9 V to 30 V
	DI2-OP	DI2	
	DI3-OP	DI3	
	DI4-OP	DI4	
	DI9-OP	DI9	
	DI10-OP	DI10	
	DI5-OP	DI5	Besides features of DI1-DI4, it can be used for high-speed pulse input. Input impedance: 1.16 kΩ Maximum input frequency: 100 kHz Operating voltage range: 15 V to 30 V
Analog output (AO)	AO1-GND	AO1	The DIP switch on the control board is used to determine voltage output (default) or current output. Output voltage range: 0–10 V Output current range: 0–20 mA

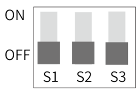
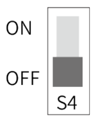
Type	Mark	Name	**Function**
Digital output	DO1-CME	DO1	Optocoupler isolation; dual-polarity open collector output Output voltage range: 0 V to 24V Output current range: 0 mA to 50 mA **Note that digital output ground CME and digital input ground COM are internally insulated, but are shorted externally by default. In this case, DO1 is driven by** +24V by default. To drive DO1 by external power supply, remove the jumper between CME and COM.
	FM-COM	High-speed pulse output	The terminal is set by F5-00 (FM terminal output selection). When the terminal is used for high-speed pulse output, the maximum frequency is 100 kHz. When the terminal is used for collector open output, it has the same specifications as DO1.
Relay output 1	T/A	Common terminal	Driving capacity of the contact: 250 VAC, 3 A, COS Ø = 0.4 30 VDC, 1 A
	T/B	NC terminal	
	T/C	Normally open terminal	
Relay output 2	T/A2	Common terminal	
	T/B2	NC terminal	
	T/C2	Normally open terminal	
Auxiliary interface	CN5	Safety function terminal	For details, see *"Table 5-12 Description of STO terminals" on page 63*.
	CN6	External operating panel interface	It is used to connect the external LCD operating panel (SOP-20) or the LED operating panel (MDKE-10).
	CN8	Expansion card interface	28-core terminal for connection with optional expansion cards, including I/O cards and communication cards
DIP switch	S1 S2 S3		For details, see *"Table 5-13 Descriptions of DIP switches S1 to S3" on page 63*.
	S4		AO1: Current/Voltage mode selection ON: Current output mode OFF: Voltage output mode

Table 5–12 Description of STO terminals

No.	Mark	Name	Performance requirement
1	STO1	STO channel 1	Internal: STO1 and STO2 are connected to +24V by jumpers by default. External: You can connect STO1 and STO2 to the COM terminal. For detailed wiring methods, see the STO function.
2	STO2	STO2	
3	+24V	Power supply+ for STO channels 1 and 2	
4	COM	Power supply ground for STO channels 1 and 2	

Table 5–13 Descriptions of DIP switches S1 to S3

DIP switch status			Function
S1	S2	S3	
OFF	OFF	OFF	Voltage mode with the range of 0 VDC to 10 VDC for AI2
ON	OFF	OFF	Temperature mode for AI2 Set the temperature sensor type through F9-75. 0: No temperature sensor (AI used for analog input) 1: PT100 temperature detection input signal, -25°C to 200°C, accuracy: ±8°C 2: PT1000 temperature detection input signal, -25°C to 200°C, accuracy: ±8°C 3: KTY84-130 temperature detection input signal, -40°C to 260°C, accuracy: ±15°C 4: PTC-130 temperature detection input signal, -20°C to 180°C, accuracy: ±15°C
OFF	ON	OFF	Current mode for AI2; current range: 0 mA to 20 mA; input impedance: 500 Ω
OFF	ON	ON	Current mode for AI2; current range: 0 mA to 40 mA; input impedance: 250 Ω

Note

- [Note 1]: If the ambient temperature exceeds 23℃, the output current must be derated by 1.8 mA for every additional 1℃. The maximum output current is 170 mA at 40℃. When OP and +24V are shorted, the maximum output current is calculated by the following formula: 170 mA minus current over the DI.
- [Note 2]: Based on the maximum output voltage of the signal source, select impedance of 500 Ω or 250 Ω. For example, if 500 Ω is selected, the maximum output voltage cannot be lower than 10 V so that AI2 can measure 20 mA current.
- S1, S2, and S3 are DIP switches used together for the AI. S4 is the DIP switch for the AO.

5.5.2 Control Circuit Terminal Connection

AI1 wiring

Weak analog voltage signals are prone to external interference. Therefore, a shielded cable is required, and the wiring distance must be as short as possible (no longer than 20 m), as shown in *"Figure 5-28 Wiring of AI terminals" on page 64*. When analog signals suffer severe disturbance, install a filter capacitor or ferrite core on the analog signal source side, as shown in *"Figure 5-29 Shield grounding for analog terminals (T1 to T2, 7.5 kW to 30 kW)" on page 65*. Connect the lead wire of the AI shield to the PE terminal of the AC drive.

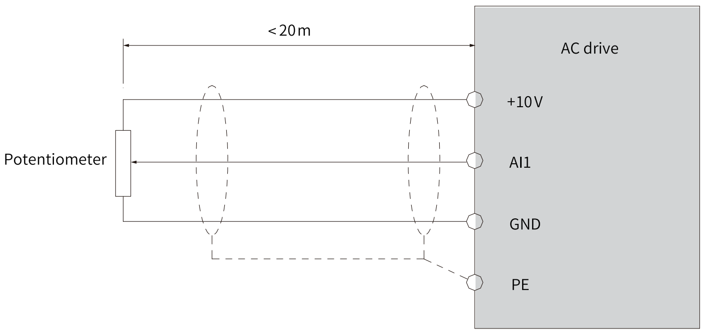


Figure 5-28 Wiring of AI terminals

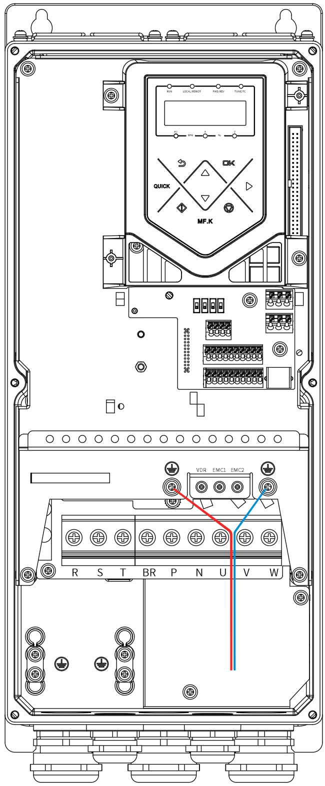


Figure 5-29 Shield grounding for analog terminals (T1 to T2, 7.5 kW to 30 kW)

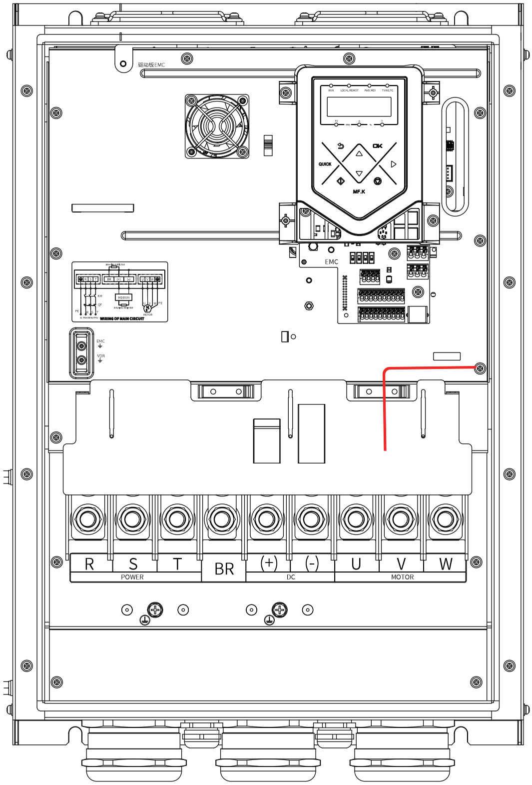


Figure 5-30 Shield grounding for analog terminals (T3 to T4, 37 kW to 90 kW)

Wiring AI2

- AI2 is wired in the same way as AI1 when AI2 adopts voltage signal input.
- If the AI2 is used for current signal input, the current flows to AI2. Toggle S2 (or S2 and S3) to ON. If only S2 is toggled to ON, the impedance is 500 Ω. If both S2 and S3 are toggled to ON, the impedance is 250 Ω.

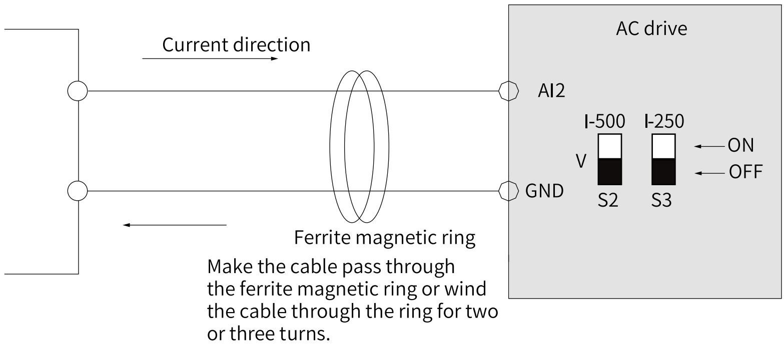


Figure 5-31 Wiring of AI2

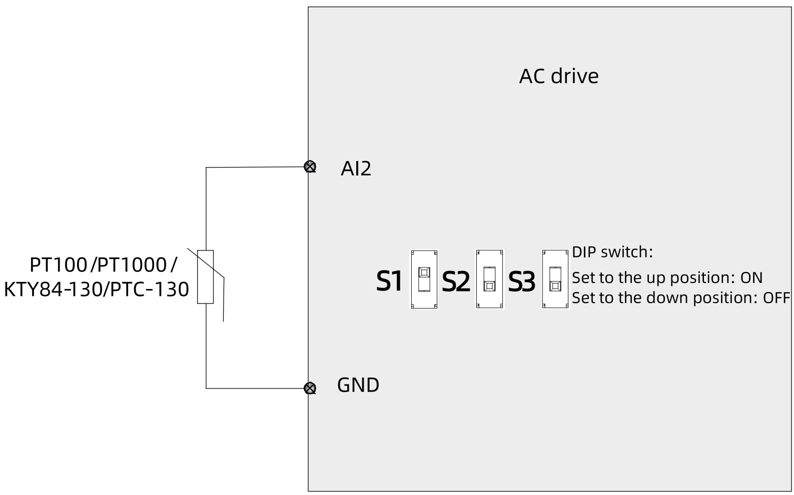
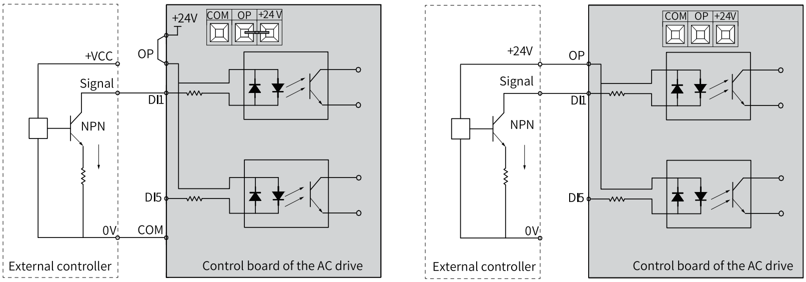


Figure 5-32 Wiring when the AI2 is used for temperature input

Wiring of DI1 to DI5

- Sink wiring mode



Sink wiring mode when the internal 24 V power supply of the AC drive is used

Sink wiring mode when the external 24 V power supply is used

Figure 5-33 Sink wiring mode

The internal 24 V power supply of the drive is the most commonly wiring method. In the sink wiring mode, short the OP and +24V terminals of the drive, and connect the COM terminal of the drive to the 0V terminal of the external controller, as shown in the following figure.

If an external 24 V power supply is used, remove the jumper between +24V and OP. In addition, connect the 24 V positive electrode of the external power supply to the OP terminal. The current flows out of the DI and flows back to 0V of the external power supply via the external controller contact.

In the mode, the DIs of different AC drives cannot be connected in parallel. Otherwise, the DI may malfunction. If DIs of different AC drives must be connected in parallel, connect the anode of a diode to the DI in series and the diode needs to satisfy the requirement: IF > 40 mA and VR > 40 V, as shown in *"Figure 5-34 Parallel connection of DIs on multiple AC drives in the sink mode" on page 69*.

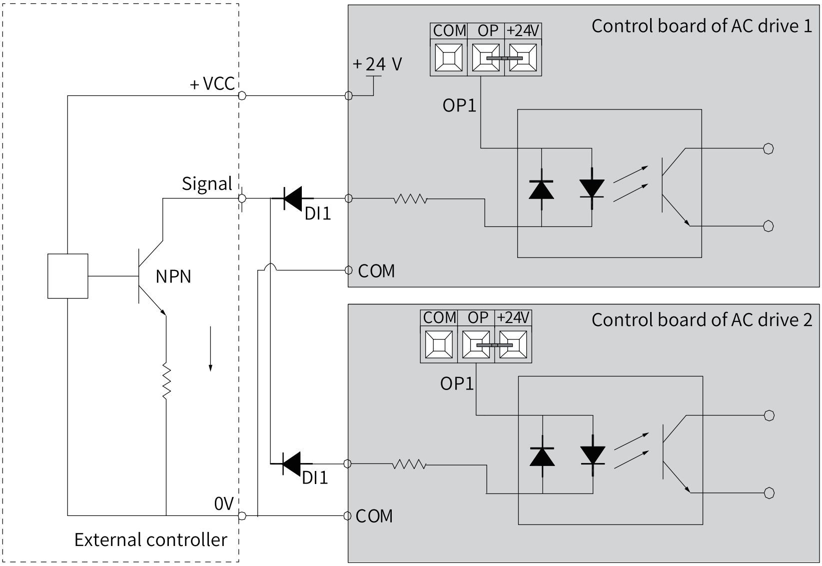
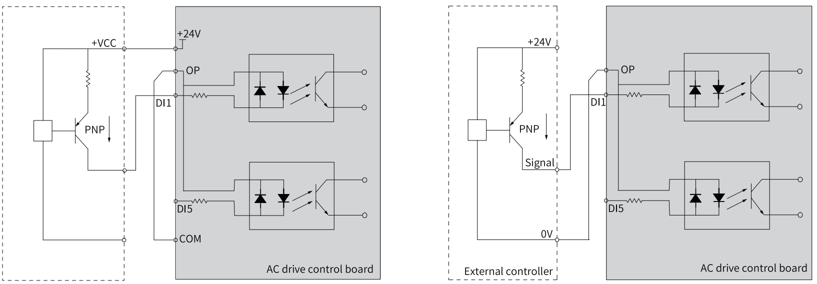


Figure 5-34 Parallel connection of DIs on multiple AC drives in the sink mode

- SOURCE wiring mode



Source wiring mode when the internal 24 V power supply of the AC drive is used

Source wiring mode when the external 24 V power supply is used

Figure 5-35 SOURCE wiring mode

- To use the internal 24 V power supply of the drive, remove the jumper between the +24V and OP terminals, connect the OP terminal to the COM terminal, and connect the +24V terminal of the drive to the common terminal of the external controller, as shown in the following figure.
- To use an external power supply, remove the jumper between the +24V and the OP terminals, connect the OP terminal of the drive to the 0V terminal of the external power supply, and connect the 24 V positive electrode of the external power supply to the corresponding DI through the external controller contact.

Wiring DO1

When the DO needs to drive a relay, connect a snubber diode on both sides of the relay coil. Otherwise, it may cause damage to the 24 VDC power supply. Ensure that the driving capacity does not exceed 50 mA.

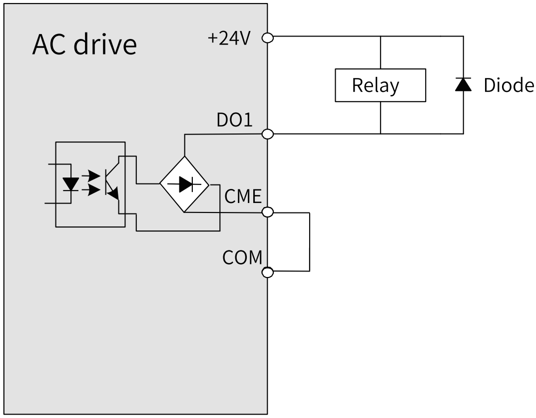


Figure 5-36 Wiring between DO and relay

Note

- Connect the snubber diode with the polarity placed correctly. Otherwise, the 24 VDC power supply will be damaged upon the DO output.
- The digital output ground CME and digital input ground COM are internally insulated, but are shorted externally by jumper as the factory settings. In this case, DO1 is driven by +24V by default. To drive DO1 by external power supply, remove the jumper between CME and COM.

DO1: Photocoupler isolation and bipolar open collector output

Output voltage range: 0 V to 24V

Output current range: 0 mA to 50 mA

DO1 supports bipolar output. The following wiring methods are available.

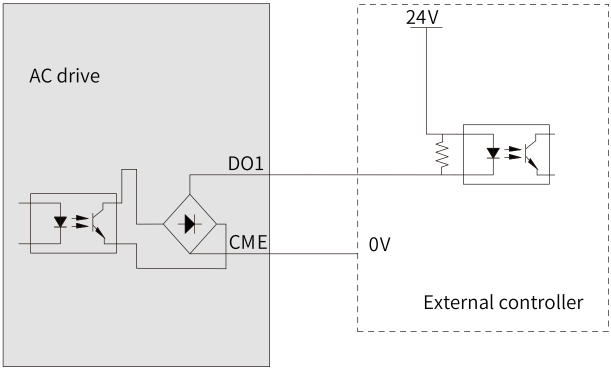


Figure 5-37 DO connecting to external controller 1

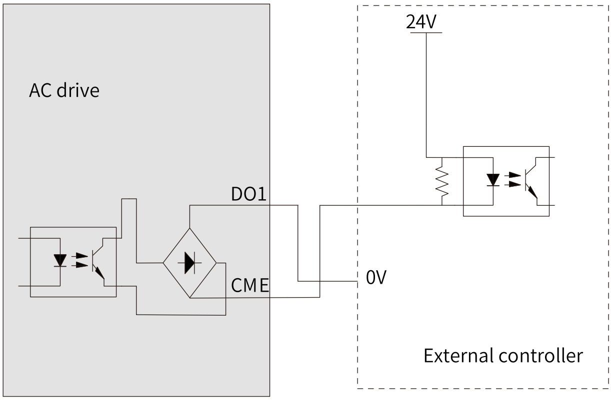


Figure 5-38 DO connecting to external controller 2

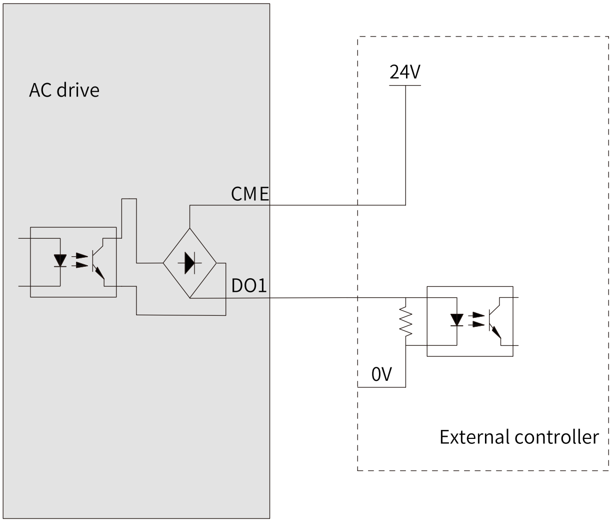


Figure 5-39 DO connecting to external controller 3

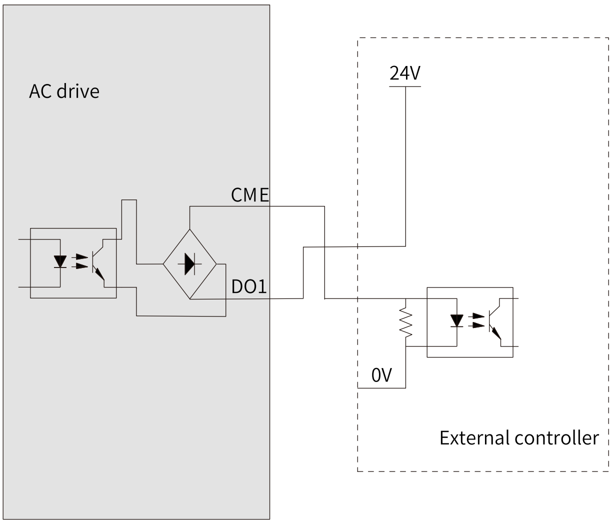


Figure 5-40 DO connecting to external controller 4

Wiring of the high-speed digital output terminal FM

When the FM terminal is used for FMP continuous pulse output, the allowed maximum frequency is 100 kHz.

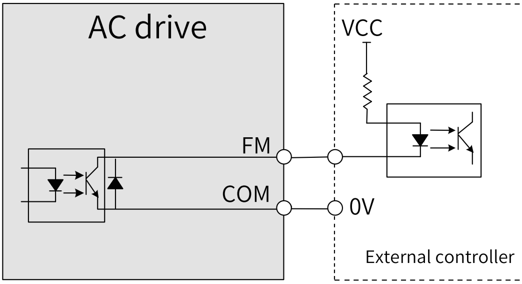


Figure 5-41 Wiring of the high-speed digital output terminal

Wiring of the relay output terminal

The inductive load (relay, contactor, and motor) causes voltage peak after the current is disconnected. To minimize the interference at cutoff, use a voltage dependent resistor (VDR) at the relay contact for protection and install absorption circuits such as VDRs, RC absorption circuits, and diodes on the inductive load, as shown in *"Figure 5-42 Anti-interference processing of relay output terminals" on page 73*.

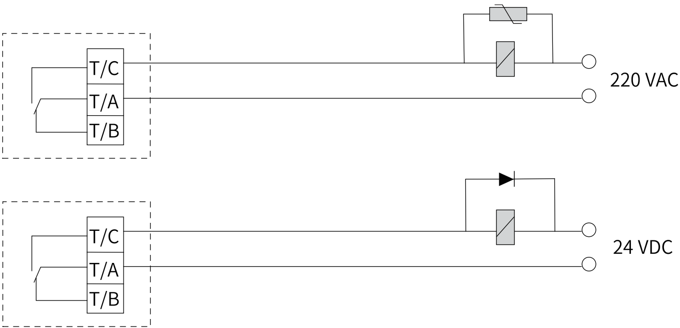


Figure 5-42 Anti-interference processing of relay output terminals

Note

The power supply connected with the control circuit must use class 2 power supply. Otherwise, the operation performance of the drive will be degraded.

Tubular terminal requirements

Use tubular terminals with insulation sheath. Keep the exposed conductor of a single or twisted cable no longer than 6 mm, as shown in *"Figure 5-43 Requirements on tubular terminals of the control circuit cable" on page 74*.

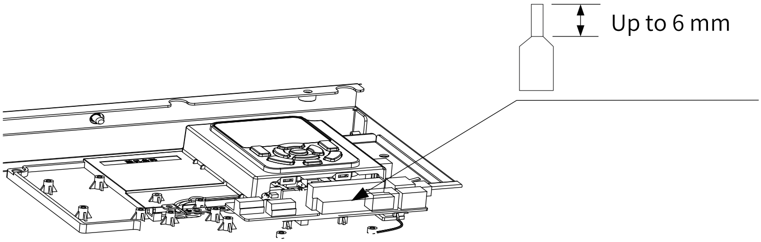


Figure 5-43 Requirements on tubular terminals of the control circuit cable

Table 5–14 Specification of the control circuit cable

Single conductor mm² (AWG)	Twisted conductors mm² (AWG)	Tightening torque (N m)
0.2 to 0.75 (18AWG to 24AWG)	0.75 mm	0.565

Wiring for connecting an external operating panel

To use an external operating panel, connect one end of the connecting cable to the RJ45 port of the AC drive, and lead the other end of the cable from either side of the AC drive, as shown in *"Figure 5-44 Wiring for connecting an external operating panel" on page 74*.

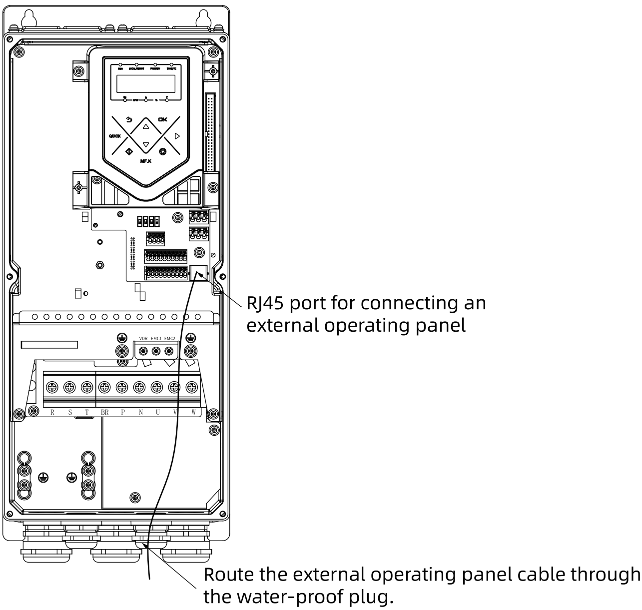
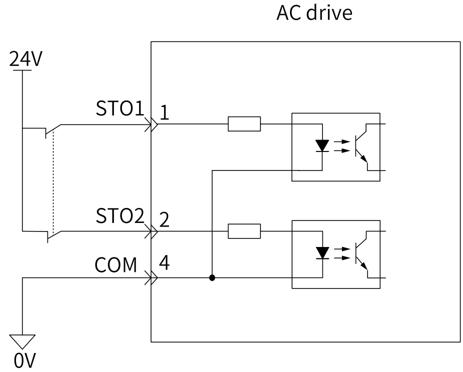


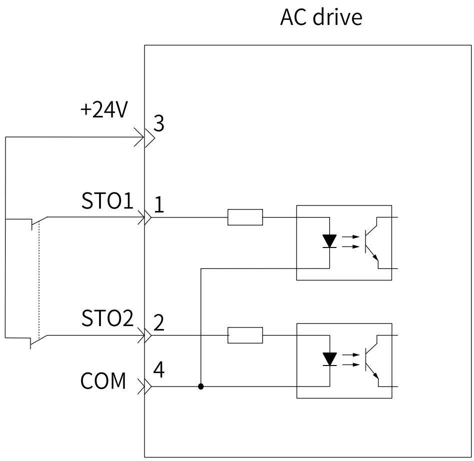
Figure 5-44 Wiring for connecting an external operating panel

STO wiring example

- Wiring example when the external 24 V is used



- Wiring example when the internal 24 V is used



Note

EMC Requirements

- To avoid short circuit between adjacent conductors, use shielded cables and connect the shield to the protective ground. Alternatively, use flat cables and connect a ground cable between adjacent signal conductors.
- Use cables that contain twisted pairs with dual shield layers or single shield layer.
- Fix and ground the cable protective cover using a piece of conductive metal.
- The maximum cable length allowed between the drive and safety switch is 30 m.

5.5.3 Control Circuit Connection

Note

Wire the control circuit cable according to EN 60204-1.

Selection requirement

To ensure that the control circuit will not be interfered by peripheries, use shielded cables with the shield for signal cables, and connect both ends of the shield to the drive 360 degrees with the shield bracket. Use separate shielded cables for different analog signals. It is recommended to use shielded twisted pair (STP) cables for digital signals.

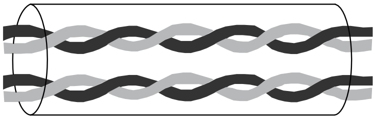


Figure 5-45 Shielded twisted pair cable

Grounding of analog terminal shield

Weak analog voltage signals are susceptible to external interference. Therefore, a shielded cable is typically required, and the wiring distance should be as short as possible (within 20 m). In applications where certain analog signals are subject to severe interference, install a filter capacitor or ferrite core on the analog signal source side.

- It is recommended to use the grounding bracket (optional) together with the shielded cable, so that the cable shield can be grounded 360 degrees.
- Minimize the length of the lead wire of the shield. Fasten the lead wire to the standard grounding copper busbar of the AC drive by using screws. For details on the grounding, see *"Figure 5-29 " on page 65* and *"Figure 5-34 " on page 69* .

Requirements on cabling I/O signal cables

- I/O signals include analog input (AI) signals, analog output (AO) signals, digital input (DI) signals, digital output (DO) signals, and relay output signals. Before wiring the I/O terminal, disconnect the main power supply and ensure that the danger indicator on the AC drive is off.
- To avoid interference to the I/O signals, separate the I/O signal cables at least 30 cm from the main circuit cables (R, S, and T cables and U, V, and W cables) and other power cables (or power supply cables).
- To avoid malfunction of the AC drive and equipment, separate the relay output terminal cable at least 30 cm away from other I/O signal cables.

5.5.4 Cabling Requirements

Routing signal cables and power cables through different routes

When analog signals are used for remote control on the cabinet module, separate signal cables from high-voltage circuits (power supply input, inverter output, and braking resistor cables) by a distance of above 50 cm. This can reduce interference from the AC drive and other equipment to analog signals. This requirement must be observed for wiring inside the control cabinet.

Analog signal cable

Use shielded twisted pair cables as analog control signal cables. When stripping the sheath of the cable, keep the stripped part as short as possible (5 mm to 7 mm), and wrap the stripped shield with the insulating tape to prevent the shielded cable from touching other devices, which may result in interference.

Requirements on motor cables

Use shielded cables for motor cables. Minimize the distance between the cabinet module and the motor, and route the motor cables separately from other cables. Also, avoid long-distance parallel routing of the motor cables and other cables to reduce electromagnetic interference caused by rapid changes in the output voltage of the AC drive.

Power cable

Use shielded cables for power cables, or shield all the cables from the cabinet to the motor by using conduits.

Requirements on control cables and power supply cables

If the control cable must run across the power cable, make sure they are arranged at an angle of close to 90°.

5.5.5 Routing Recommendations

Disturbing cable

Route cables that transmit different types of signals through different routes. Separate disturbing cables from sensitive cables with a minimum clearance of 30 cm wherever possible. When such cables must be cross-connected, make sure they are cross-connected at an angle as close to 90° as possible to prevent interference.

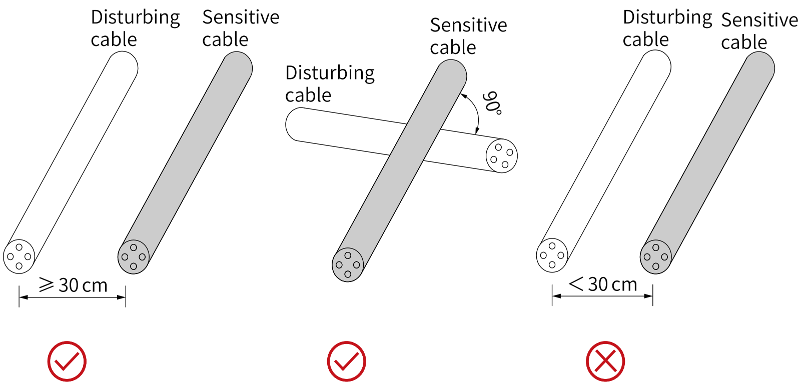


Figure 5-46 Routing of disturbing cables and sensitive cables

Signal cable

Route different signal cables separately and isolate them with equipotential bonding. When routing cables that transmit the same type of signals, lay equipotential bonding conductors to the outer layers and lay equipotential bonding conductors as many as possible in the middle. A figure is shown below:

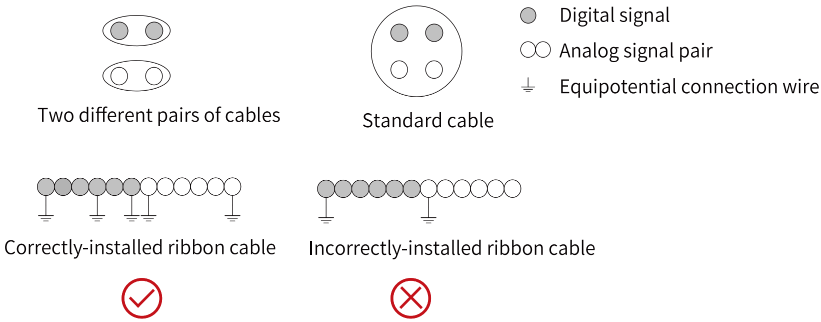


Figure 5-47 Routing of different types of signal cables

Multi-core cables

For the multi-core cables, it is recommended that a cable only transmits the same type of signals. If different types of signals are to be transmitted, use shielded conducting cores, as shown in the following figure:

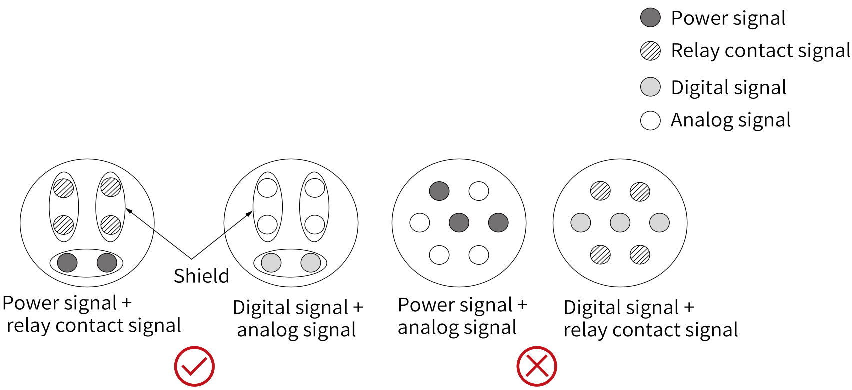


Figure 5-48 Routing of multi-conductor cables

For unused conducting cores in a multi-core cable, connect them to the equipotential bonding conductors.

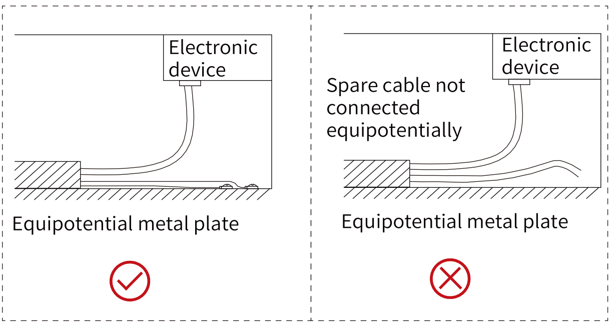


Figure 5-49 Handling reserved or unused conductors

Wiring loop

For cables that transmit low-level sensor signals and shared cables that transmit relay signals, lay them close to each other to avoid a large loop area. Use twisted pair cables for analog signals. Lay digital signal cables close to each other.

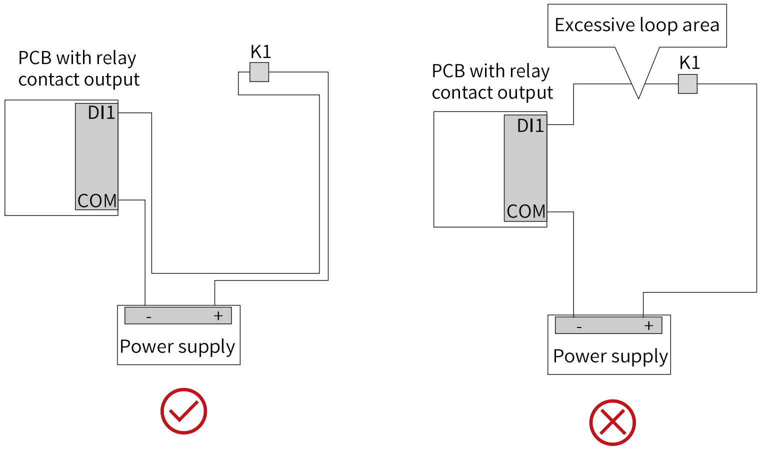


Figure 5-50 Recommended wiring loop area

Multiple types of cables

For cables of different types, route the cables along the equipotential metal plate. To enhance the internal EMC performance, separate different types of cables or separate cables with metal separators (recommended) in the same metal (zinc-iron or stainless steel) duct.

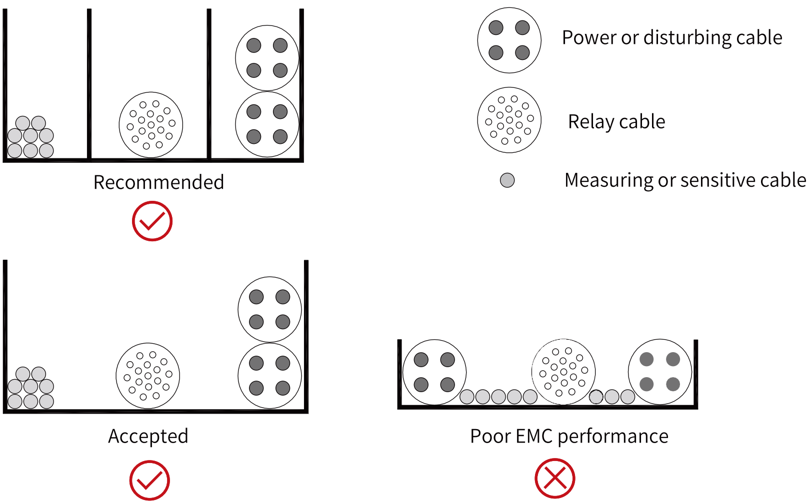


Figure 5-51 Laying multiple types of cables

Handing shielded cables

Minimize the length of the unshielded part of a shielded cable, and connect the shield to the nearest PE terminal. If the unshielded part is too long, the cable conductor is prone to signal interference.

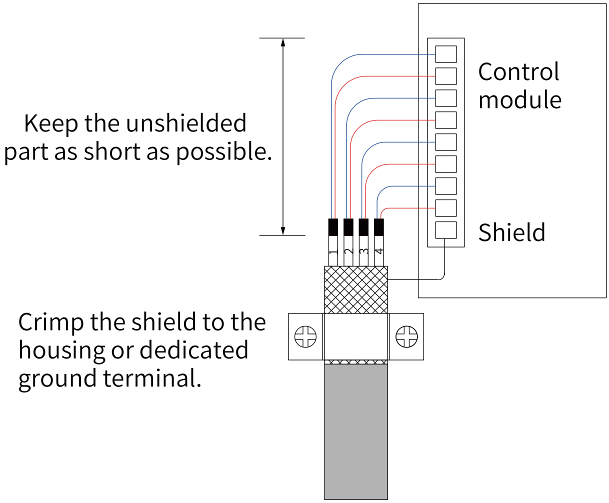


Figure 5-52 Requirements on handing of shielded cables

5.6 Grounding

5.6.1 Grounding Requirements

Observe the following requirements to ensure proper grounding of the drive.

CAUTION

1. Ground the grounding terminal to avoid electric shock. Follow the relevant electrical regulations of specific countries or regions on the grounding method.
2. To prevent electric shock, ensure the protective grounding conductor complies with technical specifications and local safety standards. Keep the grounding cable as short as possible.
3. In any case, the cross-sectional area of each protective grounding conductor that does not form part of the power cable or cable jacket cannot be lower than 2.5 mm^2.
4. The leakage current of an individual drive cannot exceed 3.5 mA AC or 10 mA DC. You only need to configure one protective grounding conductor of the same specification as the phase cable.
5. When using multiple devices, follow the instructions of grounding all devices. Incorrect grounding can result in malfunction of devices.

5.6.2 Single-Drive Grounding

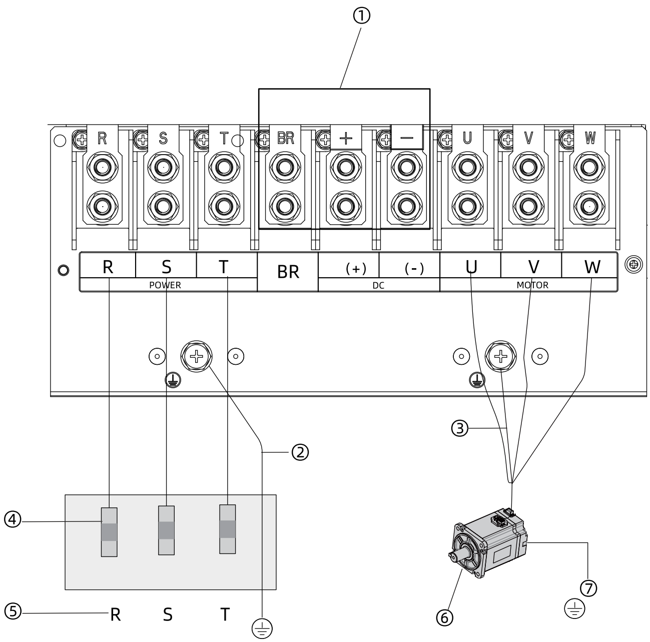


Figure 5-53 Grounding of the main circuit

Table 5–15 Grounding description of the main circuit

No.	Wiring Description
①	Do not ground the DC bus terminal or the braking resistor terminal.
②	Connect the PE terminal on the power supply side to the PE terminal on the input side of the AC drive.
③	Connect the PE terminal on the output side of the AC drive to the motor output cable shield.
④	Input protection (fuse or circuit breaker). Connect the lower end of the fuse to the filter.
⑤	Input power supply
⑥	Three-phase motor
⑦	Ground the motor enclosure.

Note

The layout of main circuit terminals varies with different models.

5.6.3 Multi-Drive Grounding

When multiple drives are installed in the cabinet in parallel, ground the drives as shown below.

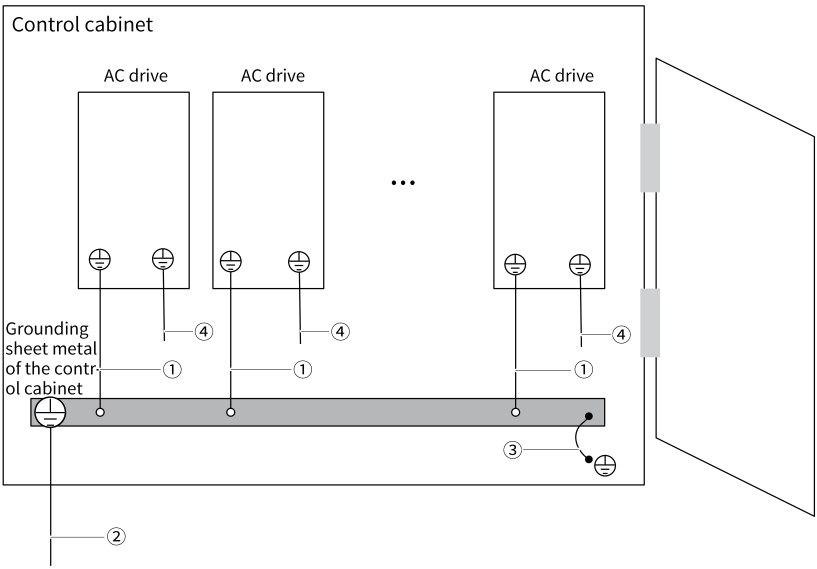


Figure 5-54 Parallel grounding of multiple drives

Table 5–16 Description of parallel grounding

No.	Wiring Description
①	Connect the main circuit input PE terminal to the grounding sheet metal of the control cabinet through the protective grounding conductor.
②	Connect the PE cable on the input power supply end to the grounding sheet metal of the control cabinet.
③	Connect the grounding sheet metal of the control cabinet to the metal enclosure of the control cabinet through the protective grounding conductor.
④	Connect the motor output cable shield to the output PE terminal of the drive.

5.6.4 Cabinet System Grounding

The most effective measure to suppress disturbance in the cabinet is to isolate the disturbance source from the devices that may be disturbed during installation. Divide the control cabinet into several EMC areas or several cabinets based on the intensity of the disturbance source, and install devices into corresponding areas based on the requirements listed in the following table.

Table 5–17 Wiring requirements

No.	Wiring requirements
1	Place the control unit and the drive unit in two separate cabinets.
2	If multiple cabinets are used, connect the cabinets by using a PE cable with a cross-sectional area of at least 16 mm^2 to achieve equipotential bonding among the cabinets.
3	If only one cabinet is used, place the devices in different compartments of the cabinet based on signal intensity.
4	Perform equipotential bonding for devices in different compartments of the cabinet.
5	Shield all communication (such as RS485) and signal cables drawn from the electric cabinet.
6	Place the power input filter in a position near the input interface of the cabinet.
7	Provide spray coating protection for all grounding points in the cabinet.

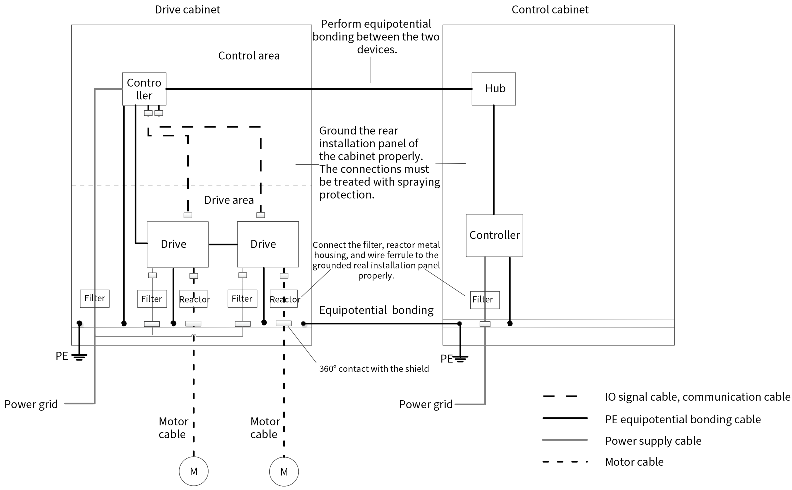


Figure 5-55 Recommended wiring of the cabinet system

5.7 Post-wiring Inspection

After wiring is done, check the following items and tick compliant items.

Table 5–18 Checklist after wiring

No.	Item	Compliance
1	Power supply input cables are connected to R, S, and T terminals.	□
2	Motor input cables are connected to the U, V, and W terminals.	□
3	The cross-sectional area of the main circuit cables meet the requirements.	□
4	Heat-shrinkable tubes are applied to copper tubes of the main circuit cable and conductors, and heat-shrinkable tubes completely cover the conductors.	□
5	The motor output cable does not exceed 50 m. Otherwise, the carrier frequency needs to be reduced through F0-15.	□
6	The grounding cable is connected properly.	□
7	The output terminals and control signal cable terminals are connected properly.	□
8	The braking resistor and braking unit with proper resistance are wired properly.	□
9	The control circuit signal cables are shielded twisted pair cables.	□
10	Optional cards are connected correctly.	□

No.	Item	Compliance
11	Control circuit cables and main circuit cables are routed through different routes.	□
12	There are no screws, gaskets, or exposed cables left inside the product.	□

6 Commissioning Tools

6.1 Descriptions of LED Operating Panel

Components

The LED operating panel can be used to view the operating status and fault information, set parameters, and so on. The following figure shows the operating panel.

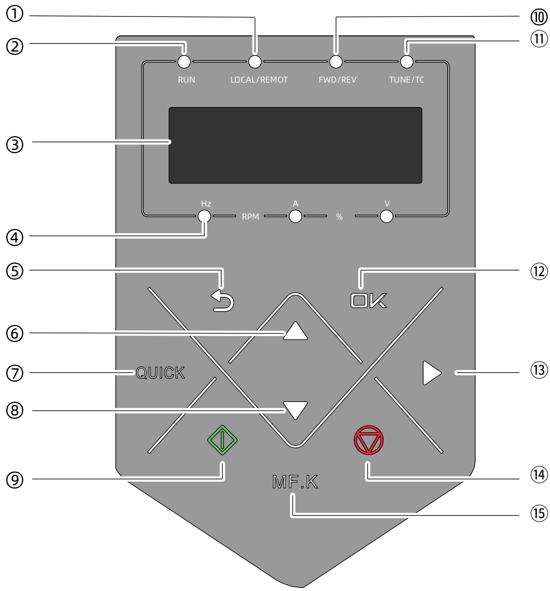


Figure 6-1 Operating panel components

Table 6–1 Operating panel components

No.	Name	Description
①	Command source indicator	-
②	Operation indicator	-
③	Data display area	It displays parameter information.
④	Unit indicator	-
⑤	Program/Back button	Enter or exit level-1 menu.
⑥	Increment key	Increase data or function code.
⑦	Reserved	-
⑧	Decrement key	Decrease data or function code.
⑨	Run key	In the operating panel control mode, press the key to operate the drive.

No.	Name	Description
⑩	Forward/Reverse run indicator	-
⑪	Auto-tuning/Fault indicator	-
⑫	Confirm key	Enter the menu interfaces level by level, and confirm the parameter setting.
⑬	Shift key	Select parameters to be displayed in turns in the stop or operation interface. Select the digit to be modified when modifying a parameter value.
⑭	Stop button	-
⑮	Forward/Reverse	Switch over between forward and reverse running in the operating panel control mode.

Key descriptions

Table 6–2 Key descriptions

Key	Name	Function
	Program/Back button	Return to the previous interface; Access the level one menu.
OK	Confirm key	Enter the settings interface or confirm the settings.
MF.K	Multi-function button	You can allocate different functions, such as command source switch, forward run and reverse run switch, or jog to this button.
	Run key	In the operating panel control mode, press the button to operate the drive.
	Stop/Fault reset button	When the drive is running, press the button to stop the drive. When the drive is in the faulty state, press the button to perform a reset operation.

Status indicator

In the following table, indicates ON, indicates OFF, and indicates flashing.

Table 6–3 Descriptions of indicators

Indicator status		Description
RUN Operation indicator	RUN	Off: Stop
	RUN	On: Running
FWD/REV Forward/Reverse run indicator	FWD/REV	Off: Forward running
	FWD/REV	On: Reverse running
TUNE/TC Auto-tuning indicator	TUNE/TC	OFF: Normal running mode
	TUNE/TC	Flashing slowly (flashing once per second): Auto-tuning state
	TUNE/TC	Flashing quickly (flashing four times per second): Faulty state
LOCAL/REMOT Command source indicator	LOCAL/REMOT	Off: Operating panel control
	LOCAL/REMOT	On: Terminal control
	LOCAL/REMOT	Flashing: Communication control
Hz - RPM - A - % - V		Frequency unit: Hz
Hz - RPM - A - % - V		Current unit: A
Hz - RPM - A - % - V		Voltage unit: V
Hz - RPM - A - % - V		Speed unit: rpm
Hz - RPM - A - % - V		Percentage: %

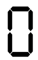
Table 6–4 Description

Unit	Description
rpm	Speed unit
Hz	Frequency unit
A	Current unit
V	Voltage unit
%	Percentage

Data display

The 5-digit LED on the operating panel can display the frequency reference, output frequency, various monitoring data, and fault codes.

Table 6–5 LED display and actual data

Display	Actual data	Display	Actual data	Display	Actual data	Display	Actual data
	0		6		C		N
	1		7		c		P
	2		8		D		R
	3		9		E		T
	4		A		F		U
	5, S		B		L		u

6.2 Related Parameters

Table 6–6 Parameters related to the operating panel

Parameter	Name	Default	Value range	Description
F7-01	MF.K key function	0	0: MF.K key disabled 1: Forcibly change to operating panel control 2: Forward/reverse run switchover 3: Forward jog 4: Reverse jog	The MF.K key is a multi-functional key. This parameter is used to set the function of the MF.K key. 0: MF.K key disabled The MF.K key does not work. 1: Forcibly change to operating panel control If F0-02 is set to 0 (operating panel), the MF.K key is unavailable. If F0-02 is set to 1 (terminal), 2 (communication), or 3 (self-defined control mode), pressing the MF.K key forcibly changes the control mode to the operating panel control mode. 2: Forward/reverse run switchover The direction of the frequency reference can be changed by using the MF.K key. This function is effective only under operating panel control. 3: Forward jog Forward jog (FJOG) is enabled by using the MF.K key. This function is valid only when the command source is the operating panel. 4: Reverse jog Reverse jog (RJOG) can be enabled by using the MF.K key. This function is valid only when the command source is set to operating panel control.
F7-02	STOP/RES key function	0	0: Valid only in the operating panel control mode 1: Valid at OFF1 command 2: Valid at OFF2 command 3: Valid at OFF3 command	This parameter is used to set the function of the STOP/RESET key on the operating panel. 0: Valid only in the operating panel control mode The STOP/RES key is valid only in the operating panel control mode. 1: Valid at OFF1 command The STOP/RES key is valid in any operating mode, and the AC drive stops according to the OFF1 stop mode. 2: Valid at OFF2 command The STOP/RES key is valid in any operating mode, and the AC drive stops according to the OFF2 stop mode. 3: Valid at OFF3 command The STOP/RES key is valid in any operating mode, and the AC drive stops according to the OFF3 stop mode.

Parameter	Name	Default	Value range	Description
F7-03	Parameter 1 displayed on LED operating panel during operation	31	bit0: Running frequency (Hz) bit1: Frequency reference (Hz) bit2: Bus voltage (V) bit3: Output voltage (V) bit4: Output current (A) bit5: Output power (kW) bit6: Output torque (%) bit7: DI input status bit8: DO output status bit9: AI1 voltage (V) bit10: AI2 voltage (V) bit11: AI3 voltage (V) bit12: Counting value bit13: Length value bit14: Load speed bit15: PID reference	This parameter defines the parameters displayed on the LED operating panel when the AC drive is running. You can view the parameters corresponding to each bit by pressing the left and right shift keys. The value 1 of a bit indicates that the parameter is displayed, and the value 0 of the bit indicates that the parameter is hidden. Each parameter is displayed in the hexadecimal format.
F7-04	Parameter 2 displayed on LED operating panel during operation	0	bit0: PID feedback bit1: PLC stage bit2: Pulse input frequency (kHz) bit3: Running frequency 2 (Hz) bit4: Remaining operating time bit5: Non-calibrated AI1 voltage (V) bit6: Free mapping 0 bit7: Free mapping 1 bit8: Motor speed bit9: Current power-on time (hour) bit10: Current running time (min) bit11: Pulse input frequency (Hz) bit12: Reference set through communication bit13: Reserved bit14: Main frequency X bit15: Auxiliary frequency Y	This parameter defines the parameters displayed on the LED operating panel when the AC drive is running. You can view the parameters corresponding to each bit by pressing the left and right shift keys. The value 1 of a bit indicates that the parameter is displayed, and the value 0 of the bit indicates that the parameter is hidden. Each parameter is displayed in the hexadecimal format.

Pa rame ter	Name	De fault	Value range	Description
F7-05	Parameter display at stop	51	bit0: Frequency reference (Hz) bit1: Bus voltage (V) bit2: DI input status bit3: DO output status bit4: AI1 voltage (V) bit5: AI2 voltage (V) bit6: AI3 voltage (V) bit7: Counting value bit8: Length value bit9: PLC phase bit10: Load speed bit11: PID reference bit12: Pulse input frequency (kHz) bit13: Reserved bit14: Free mapping 0 bit15: Free mapping 1	This parameter defines the parameters displayed on the LED operating panel when the AC drive is in stop state. You can view the parameters corresponding to each bit by pressing the left and right shift keys. The value 1 of a bit indicates that the parameter is displayed, and the value 0 of the bit indicates that the parameter is hidden. Each parameter is displayed in the hexadecimal format.
FP-01	Parameter initialization	1	0: No action 1: Restore parameters (excluding motor parameters) to factory settings 2: Clear records 4: Back up current user parameters 501: Restore user parameters from backup 503: Restore parameters (including motor parameters) to factory settings	Used to select the parameter initialization mode. 0: The AC drive does not perform any operation. 1: Most of the AC drive parameters are restored to factory settings. However, motor parameters, frequency reference decimal (F0-22), maximum frequency (F0-10), frequency upper limit (F0-12), fault records, cumulative running time (F7-09), cumulative power-on time (F7-13), cumulative power consumption (F7-14), and inverter heatsink temperature (F7-07) are not restored. 2: The fault records, cumulative running time (F7-09), cumulative power-on time (F7-13), and cumulative power consumption (F7-14) are cleared. 4: Current user-set parameters are backed up. 501: Parameters backed up by setting FP-01 to 4 are restored. 503: All AC drive parameters except FP-00, FP-01, and the parameters in group FF are restored to factory settings.

Parameter	Name	Default	Value range	Description
FP-02	Parameter group display	63	bit0: Group U 0: Hidden 1: Displayed bit1: Group A 0: Hidden 1: Displayed bit2: Group B 0: Hidden 1: Displayed bit3: Group C 0: Hidden 1: Displayed bit4: Group H 0: Hidden 1: Displayed bit5: Group L 0: Hidden 1: Displayed	This parameter is used to determine whether the parameter groups U, A, B, C, H, and L are displayed on the operating panel by each bit.
FP-03	Display of user parameters	111	Ones: HDI 0: Mask user mode 1: Show user mode Tens: 0: Mask calibration mode 1: Show calibration mode Hundreds: 0: Mask error menu 1: Show error menu	Used to determine whether the user-defined parameter group, user-modified parameter group, and error menu are displayed on the operating panel through the ones, tens, and hundreds.

6.3 Parameter Settings

The LED operating panel adopts a three-level menu to perform operations such as parameter setting. After entering a menu at a level, press , , or  to set a bit that is flashing. The three levels of menus are described as follows:

- Level-1 menu: parameter group
- Level-2 menu: parameter
- Level-3 menu: parameter setpoint

Example: To change the value of F3-02 from 10.00 Hz to 15.00 Hz, perform settings according to the following figure.

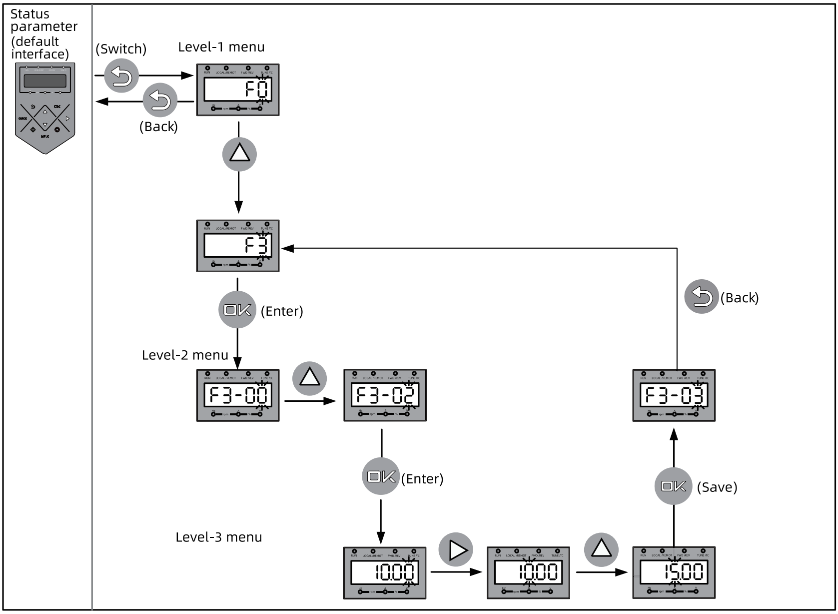


Figure 6-2 Parameter modification procedure

On a level-3 menu, you can press  or  to return to a level-2 menu. The difference between the two keys is as follows:

1. After you press , the operating panel goes back to the level-2 menu with the parameter setting saved and shifts to the next parameter.
2. After you press , the operating panel directly returns to the upper-level menu corresponding to the current parameter without saving the parameter setting.

If no digit of a parameter blinks on a level-3 menu, the parameter cannot be modified. The reasons include the following:

1. This parameter is a read-only parameter such as the product model, detection value, and operation log.
2. This parameter can be changed only after the drive stops.

6.4 Parameter View

Set FP-02 to 11 and FP-03 to 11 to view all parameters through the operating panel. The operation procedure is shown in the following figure.

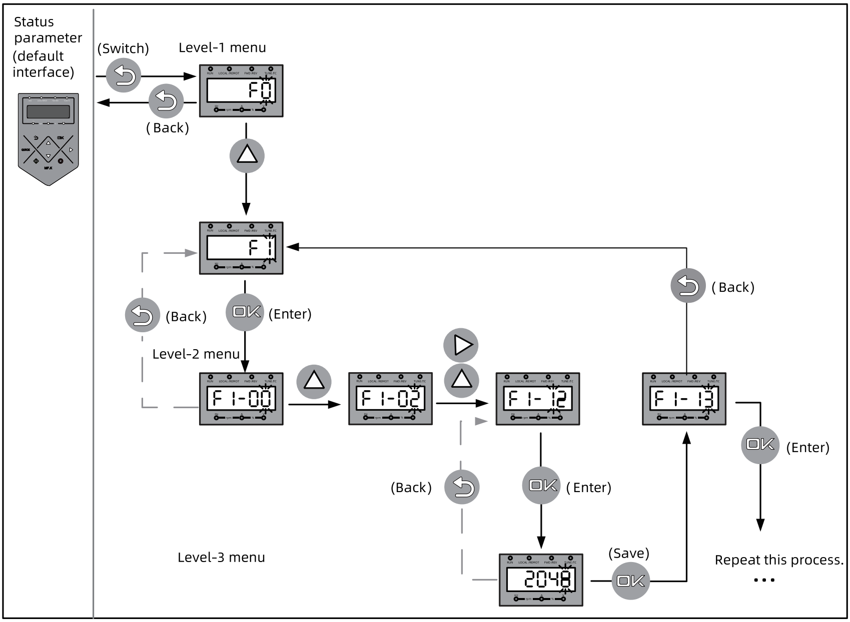


Figure 6-3 Viewing a parameter

6.5 Status Parameter Display

When the AC drive is running, press  to view the status parameters. The following status parameters are displayed by default: running frequency, frequency reference, bus voltage, output voltage, and output current. To view more status parameters, see descriptions of F7-03 and F7-04 in *"6.2 Related Parameters" on page 91*.

When the AC drive stops, press  to view the status parameters. The following status parameters are displayed by default: frequency reference, bus voltage, AI1 voltage, AI2 voltage, AI3 voltage, and speed reference. To view more status parameters, see descriptions of F7-05 in *"6.2 Related Parameters" on page 91*.

6.6 Fault and Alarm Display

When the AC drive is faulty, the fault indicator blinks, and the operating panel displays a fault code, as shown in the following figure.

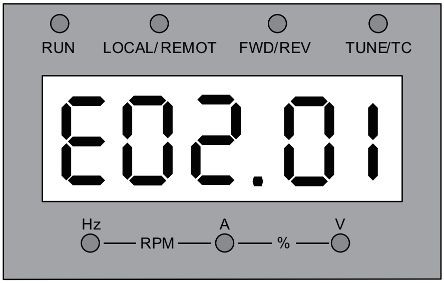


Figure 6-4 Fault code

When the fault indicator blinks, the AC drive immediately stops output, and the contact of the faulty relay closes. In this case, see *"8.2 List of Fault Codes" on page 121* for troubleshooting or contact Inovance for technical support. Find the fault cause and rectify the fault based on the fault code displayed on the operating panel. Then reset the device.

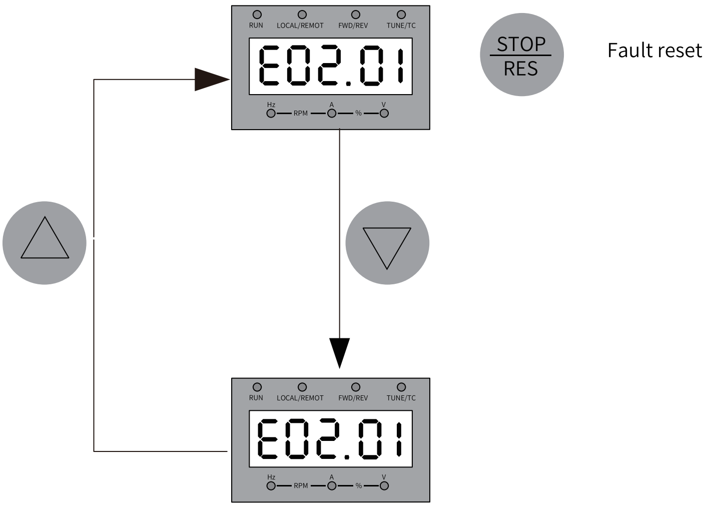


Figure 6-5 Viewing and resetting upon multiple faults

6.7 MF.K Multi-functional Key

The 

key is a multi-function key on the operating panel. Its function can be set via F7-01. In the stop or running state, you can press the key to switch over between control modes, between forward run and reverse run, and between forward jog and reverse jog.

Table 6–7 MF.K key parameter descriptions

Parameter	Name	Default	Value range	Description
F7-01	MF.K key function	0	0: MF.K key disabled 1: Forcibly change to operating panel control 2: Forward/ reverse run switchover 3: Forward jog 4: Reverse jog	The MF.K key is a multi-functional key. This parameter is used to set the function of the MF.K key. 0: MF.K key disabled The MF.K key does not work. 1: Forcibly change to operating panel control When F0-02 is set to 0 (operating panel), the MF.K does not work. When F0-02 is set to 1 (terminal), the MF.K key is used for switchover between the terminal I/O control and operating panel control. When F0-02 is set to 2 (communication), the MF.K key is used for switchover between the communication control and operating panel control. 2: Forward/reverse run switchover The direction of the frequency reference can be changed by using the MF.K key. This function is effective only under operating panel control. 3: Forward jog Forward jog (FJOG) is enabled by using the MF.K key. This function is effective only under operating panel control. 4: Reverse jog Reverse jog (RJOG) can be enabled by using the MF.K key. This function is valid only when the command source is set to operating panel control.

6.8 Driving the Motor with the Operating Panel

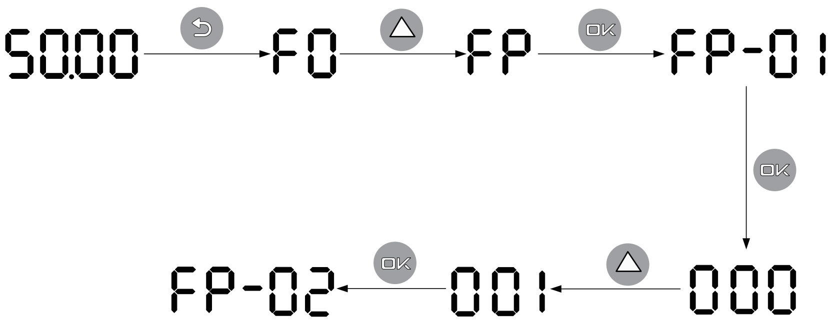
Press 

on the operating panel to control forward/reverse jog of the motor and press  /  to start/stop the motor.

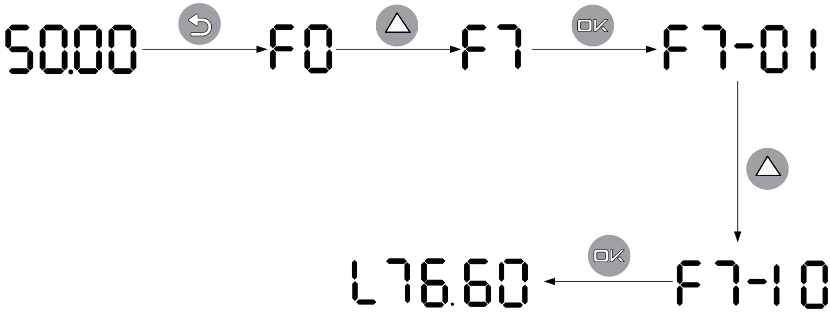
Procedure

1. Check before power-on.
2. Press the power switch to connect the power supply of the AC drive.
3. Check that 50.00 is displayed on the operating panel, which indicates successful power-on.

4. Set FP-01 to 001 and restore all parameters to default values. The operation example is shown in the following figure.



5. Check the value of F7-10, which indicates the software version.



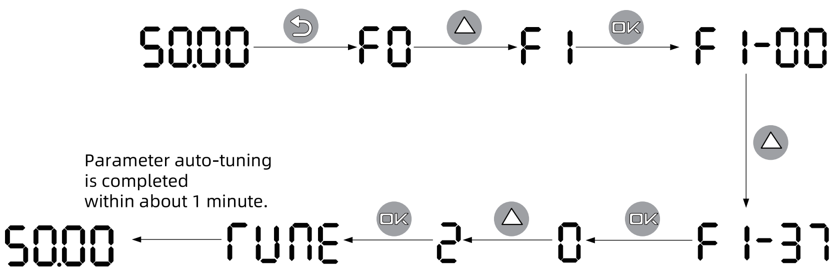
6. Set motor parameters group F1 according to the motor nameplate.

Table 6–8 Motor parameters

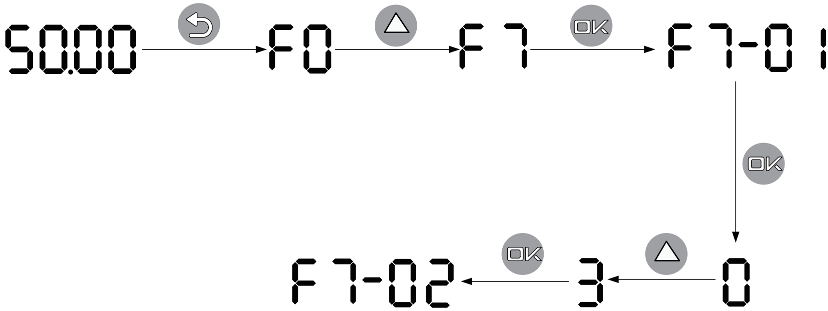
Parameter	Name	Default	Value range	Description	Setpoint
F1-00	Motor type selection	0	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Permanent magnet synchronous motor 3: Synchronous reluctance motor without permanent magnet 4: Electromagnetic coil 5: Synchronous reluctance motor with permanent magnet	Sets the motor type. 0: Common asynchronous motor. A common asynchronous motor is suitable for applications with normal voltage but often full load. It is designed based on constant frequency and constant voltage. Therefore, it may not meet all the frequency and speed control requirements. 1: Variable frequency asynchronous motor. A variable frequency motor can adjust its frequency and speed according to the load. When the voltage is low, the variable frequency motor can reduce the frequency for a reliable start. When the load is light, it can reduce the frequency, speed, and current to save energy. 2: Permanent magnet synchronous motor. A permanent magnet synchronous motor provides excitation with a permanent magnet. It features simple structure, small size, high efficiency, and high power factor. 3: Synchronous reluctance motor without permanent magnet. The reluctance motor is a synchronous motor without permanent magnet, whose torque output is totally from the magnetic reluctance torque generated from q-axis and d-axis inductance difference. 4: Electromagnetic coil. The electromagnetic coil is essentially a motor stator coil without a rotor. It is mainly used in electromagnetic stirring equipment. The material to be processed will pass through the stator center. The performance of the material is adjusted through electromagnetic field.	0
F1-01	Rated motor power	Model dependent	0.1 kW to 1000.0 kW	It indicates the power of the motor during normal operation. Its value is the product of the rated motor voltage multiplied by the rated motor current. Select a motor with a proper power rating on the premise that the motor can meet the requirements of mechanical load. motor heat dissipation, allowable overload capacity, and startup capacity.	3.7 kW
F1-02	Rated motor voltage	Model dependent	1 V to 2000 V	It indicates the voltage of the motor during normal operation, which usually refers to the line voltage.	380 V

Parameter	Name	Default	Value range	Description	Setpoint
F1-03	Rated motor current	Model dependent	0.01 to 655.35	It indicates the current of the motor during normal operation, which usually refers to the line current. For models of 55 kW and below, two decimal places are displayed, such as 0.01 A to 655.35 A (drive power ≤ 55 kW). For models with the power above 55 kW, one decimal place is displayed, such as 0.1 A to 6553.5 A (drive power > 55 kW).	9.0 A
F1-04	Rated motor frequency	Model dependent	0.01 Hz to F0-10	It indicates the frequency of the power supply connected to the stator winding under the rated operation conditions of the motor.	50.00 Hz
F1-05	Rated motor speed	Model dependent	1 rpm to 65535 rpm	It indicates the speed (in the unit of rpm) of the rotor under the rated operation conditions.	1460 RPM

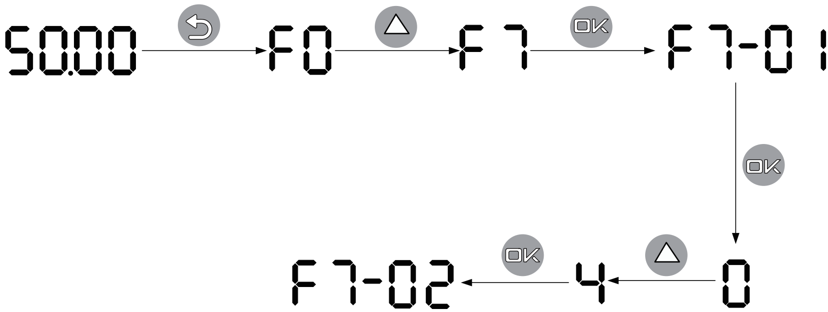
7. Set F1-37 to 2, and press  to confirm. The operating panel displays . Press and hold the  key on the operating panel for more than three seconds to start motor auto-tuning. The  indicator is steady on, the TUNE/TC indicator blinks, and the AC drive energizes the motor. After about one minute, the operating panel displays 50.00, indicating that auto-tuning is complete.



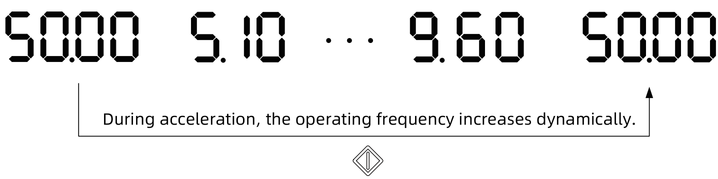
8. Set F7-01 to 3, and then press  to start forward jog of the motor.



9. Set F7-01 to 4, and then press  to start reverse jog of the motor.



10. Press  to start the motor. The motor shaft starts to rotate and accelerate, and the panel displays the current running frequency, as shown in the following figure. After acceleration is completed, the displayed frequency is 50.00. Press the right key to switch the displayed status parameter.



11. Press . The motor will decelerate to stop.

7 Maintenance and Repair

7.1 Routine Check

7.1.1 Daily Checklist

The ambient temperature, humidity, dust, and vibration will cause aging of components inside the drive, which leads to potential faults and shortens the service life of the drive. Therefore, daily and periodic maintenance on the device is required. The maintenance interval must be shortened when the drive is used in environments suffering from high ambient temperature, frequent startup and stop, violent fluctuation in the AC power supply and the load, strong vibration or shock, and intrusive and corrosive substances such as dust, metal dust, and hydrochloric acid.

Check the following items daily to ensure a proper operation of the device. It is recommended to make a copy of this checklist and sign the "Checked" column after each inspection.

Item	Item	Solution	Checked
Motor	Check whether unusual vibration or noise exists.	● Check whether the mechanical connection is normal. ● Check the power phases of the motor. ● Check whether motor screws are tightened.	
Cooling fan	Check whether the fans of the AC drive and motor operate normally.	● Check whether the fan of the drive operates properly. ● Check running of the cooling fan of the motor. ● Check whether the air filter is clogged. ● Check whether the ambient temperature is within the allowable range.	
Installation environment	Check whether the control cabinet and cable ducts are normal.	● Check for insulation damage of input and output cables. ● Check the mounting bracket for vibration. ● Check whether the copper busbar and cable terminals are loose or corroded.	
Load	Check whether the operating current of the drive exceeds the rated current of the drive and motor.	● Check for settings of motor parameters. ● Check for excessive load. ● Check whether the mechanical vibration is severe (< 0.6 g under normal conditions).	
Input voltage	Check whether the power supply voltage between the main circuit and control circuit is normal.	● Adjust the input voltage to the allowable range. ● Check whether heavy load starts around.	

7.1.2 Regular Checklist

The following shows items to be checked every one or two years. Determine the actual inspection cycle based on actual application and operating environment. Regular maintenance helps detect product function deterioration and damage.

Make a copy of the following checklist and sign the "Checked" column after each inspection.

CAUTION

Do not perform inspection or connection work with power on. Failure to do so may result in an electric shock. Cut off the power supplies of all equipment before wiring or repair. Wait for at least the time designated on the equipment warning label before further operations because residual voltage still exists after power-off. After waiting for the designated time, measure the DC voltage in the main circuit to ensure the DC voltage is within the safety voltage range. Failure to do so may result in an electric shock.

Item	Item	Solution	Checked
Drive	Check whether dirt, waste, or dust builds up on the surface of the drive.	• Check whether the controller cabinet has been powered off. • Use a vacuum cleaner to suck up waste and dust to prevent direct contact with the components. • Wipe stubborn stains with alcohol and do not operate the drive until the alcohol completely evaporates.	
Cable	• Check whether power cables and cable connectors are discolored and cracked. • Check whether the insulation is aged or cracked.	• Replace the cracked cable. • Replace the aged or cracked terminal.	
Peripherals of the solenoid contactor	• Check whether the contactor closes tightly or generates unusual noise during closing. • Check whether short circuit, water seepage, swelling, or cracking occurs on any peripheral device.	Replace defective peripherals.	

Item	Item	Solution	Checked
Air duct	● Check whether the air vent and heatsink are blocked. ● Check whether the fan is damaged.	● Clean the air duct. ● Replace the fan.	
Control circuit	● Check whether control components are in poor contact. ● Check whether terminal screws are loose. ● Check whether the insulation of the control cable is cracked.	● Clean the surface of control cables and terminals. ● Replace damaged or corroded control cables.	

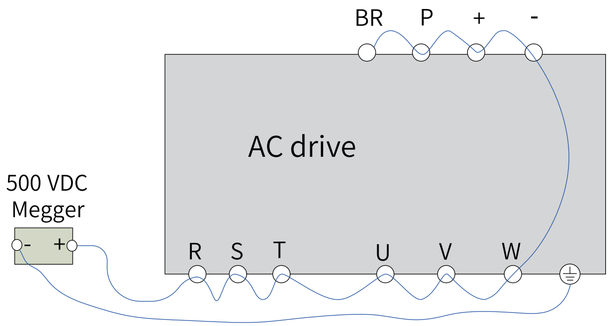
7.2 Main Circuit Insulation Test

Note

Do not perform high voltage test (> 500 V) again because it has been done before delivery.

Remove the voltage dependent resistor screw before test and disconnect the voltage dependent resistor.

Before measuring insulation resistance with a megameter (500 VDC megameter recommended), disconnect the main circuit from the AC drive. Do not use the insulating resistance meter to test the insulation of the control circuit.



The insulation resistance measured must be higher than 5 MΩ.

CAUTION

Disconnect the optional grounding screw of VDR before performing a voltage resistance test. Otherwise, the test may fail.

7.3 Quick-Wear Parts Replacement

7.3.1 Service Life of Quick-Wear Parts

The quick-wear parts of the AC drive include the cooling fan and electrolytic capacitor, whose service life is closely related to the operating environment and maintenance conditions. Generally, the service life is as follows.

Name	Service life[Note]
Fan	≥ Five years
Electrolytic capacitor	≥ Five years
Note: The service life indicates the time when the part is used in the following conditions. You can determine when to replace the part according to the actual operating time. Ambient temperature: 40℃ Load rate: 80% Operating rate: 24 hours per day	

7.3.2 Replacing the Cooling Fan

Fan quantity

- The fan may be damaged due to worn-out bearing or aging blades.
- How to determine whether the fan needs to be replaced: (1) Check for signs of cracks on the blade. (2) Check for unexpected noise upon start. (3) Check whether the blade works properly.
- How to replace the fan: Remove the fan cover and pull the fan outward. After replacing the fan, ensure the fan blows the air upward.

Table 7–1 Number of fans

Model	Number of fans	Number of internal turbulence fans
T1 (7.5 kW to 11 kW)	1	1
T2 (15 kW to 30 kW)	2	1

Model	Number of fans	Number of internal turbulence fans
T3 (37 kW to 55 kW)	1	1
T4 (75 kW to 90 kW)	2	1

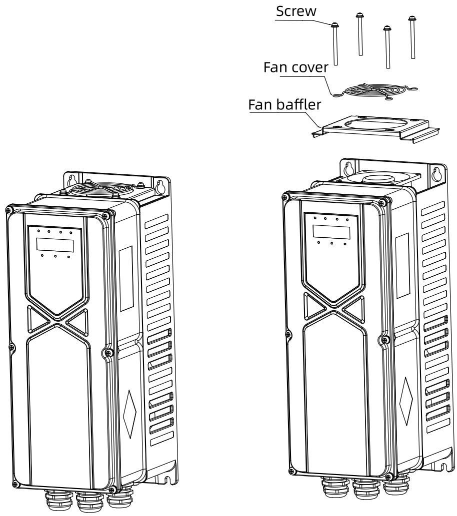
Fan removal and installation for T1 to T2 models (7.5 kW to 30 kW)

Note

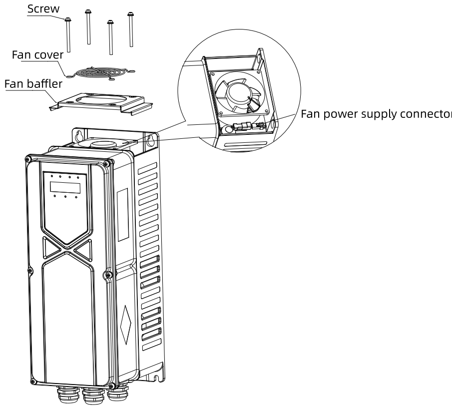
The number and location of cooling fans vary with product models, but the fans are removed and installed in the same way.

Removing the fan

1. Use a screwdriver to remove the fixing screws on the fan cover, and then remove the fan cover and fan baffle in sequence.



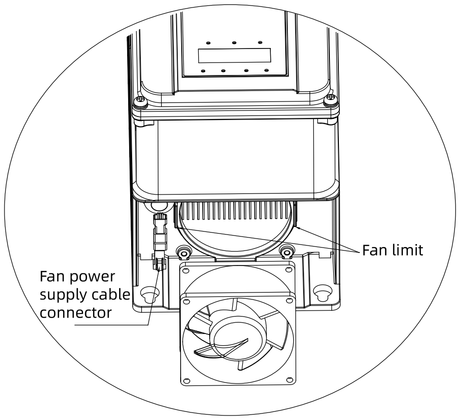
2. Disconnect the fan power supply cable from the corresponding connector, and then remove the fan.



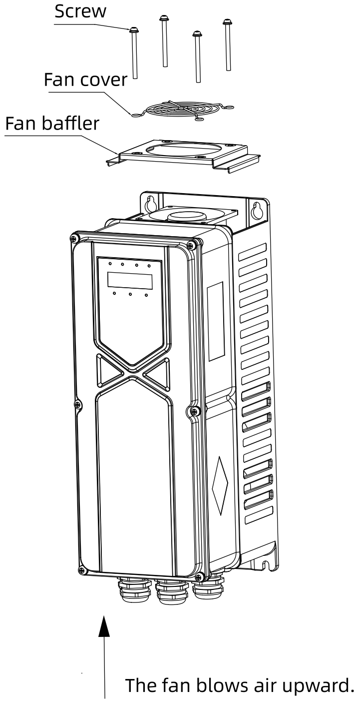
Installing the fan

Install the fan in the reverse order of removal and ensure the correct direction of the fan.

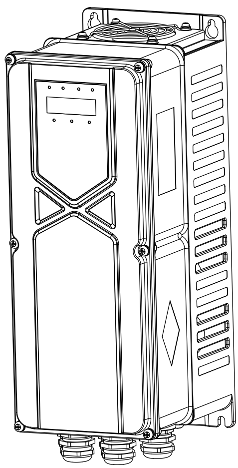
1. Connect the fan power supply cable to the corresponding connector, and then install the fan.



2. Place the fan baffle, fan cover, and fixing screws in sequence, and then tighten them using a screwdriver.



3. After replacing the fan, ensure the fan blows the air upward.



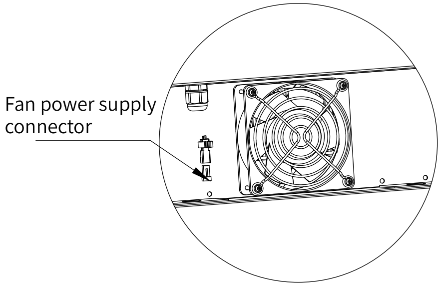
Fan removal and installation for T3 to T4 models (37 kW to 90 kW)

Note

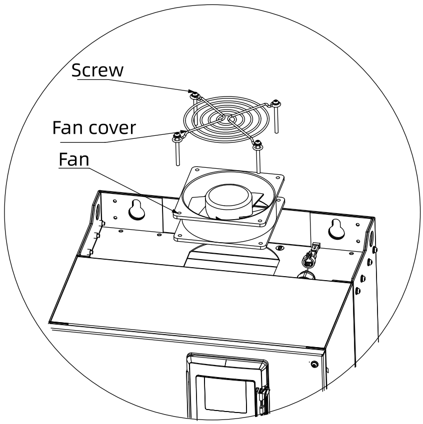
The number and location of cooling fans vary with product models, but the fans are removed and installed in the same way.

Removing the fan

1. Disconnect the fan power supply cable from the corresponding connector.



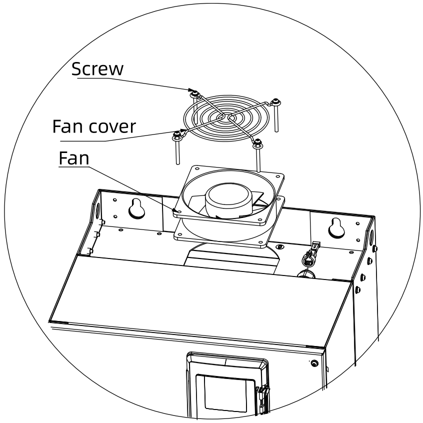
2. Use a screwdriver to remove the fixing screws on the fan cover, and then remove the fan cover and fan in sequence.



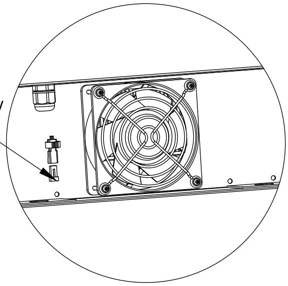
Installing the fan

1. Install the fan in the reverse order of removal and ensure the correct direction of the fan.

2. Fix the fan and fan cover to the chassis using screws.



3. Plug the fan power supply cable into the corresponding connector.



7.3.3 Replacing the Filter Electrolytic Capacitor

- Possible damage causes: input power supply in poor quality, high ambient temperature, frequent load jumping, and electrolytic aging
- Judging criteria: whether liquid leakage occurs, whether the safety valve has projected, and the measurement of electrostatic capacitance and insulation resistance.
- Replacement: As the capacitor involves the internal parts, never replace the capacitor by yourself. Contact Inovance for replacement.

7.4 Storage and Warranty

Storage

To store the drive properly, observe the following:

- Store the drive in the original packaging provided by Inovance.
- Do not expose the drive to environments with moisture, high temperatures, or direct sunlight for a long time.

- The electrolytic capacitor will deteriorate after being stored for a long time. Therefore, switch on the drive at least once every six months and keep the power-on time for at least five hours each time. Increase the input voltage gradually until the rated value is reached through a voltage regulator. Contact Inovance for technical support if necessary.

Warranty

Inovance provides warranty service within the warranty period (as specified in your order) for any fault or damage that is caused by proper operation of the user. Maintenance will be charged after the warranty expires.

Even within the warranty period, maintenance can be charged for the following product damage:

- Damage caused by operations not following the instructions in the guide
- Damage caused by fire, flood, or abnormal voltage
- Damage caused by using the product for unintended functions
- Damage caused by using the product outside the specified scope
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

When applicable, relevant maintenance fee will be charged according to the latest Price List of Inovance. If otherwise agreed upon, the agreed terms and conditions shall prevail.

For details, see the Warranty Card.

8 Troubleshooting

8.1 Common Faults and Diagnosis

8.1.1 Alarm and Fault Display

Upon exceptions, the AC drive stops output immediately, the fault indicator 

blinks, and the contact of the fault relay acts. The operating panel of the AC drive displays a fault code (example: E23.00), as shown in the following figure.

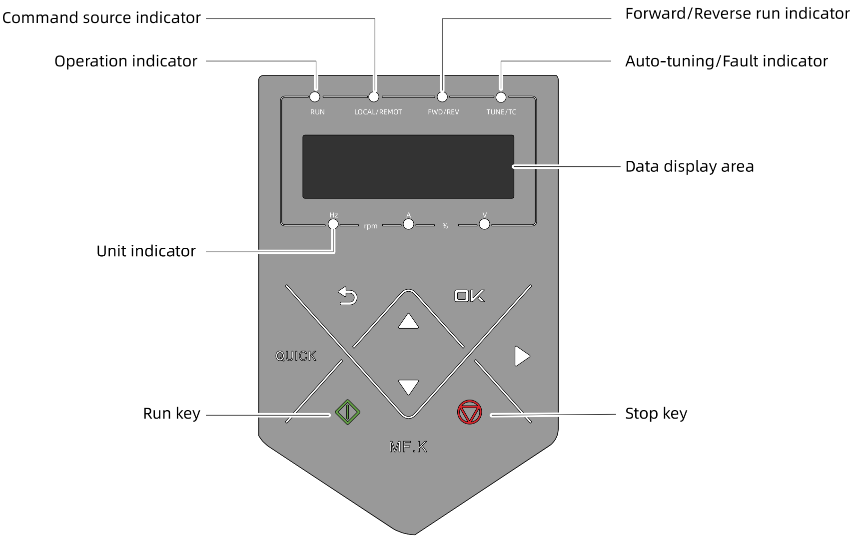


Figure 8-1 Display of faults

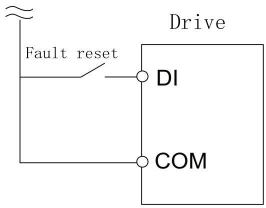
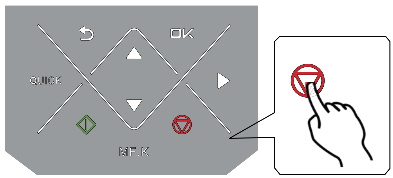
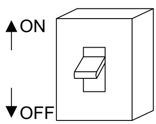
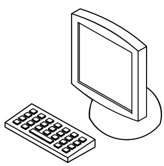
CAUTION

Do not repair or retrofit the drive by yourself. For faults that cannot be rectified, contact the agent or Inovance for technical support.

8.1.2 Restart After Fault Occurrence

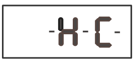
View the current fault code, fault subcode, fault information, minor fault code, minor fault subcode, minor fault information, warning code, warning subcode, warning information through the operating panel.

Table 8–1 Fault view and start method after fault occurrence

Stage	Solution	Description
Upon occurrence of the fault	View the detailed information of latest three faults using the operating panel, including fault time, fault type, and frequency/current/bus voltage/input or output terminal status/accumulative power-on time/accumulative running time at the occurrence of the faults.	View the record through F9-14 and F9-44. 
Before fault reset	View the fault cause and rectify the fault according to the fault type displayed on the operating panel.	-
Fault reset mode	1. Set any of F4-00 to F4-09 to 9 (fault reset).	
	2. Verify that F7-02 is set to 1 (default value), that is, the STOP/RES key is available in any operating mode.	Press the STOP/RES key on the operating panel. 
	3. Power off and then power on the AC drive for automatic reset. Disconnect the main circuit power supply. Wait until the fault code disappears, and then connect the power supply again.	
	4. Reset the drive through communication. When F0-02 (Command source) is set to 2 (Communication control), write 7 (Fault reset) to communication address 2000H using the host controller to reset the AC drive after the fault is cleared.	

8.1.3 Solutions to Common Faults

Table 8–2 Solutions to common faults

No.	Fault symptom	Possible cause	Solution
1	There is no display upon power-on.	The drive is not connected to the grid or the grid voltage is too low.	Check the input power supply.
		The switch-mode power supply on the drive board of the AC drive is faulty.	Check whether the 24 V output voltage and 10 V output voltage on the control board are normal.
		The control board is disconnected from the driver board and operating panel.	Disconnect the main circuit from the power supply, and then re-connect the 8-pin and 40-pin flat cables.
		The pre-charge resistor is damaged.	Contact the agent or Inovance.
		The control board or operating panel is faulty.	
		The rectifier bridge is damaged.	
2	"-H-C" is displayed after power-on. 	The cable connecting the driver board and the control board is in poor contact.	Re-connect the 8-pin and 28-pin flat cables.
		Components on the control board are damaged.	Contact the agent or Inovance.
		The motor or motor cable is short-circuited to ground.	
		The Hall device is damaged.	
		The grid voltage is too low.	
3	"E023.1" is displayed after power-on. 	The motor or the motor cable is short-circuited to ground.	Measure the insulation of the motor and output cable with a megger.
		The drive is damaged.	Contact the agent or Inovance.

No.	Fault symptom	Possible cause	Solution
4	The display is normal upon power-on. However, after the drive starts to run, "-H-C-" is displayed and the drive stops immediately. 	The fan is damaged or motor rotor is locked.	Replace the fan.
		Short circuit occurs on external control terminals.	Rectify the short circuit fault of external control terminals.
5	E014.1 (module overtemperature) is reported frequently.	The carrier frequency is too high.	Reduce the carrier frequency (F0-15).
		The cooling fan is damaged or the ventilation duct is blocked.	Replace the fan or clean the ventilation duct.
		Devices (thermistor or other devices) inside the AC drive are damaged.	Contact the agent or Inovance.
6	The motor does not rotate after the drive runs.	The AC drive and motor are incorrectly connected.	Check whether the motor is connected to the AC drive correctly.
		Motor parameters are set incorrectly on the drive.	Restore the AC drive to factory settings and re-set the following parameters correctly:
			Check that the rated motor parameters are set properly, including rated motor frequency and rated motor speed.
			Check that F0-01 (control mode) and F0-02 (operation mode) are set properly.
			Modify F3-01 (Torque boost) in the V/f control mode during start with heavy load.
		The cable connecting the driver board and control board is in poor contact.	Re-connect the cable to ensure it is connected securely.
		The drive board is faulty.	Contact the agent or Inovance.

No.	Fault symptom	Possible cause	Solution
7	DI terminals are deactivated.	Parameters are set improperly.	Check and set the parameters in group F4 again.
		External signals are wrong.	Re-connect external signal cables.
		The jumper across OP and +24V becomes loose.	Secure the jumper across OP and +24V.
		The control board is faulty.	Contact the agent or Inovance.
8	Overcurrent and overvoltage faults are reported frequently.	Motor parameters are set incorrectly.	Reset motor parameters or perform motor parameter auto-tuning.
		The acceleration/ deceleration time is improper.	Set acceleration/deceleration time properly.
		The load fluctuates.	Contact the agent or Inovance.
9	"E017.1" is detected upon power-on or running.	The soft start contactor is open.	Check whether the contactor cable is loose.
			Check whether the contactor is faulty.
			Check whether 24 V power supply of the contactor is faulty.
			Contact the agent or Inovance.
10	The motor coasts to stop or the brake fails during deceleration or decelerating-to-stop.	The overvoltage stall protection function is activated.	If the braking resistor is available, set F3-23 (Overvoltage stall selection) to 0 (Invalid) to disable overvoltage stall.

8.1.4 Troubleshooting During Trial Run in Different Control Modes

- SVC mode (F0-01= 0; default: 0)
  This control mode applies to applications without an encoder, which means the drive controls the motor speed and torque without feedback from an encoder. Auto-tuning on motor parameters is required to obtain the motor parameters.

Table 8–3 Troubleshooting in SVC mode

Fault	Solution
Overload or overcurrent during start of the motor	Set motor parameters F1-01 to F1-05 according to the motor nameplate. Perform auto-tuning (F1-37) on motor parameters. If possible, perform auto-tuning on all parameters of the motor in dynamic state.
Slow torque or speed response and motor oscillation occur at a frequency below 5 Hz.	To shorten the response time in the torque/speed control mode, increase the value of F2-00 (Speed loop proportional gain) by the step value of 10 or decrease the value of F2-01 (speed loop integral time) by the step value of 0.05. If oscillation occurs, decrease the value of F2-00 and increase the value of F2-01.
Slow torque or speed response and motor oscillation occur at a frequency above 5 Hz.	To shorten the response time in the torque/speed control mode, increase the value of F2-03 (speed loop proportional gain) by the step value of 10 or decrease the value of F2-04 (speed loop integral time) by the step value of 0.05. If oscillation occurs, decrease the value of F2-03 and increase the value of F2-04.
Low speed accuracy	Increase the value of F2-06 (Slip compensation gain in vector control) by the step value of 10% when the with-load speed deviation of the motor is too large.
Excessive speed fluctuation	Increase the value of A9-05 (Speed filter time) by the step value of 0.001s when motor speed fluctuates abnormally.
Too loud motor noise	Increase the value of F0-15 (Carrier frequency) by the step value of 1.0 kHz. Note that increasing the carrier frequency will lead to an increase in the motor leakage current.
Insufficient motor torque or force output	Check whether the torque upper limit is too low. If yes, increase the value of F2-10 (torque upper limit in speed control mode) in the speed control mode or the value of the torque reference in the torque control mode.

- V/f control mode (F0-01 = 2)

  This mode applies to applications without an encoder for speed feedback. You only need to set the rated motor voltage and rated motor frequency correctly.

Table 8–4 Troubleshooting in V/f control mode

Fault	Solution
Motor oscillation during operation	Decrease the value of F3-11 (Oscillation suppression gain in V/f mode) by the step value of 5. The minimum value is 5.
Overcurrent at startup with high power	Decrease the value of F3-01 (torque boost) by the step value of 0.5%.

Fault	Solution
Large current during running	Set F1-02 (Rated motor voltage) and F1-04 (Rated motor frequency) correctly. Decrease the value of F3-01 (torque boost) by the step value of 0.5%.
Too loud motor noise	Increase the value of F0-15 (Carrier frequency) by the step value of 1.0 kHz. Note that increasing the carrier frequency will lead to an increase in the motor leakage current.
Overvoltage upon deceleration or sudden removing of heavy load	Set F3-23 (Overvoltage stall suppression) to 1 (Enable). Increase the value of F3-24/F3-25 (Frequency gain/ Voltage gain for overvoltage stall suppression, 30 by default) by the step value of 10 gradually. The permissible maximum value is 100. Decrease the value of F3-22 (Overvoltage stall suppression action voltage, default: 770 V) by the step value of 10 V. The permissible minimum value is 700 V.
Overcurrent upon acceleration or sudden addition of heavy load	Increase the value of F3-20 (Overcurrent stall suppression gain, default: 20) by the step value of 10. The permissible maximum value is 100. Decrease the value of F3-18 (Overcurrent stall suppression action current, default: 150%) by the step value of 10%. The permissible minimum value is 50%.

8.2 List of Fault Codes

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E002.1	Hardware overcur rent	This fault occurs when the transient current outputted exceeds 2.5 x 1.414 x rated current of the drive.	Output grounded	Check whether three-phase output grounding points are available. Detect the impedance to ground with a tramegger.	Replace the device that may cause the grounding problem.
			Phase-to-phase short circuit	1. Check whether short circuit occurs at the output terminals U/V/W with a multimeter. 2. Check whether power cables are short-circuited with a multimeter. 3. Check whether the motor resistance is symmetric with a multimeter.	1. If the power cable is short-circuited, replace the output cable. 2. If the motor resistance is not symmetrical, replace the motor.
			Auto-tuning is not performed in the vector control mode.	Check whether parameter auto-tuning has been performed. Set F1-37 to select different types of auto-tuning methods based on the motor type.	Set accurate motor parameters correctly and perform auto-tuning again.
			Output phase loss	1. Check whether cables are connected correctly. 2. When a contactor is connected to the output end, ensure that the contactor is connected correctly.	1. Connect the motor and encoder cables properly. 2. Use the contactor on the output end properly.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E002.1	Hardware overcur rent	This fault occurs when the transient current outputted exceeds 2.5 x 1.414 x rated current of the drive.	Current detection error	1. Check whether FF-03 (AC drive power) matches the AC drive nameplate. 2. Restart repeatedly to check whether the fault persists.	1. Set the parameters of the drive correctly. Ensure that the power value (FF-03) is consistent with that on the nameplate of the drive by changing the value of FF-01. Note: Parameters in group FF are manufacturer parameters. Incorrect modification may result in product exception. Contact Inovance for technical support. 2. If the AC drive power is set correctly and the fault persists, contact Inovance technical support.
			The acceleration/ deceleration time is set to an excessively high setpoint in V/f control mode.	Check whether the acceleration/deceleration time is appropriate. Increase the acceleration/ deceleration time parameters F0-17 and F0-18 to test whether the output current decreases.	1. Enable the overcurrent suppression function (F3-19 = 1). 2. Increase the acceleration/deceleration time properly (F0-17 and F0-18).
			The AC drive model is set improperly.	Check whether FF-03 (AC drive power) matches the AC drive nameplate.	Set the parameters of the drive correctly Ensure that the power value (FF-03) is consistent with that on the nameplate of the drive by changing the value of FF-01. Note: Parameters in group FF are manufacturer parameters. Incorrect modification may result in product exception. Contact Inovance for technical support.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E002.2	Software overcur rent	This fault occurs when the transient current outputted exceeds the overcurrent threshold defined by the software. Note: FF-18 defines the software overcurrent threshold. The default value 100% deactivate the function. The value 100% represents full-range current sampling (rated current of the drive x 2.2 x 1.414).	Output grounded	Check whether three-phase output grounding points are available. Detect the impedance to ground with a tramegger.	Replace the device that may cause the grounding problem.
			Phase-to-phase short circuit	1. Check whether short circuit occurs at the output terminal. 2. Check whether power cables are short-circuited. 3. Check whether the motor resistance is symmetric.	1. If the power cable is short-circuited, replace the output cable. 2. If the motor resistance is not symmetrical, replace the motor.
			Auto-tuning is not performed in the vector control mode.	1. Check whether motor auto-tuning is performed.	Set accurate motor parameters correctly and perform auto-tuning again.
			Output phase loss	1. Check whether cables are connected correctly. 2. When a contactor is connected to the output end, ensure that the contactor is connected correctly.	1. Connect the motor and encoder cables properly. 2. Use the contactor on the output end properly.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E002.2	Software overcur rent	This fault occurs when the transient current outputted exceeds the overcurrent threshold defined by the software. Note: FF-18 defines the software overcurrent threshold. The default value 100% deactivate the function. The value 100% represents full-range current sampling (rated current of the drive x 2.2 x 1.414).	Current detection error	1. Access group FF and check whether the AC drive power FF-03 is set correctly. 2. Restart repeatedly to check whether the fault persists.	If the AC drive power is set correctly and the fault persists, contact Inovance technical support.
			The acceleration/ deceleration time is set to an excessively high setpoint in V/f control mode.	Check whether the acceleration/deceleration time is appropriate. Increase the acceleration/ deceleration time parameters F0-17 and F0-18 to test whether the output current decreases.	1. Enable the overcurrent suppression function (F3-19 = 1). 2. Increase the acceleration/deceleration time properly (F0-17 and F0-18).
			The AC drive model is set improperly.	Check whether FF-03 (AC drive power) matches the AC drive nameplate.	Set the parameters of the drive correctly Ensure that the power value (FF-03) is consistent with that on the nameplate of the drive by changing the value of FF-01. Note: Parameters in group FF are manufacturer parameters. Incorrect modification may result in product exception. Contact Inovance for technical support.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E005.1	Bus overvolt age	The bus voltage is higher than the overvoltage threshold set by A5-09 (unit: V).	The motor decelerates and is in the generating state.	Check whether the motor is decelerating during overvoltage.	If there is no active load (gravity load or tension load), it is recommended to enable overvoltage suppression. Note: The V/f control overvoltage suppression parameters are F3-23/A3-23/BB-23/CB-23, and the vector control parameters are AB-25/B9-25/BE-25/CE-25/CE-25 (bit 1). The preceding parameters correspond to the first, second, third, and fourth motor parameter groups.
			The drive stops after a runway fault of the synchronous motor is reported.	Check whether the runaway fault occurs on the synchronous motor.	Set F9-67 and F9-68 to set a shorter overspeed protection time to prevent AC drive overvoltage after runaway fault occurs.
			The braking resistor model is incorrect.	1. Determine whether the braking resistor is active in the generating state. 2. When the braking resistor is active, check whether the bus voltage cannot be suppressed.	The power of the braking module cannot be lower than the power of the inverter. Select the braking resister model based on 0.8 x motor power for continuous load. Transient overload of 1.5 x motor power is supported.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E005.1	Bus overvolt age	The bus voltage is higher than the overvoltage threshold set by A5-09 (unit: V).	Phase loss occurs on the braking resistor	1. The braking resistor fails. 2. Determine whether the braking resistor is active in the generating state.	Ensure that the braking resistor is connected properly.
			Overshoot occurs upon speed arrival in vector control mode, and the motor changes to the generating state.	Connect the software tool and check whether the feedback speed overshoots through the oscilloscope.	If excessive overshoot occurs on the speed loop, configure a circular RFG and acceleration feedforward to improve the speed loop following performance.
			V/f oscillation	Check whether the output current oscillates.	1. Enable the oscillation suppression function (F3-12 = 1). 2. Optimize the oscillation suppression coefficient in V/f mode (F3-11).
			The AC drive model is set improperly.	Check whether the power of the drive (FF-03) matches that indicated on the nameplate of the drive.	Set the parameters of the drive correctly Ensure that the power value (FF-03) is consistent with that on the nameplate of the drive by changing the value of FF-01.
E008.1	Contactor acts frequently.	The relay closes for multiple times within a short period of time with power ON.	The soft-start circuit is abnormal, and the soft-start contactor acts frequently during operation.	1. Check whether the input grid voltage or power supply is between 342 VAC and 418 VAC. 2. Check that the input power supply does not power on or off repeatedly.	If the external power supply is normal, frequent soft start will lead to soft-start circuit overloaded. Contact the technical support.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E009.1	Undervoltage fault	The bus voltage is lower than the undervoltage threshold set by A5-06 (unit: V).	Instantaneous power failure	1. Check whether the input grid voltage or power supply is between 342 VAC and 418 VAC. 2. Check whether voltage dip occurs.	If there is no active load (gravity load, tension load), you can enable undervoltage suppression. Note: The undervoltage suppression parameters for V/f control is F9-59/B6-42/BC-57/CC-57. The undervoltage suppression parameters for vector control is AB-25/B9-25/BE-25/CE-25/CE-25 (bit 0). The preceding parameters correspond to the first, second, third, and fourth motor parameter groups.
			The input voltage of the AC drive is beyond the specified range.	Check whether the input grid voltage or power supply is within the normal range of 342 VAC to 418 VAC.	Adjust the voltage to a value within the normal range.
			Input phase loss occurs and the output power is excessive.	Check whether phase loss occurs on the input power supply.	Ensure that the input grid voltage is correct.
			The undervoltage threshold is excessively high.	Check whether A5-06 (undervoltage threshold) is set to an excessively high value. The default value is 350 V.	Lower A5-06 (undervoltage threshold) properly.
			The rectifier bridge, driver board, or control board is faulty.	1. Check whether the effective value of the DC bus voltage is about 1.414 x the effective value of the input voltage. 2. On the basis of Method 1, check whether the bus voltage of the AC drive is consistent with that detected by the multimeter.	1. If it is "no" in Method 1, the rectifier bridge may be faulty. In this case, replace the AC drive. 2. If it is "no" in Method 2, the driver board or control board may be faulty. In this case, replace the AC drive.
E009.3	Pre-drive timeout	The bus is not energized within 5s after the drive starts the motor in the undervoltage state.	Pre-charging is abnormal and the drive is started when bus undervoltage occurs.	Check whether the bus voltage is normal. Note: Check whether the bus voltage is about 1.414 x effective input voltage.	Start the drive after the bus voltage is stabilized. Check whether the main contactor/grid is normal if power-on is not possible for a long time.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E010.1	Drive overload	The drive is considered to be overloaded when the overload time is met based on the overload curve of the drive.	The load is too heavy or the motor is stalled.	1. Check whether the load (output current) is too heavy during normal operation. 2. When an overload fault occurs, check whether the motor is stalled (the motor does not rotate).	1. Reduce the load and perform testing again. 2. Eliminate the risk of motor stall and perform testing again. If the fault persists, contact Inovance technical support.
			The carrier frequency is excessively high.	Check whether F0-15 (Carrier frequency) is set to a value higher than the default value.	Reduce F0-15 (Carrier frequency).
			The bus voltage is low when the drive runs at high speed and heavy load.	Check whether the deviation between the bus voltage in heavy-load operation and that in the stop state exceeds 60 V.	1. Increase the power grid voltage. 2. Enable the overmodulation function (A5-05, voltage overmodulation coefficient).
			Long-term operation below 5 Hz leads to derating due to low frequency.	Check whether the motor runs below 5 Hz for a long time.	Do not let the motor run at low speed with heavy load for a long time or increase the power of the drive.
			Output grounded	Check whether three-phase output grounding points are available. Detect the impedance to ground with a tramegger.	Replace the device that may cause the grounding problem.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E010.1	Drive overload	The drive is considered to be overloaded when the overload time is met based on the overload curve of the drive.	Output phase loss	1. Check whether cables are connected correctly. 2. When a contactor is connected to the output end, ensure that the contactor is connected correctly.	1. Ensure that cables are connected properly. 2. Use the contactor on the output end properly.
			Motor parameters are incorrect.	Check whether motor parameters (F1-00 to F1-05) are set properly.	Set motor parameters according to the nameplate. Perform motor auto-tuning again.
			The motor is started when the motor rotates.	Check whether the motor is started during motor rotation.	Set F6-00/B6-00/BC-00/CC-00 (Start mode) to flying start. Note: The preceding parameters correspond to the first, second, third, and fourth motor parameter groups.
			The AC drive model is set improperly.	Check whether the power of the drive (FF-03) matches that indicated on the nameplate of the drive.	Set the parameters of the drive correctly Ensure that the power value (FF-03) is consistent with that on the nameplate of the drive by changing the value of FF-01.
			The power rating of the drive is excessively low.	Check whether the AC drive power is lower than the motor power.	Replace with a drive of a higher power rating.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E010.3	Drive pre-overload	Pre-overload is reported after the drive overload rate reaches 80%.	The load is too heavy or the motor is stalled.	1. Check whether the load (output current) is too heavy during normal operation. 2. When an overload fault occurs, check whether the motor is stalled (the motor does not rotate).	1. Reduce the load and perform testing again. 2. Eliminate the risk of motor stall and perform testing again. If the fault persists, contact Inovance technical support.
			The carrier frequency is excessively high.	Check whether F0-15 (Carrier frequency) is set to a value higher than the default value.	Reduce F0-15 (Carrier frequency).
			The bus voltage is low when the drive runs at high speed and heavy load.	Check whether the deviation between the bus voltage in heavy-load operation and that in the stop state exceeds 60 V.	1. Increase the power grid input voltage. 2. Enable the overmodulation function (A5-05, voltage overmodulation coefficient).
			Long-term operation below 5 Hz leads to derating due to low frequency.	Check whether the motor runs below 5 Hz for a long time.	Do not let the motor run at low speed with heavy load for a long time or increase the power of the drive.
			Output grounded	Check whether three-phase output grounding points are available. Detect the impedance to ground with a tramegger.	Replace the device that may cause the grounding problem.
			Output phase loss	1. Check whether cables are connected correctly. 2. When a contactor is connected to the output end, ensure that the contactor is connected correctly.	1. Ensure that cables are connected properly. 2. Use the contactor on the output end properly.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E010.3	Drive pre-overload	Pre-overload is reported after the drive overload rate reaches 80%.	Motor parameters are incorrect.	Check whether motor parameters (F1-00 to F1-05) are set properly.	Set motor parameters according to the nameplate. Perform motor auto-tuning again.
			The motor is started when the motor rotates.	Check whether the motor is started during rotation.	Set F6-00/B6-00/BC-00/CC-00 (Start mode) to flying start. Note: The preceding parameters correspond to the first, second, third, and fourth motor parameter groups.
			The AC drive model is set improperly.	Check whether the power of the drive (FF-03) matches that indicated on the nameplate of the drive.	Set the parameters of the drive correctly Ensure that the power value (FF-03) is consistent with that on the nameplate of the drive by changing the value of FF-01.
			The power rating of the drive is excessively low.	Check whether the AC drive power is lower than the motor power.	Replace with a drive of a higher power rating.
			Pre-overload is reported after the drive load rate reaches 80%.	Check whether the average output current in steady state is greater than 1.15 x rated current of the AC drive, and the duration reaches 80% of the design time of the AC drive overload curve.	Replace with a drive of a higher power rating.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E011.1	Motor overload	The motor is considered to be overloaded when the overload time is met based on the motor overload curve.	F9-01 (Motor overload protection gain) is set to an excessively low value.	Check whether F9-01 (Motor overload protection gain) is set to a value lower than 1.0. The default value is 1.0.	Set F9-01 (Motor overload protection gain) properly. It is recommended to set it to 1.0.
			The power rating of the motor is too low.	Check whether the average output current (U0-04) in steady state is greater than 1.15 x rated motor current, and the duration reaches the design time of the motor overload curve.	Replace with a motor of a higher power rating.
			Brake error	Check whether the brake can be applied normally.	Set the brake logic before operation correctly.
			The load is too heavy or the motor is stalled.	1. Check whether the load (output current) is too heavy during normal operation. 2. When an overload fault occurs, check whether the motor is stalled (the motor does not rotate).	1. Reduce the load and perform testing again. 2. Eliminate the risk of motor stall and perform testing again. If the fault persists, contact Inovance technical support.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E011.2/ L011.2	Motor pre-overload	After the motor overload rate reaches F9-02 (Motor overload pre-alarm coefficient, 80% by default), pre-overload occurs.	F9-01 (Motor overload protection gain) is set to an excessively low value.	Check whether F9-01 (Motor overload protection gain) is set to a value lower than 1.0. The default value is 1.0.	Set F9-01 (Motor overload protection gain) properly. It is recommended to set it to 1.0.
			The power rating of the motor is too low.	Check whether the average output current (U0-04) in steady state is greater than 1.15 x rated motor current, and the duration reaches the design time of the motor overload curve.	Replace with a motor of a higher power rating.
			Brake error	Check whether the brake can be applied normally.	Set the brake logic before operation correctly.
			The load is too heavy or the motor is stalled.	1. Check whether the load (output current) is too heavy during normal operation. 2. When an overload fault occurs, check whether the motor is stalled (the motor does not rotate).	1. Reduce the load and perform testing again. 2. Eliminate the risk of motor stall and perform testing again. If the fault persists, contact Inovance technical support.
			The pre-overload coefficient (F9-02) is set improperly.	The pre-overload coefficient (F9-02) is to an excessively low value. The default value is 80%.	Increase the motor pre-overload coefficient F9-02. By default, an alarm will be reported upon motor pre-overload and the alarm does not need to be handled.
E012.1/ L012.1	Input phase loss	If the input phase loss signal is active, the input phase loss occurs.	The three-phase input power supply is abnormal.	Check whether the input grid voltage or power supply is between 342 VAC and 418 VAC.	Check and eliminate faults in peripheral circuits.
			The three-phase power grid is unbalanced.	Use a voltage detection device to check whether the three-phase grid is unbalanced.	Figure the cause for unbalanced grid voltage or perform derating during use.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E013.1	Phase U output loss	The average value of three-phase output current is detected when the operating frequency is higher than 0.8 Hz. If the ratio of the max. value to the min. value is higher than 10 and phase U is the min. value, phase loss occurs on phase U.	Motor fault	Check whether motor phase U is disconnected.	Replace the motor.
			The cable connecting the drive and the motor is faulty.	Check the drain wires that connect phase U of the drive to the motor are proper.	Eliminate the external fault.
			The three-phase outputs of the AC drive are unbalanced during motor running.	Check whether the effective values of the three-phase output current of the AC drive are consistent.	Ensure the motor winding is correct or replace the motor.
			The drive board or the IGBT module is abnormal.	If the drive output phase loss persists, the driver board and IGBT module are abnormal.	If yes, replace the drive.
E013.2	Phase V output loss	The average value of three-output current is detected when the operating frequency is higher than 0.8 Hz. If the ratio of the max. value to the min. value is higher than 10 and phase V is the min. value, phase loss occurs on phase V.	Motor fault	Check whether motor phase V is disconnected.	Replace the motor.
			The cable connecting the drive and the motor is faulty.	Check the drain wires that connect phase U of the drive to the motor are proper.	Eliminate the external fault.
			The three-phase outputs of the AC drive are unbalanced during motor running.	Check whether the effective values of the three-phase output current of the AC drive are consistent.	Ensure the motor winding is correct or replace the motor.
			The drive board or the IGBT module is abnormal.	If the drive output phase loss persists, the driver board and IGBT module are abnormal.	If yes, replace the drive.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E013.3	The output phase loss occurs on phase W.	The average value of three-output current is detected when the operating frequency is higher than 0.8 Hz. If the ratio of the max. value to the min. value is higher than 10 and phase W is the min. value, phase loss occurs on phase W.	Motor fault	Check whether motor phase W is disconnected.	Replace the motor.
			The cable connecting the drive and the motor is faulty.	Check the drain wires that connect phase U of the drive to the motor are proper.	Eliminate the external fault.
			The three-phase outputs of the AC drive are unbalanced during motor running.	Check whether the effective values of the three-phase output current of the AC drive are consistent.	Ensure the motor winding is correct or replace the motor.
			The drive board or the IGBT module is abnormal.	If the drive output phase loss persists, the driver board and IGBT module are abnormal.	If yes, replace the drive.
E014.1	Drive overtem perature	The heatsink temperature exceeds the overtemperature threshold, leading to overtemperature fault.	The ambient temperature is excessively high.	1. Check whether the ambient temperature exceeds 40℃. 2. Check whether the drive is derated by 1.5% for every additional 1℃ in the temperature range from 40℃ to 50℃.	1. Lower the ambient temperature to a value below 40℃. 2. Derate the drive in the temperature range from 40℃ to 50℃.
			The air duct is blocked.	-	Clean the air duct.
			The fan is damaged.	Check whether the fan stops running.	Replace the fan.
			The thermistor is damaged.	Stop the drive for more than 1h and check whether the temperature rises or does not fall.	Replace the thermistor.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E014.2	Pre-overtemperature of the drive	The pre-overtemperature point is the overtemperature point minus BF-14. An alarm is reported when the module temperature exceeds the pre-overtemperature point.	The ambient temperature is excessively high.	1. Check whether the ambient temperature exceeds 40℃. 2. Check whether the drive is derated by 1.5% for every additional 1℃ in the temperature range from 40℃ to 50℃.	1. Lower the ambient temperature to a value below 40℃. 2. Derate the drive in the temperature range from 40℃ to 50℃.
			The air duct is blocked.	-	Clean the air duct.
			The fan is damaged.	Check whether the fan stops.	Replace the fan.
			The thermistor is damaged.	Stop the drive for more than 1h and check whether the temperature rises or does not fall.	Replace the thermistor.
			The module temperature exceeds the overtemperature threshold.	Check whether the value of BF-14 is set to an excessively high value (default: 5℃).	1. Lower the ambient temperature. 2. Reduce the pre-overtemperature margin (BF-14).
E015.1	External fault 1	The DI terminal should be normally open, but it is detected to be closed.	Corresponding DI terminal closed	Check the parameter of the DI terminal (group F4) to see which DI is assigned with function 11, and check whether the corresponding physical DI is closed.	Eliminate external faults and ensure that restart and reset are allowed under the mechanical condition.
E015.2	External fault 2	The DI terminal should be normally closed, but it is detected to be open.	Corresponding DI terminal disconnected	Check the parameter of the DI terminal (group F4) to see which DI is set to function 33, and check whether the corresponding physical DI is disconnected.	Eliminate external faults and ensure that restart and reset are allowed under the mechanical condition.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E017.1/ L017.1	The buffer contactor is faulty.	The pre-charge contactor is considered to be faulty when abnormal signals are detected continuously for 1s based on hardware contactor exception signal detection.	The driver board and power supply are faulty.	Check whether the input grid voltage is normal. The input voltage of the three-phase 380 V model ranges from 342 VAC to 418 VAC. The input voltage of the three-phase 220 V model ranges from 198 VAC to 235.4 VAC.	If the mains voltage is normal and the fault persists, replace the drive.
			Contactor error	-	Replace the contactor.
			The surge protection board is abnormal.	-	Replace the surge protection board.
E018.1	Current detection circuit fault	Zero drift is detected only in the undervoltage and stop state. If zero drift detection value is greater than 10% of the rated current, the current sampling is abnormal.	The Hall device is abnormal.	In the stop state, check the three-phase output UVW current and check whether the current fluctuation exceeds 10% of the rated current.	Replace the Hall device or the AC drive.
			The synchronous motor is rotating at a high speed, and the drive is in the stopped state.	Check whether the following conditions exist simultaneously: ① The synchronous motor rotates at high speed. ② The drive has stopped.	Bit 8 (Zero drift detection) of BF-07 is disabled.
E019.1	Motor parameter auto-tuning times out.	The auto-tuning process does not end after 300s, leading to auto-tuning timeout fault.	1. Motor parameters and the drive model are set incorrectly. 2. Output phase loss.	1. Check whether the motor parameters (F1-00 to F1-05) and AC drive model parameter (FF-01) are consistent with the nameplate. 2. Check whether the output wiring of the motor is normal.	1. Set the motor parameters (F1-00 to F1-05) and the AC drive model parameter (FF-01) correctly according to the motor nameplate and AC drive nameplate. 2. Connect motor cables properly.
E019.2	Motor parameter auto-tuning is interrupted.	The parameter auto-tuning process is interrupted before it is completed.	Check whether a stop command is sent during auto-tuning, leading to auto-tuning interruption.	Check whether the auto-tuning process has been completed.	Perform auto-tuning on all motor parameters again. Note: Do not send a stop command before the auto-tuning process is done. The drive automatically changes to the stop state after auto-tuning is done.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E019.3	Overcurrent during auto-tuning	The detected current exceeds the overcurrent threshold.	The current exceeds the overcurrent threshold during auto-tuning.	Check whether the motor parameters (F1-00 to F1-05) and AC drive model parameter (FF-01) are consistent with the nameplate.	Set the motor parameters (F1-00 to F1-05) and the AC drive model parameter (FF-01) correctly according to the motor nameplate and AC drive nameplate.
E019.4	Back EMF auto-tuning error	If the back EMF is lower than 0.2 x rated voltage or higher than 1.2 x rated voltage, the back EMF auto-tuning is abnormal.	Back EMF auto-tuning error	1. Check whether the motor parameters (F1-00 to F1-05) and AC drive model parameter (FF-01) are consistent with the nameplate. 2. Check whether oscillation occurs during parameter auto-tuning.	1. Set the motor parameters (F1-00 to F1-05) and the AC drive model parameter (FF-01) correctly according to the motor nameplate and AC drive nameplate. 2. Adjust AA-02 (Oscillation suppression) by the step value of 0.5. The default value is 3.2.
E019.5	Incorrect motor type	Check whether the tuned motor type matches the actual motor type. If not, the fault is reported.	The synchronous motor and asynchronous motor types are set improperly.	Check whether the motor type defined by F1-00 is consistent with the type of the motor in use.	Set the motor type correctly.
E019.6	Current sampling phase gain deviation auto-tuning error	The detected current sampling gain deviation between phases U and V or phases V and W is higher than 5%.	Motor not connected or motor error	1. Check whether the motor is connected properly. 2. Use a multimeter to check whether the motor is short-circuited and the resistance of the three-phase winding is unbalanced.	1. Connect motor cables properly. 2. Replace the motor.
E019.7	Auto-tuned no-load current exceeds the limit.	This fault is reported when the no-load current is excessively high or low compared to the rated current.	The no-load current for motor auto-tuning is out of range.	Check whether motor parameters (F1-00 to F1-05) are set properly.	Set motor parameters and check model parameters according to the motor nameplate.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E021.1	Uninter rupted operation on the EEPROM timeout	The continuous EEPROM operation time exceeds the threshold defined internally.	EEPROM read/ write errors occur.	Check whether parameters are operated through communication, and then check whether the RAM address or EEPROM address is operated. Note: For mapping of RAM addresses of each group of parameters, see the section on parameter communication addresses in the user guide.	1. If parameters are operated frequently through communication, operate on the RAM address of the parameter. 2. If the EEPROM chip is damaged. Contact Inovance to replace the control board.
E021.2	EEPROM read error	The time for continuous EEPROM read operations exceeds the threshold defined internally.	EEPROM read/ write errors occur.	Check whether parameters are operated through communication, and then check whether the RAM address or EEPROM address is operated. Note: For mapping of RAM addresses of each group of parameters, see the section on parameter communication addresses in the user guide.	1. When reading the EEPROM address of the parameter through communication, do not perform the read operation frequently. 2. If the EEPROM chip is damaged. Contact Inovance to replace the control board.
E021.3	EEPROM write error	The time for continuous EEPROM write operations exceeds the threshold defined internally.	EEPROM read/ write errors occur.	Check whether parameters are operated through communication, and then check whether the RAM address or EEPROM address is operated. Note: For mapping of RAM addresses of each group of parameters, see the section on parameter communication addresses in the user guide.	1. When writing the EEPROM address of the parameter through communication, do not perform the write operation frequently. 2. If the EEPROM chip is damaged. Contact Inovance to replace the control board.
E021.4	The number of write-read operations of the EEPROM exceeds the setpoint within 1s.	The number of write-read operations on the EEPROM within 1s exceeds the value of F8-58.	EEPROM read/ write errors occur.	Check whether parameters are operated through communication, and then check whether the RAM address or EEPROM address is operated. Note: For mapping of RAM addresses of each group of parameters, see the section on parameter communication addresses in the user guide.	1. Do not operate the EEPROM address of the parameter for a short time. If necessary, operate on the RAM address of the parameter. 2. If the EEPROM chip is damaged. Contact Inovance to replace the control board.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E021.5/ L021.5	Internal cache of EEPROM exceeding the limit	EEPROM internal cache exceeds the cache queue length defined internally.	Internal cache of EEPROM exceeding the limit	If parameters are written through communication, check whether the write operation is performed frequently.	Contact the technical support to check whether parameters operated through communication can be saved to EEPROM.
E023.1	Drive output short-circuited to ground	The drive output is short-circuited to ground when the current between the output phase and ground exceeds the designed threshold.	The motor is short-circuited to ground.	Check whether each adapter connector is normal.	Check whether each adapter is normal, and measure the impedance to ground with a megger. Replace the cable or motor if the problem persists. Note: Do not run the motor before the short circuit fault is rectified.
			IGBT short circuit is reported during self-check.	Perform static self-check repeatedly to check whether the fault persists.	If the fault persists, replace the drive. Note: Do not run the motor before the short circuit fault is rectified.
E025.1	Rectifier fault	The rectifier module sends a PL signal to the drive control board for a continuous period of time.	The input grid voltage is abnormal.	Check whether the grid voltage is normal.	If the power supply is provided by customers, check whether the power consumption by local grid system is too large.
E026.1	Cumula tive operating time arrival	This fault is reported when the cumulative operating time is longer than or equal to F8-75 + F8-17 x 3600s.	The cumulative operating time reaches the set value.	Check whether this condition is met: F7-09 + F7-28 x 3600 ≥ F8-75 + F8-17 x 3600.	Clear the record by initializing parameters.
E027.1	User-defined fault 1	This fault is reported when H2-04 is active.	The signal of a user-defined fault is input through the multi-functional DI, virtual I/O, or connector function.	Check whether the value of H2-04 is active.	1. Set H2-04 properly. 2. Eliminate external faults and ensure that restart and reset are allowed under the mechanical condition.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E027.2	User-defined fault 2	This fault is reported when H2-05 is active.	The signal of a user-defined fault is input through the multi-functional DI, virtual I/O, or connector function.	Check whether the value of H2-05 is active.	1. Set H2-05 properly. 2. Eliminate external faults and ensure that restart and reset are allowed under the mechanical condition.
E027.3	User-defined fault 3	This fault is reported when H2-06 is active.	The signal of a user-defined fault is input through the multi-functional DI, virtual I/O, or connector function.	Check whether the value of H2-06 is active.	1. Set H2-06 properly. 2. Eliminate external faults and ensure that restart and reset are allowed under the mechanical condition.
E027.4	User-defined fault 4	This fault is reported when H2-07 is active.	The signal of a user-defined fault is input through the multi-functional DI, virtual I/O, or connector function.	Check whether the value of H2-07 is active.	1. Set H2-07 properly. 2. Eliminate external faults and ensure that restart and reset are allowed under the mechanical condition.
E028.1	User-defined alarm 1	This alarm is reported when H2-08 is active.	The signal of a user-defined fault is input through the multi-functional DI, virtual I/O, or connector function.	Check whether the value of H2-08 is active.	Check whether the value of H2-08 is active. You can cancel this fault by setting H2-08 to 0.
E028.2	User-defined alarm 2	This alarm is reported when H2-09 is active.	The signal of a user-defined fault is input through the multi-functional DI, virtual I/O, or connector function.	Check whether the value of H2-09 is active.	Check whether the value of H2-08 is active. You can cancel this fault by setting H2-09 to 0.
E028.3	User-defined alarm 3	This alarm is reported when H2-10 is active.	The signal of a user-defined fault is input through the multi-functional DI, virtual I/O, or connector function.	Check whether the value of H2-10 is active.	Check whether the value of H2-08 is active. You can cancel this fault by setting H2-10 to 0.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E028.4	User-defined alarm 4	This alarm is reported when H2-11 is active.	The signal of a user-defined fault is input through the multi-functional DI, virtual I/O, or connector function.	Check whether the value of H2-11 is active.	Check whether the value of H2-08 is active. You can cancel this fault by setting H2-11 to 0.
E029.1	Cumulative power-on time arrival	This fault is reported when the cumulative power-on time is greater than or equal to F8-74 + F8-16 x 3600s.	The cumulative power-on time reaches the set value.	Check whether this condition is met: F7-09 + F7-29 x 3600 ≥ F8-74 + F8-16 x 3600.	Clear the record by parameter initialization (FP-01).
E030.1	Load loss	Asynchronous motor: When the output current is lower than 25% of the no-load current and the synchronous frequency is lower than 90% of the rated frequency in the running state, the fault is triggered. Synchronous motor: This fault is triggered when the output current is lower than the load loss current threshold (10% by default) and the reference current is greater than the rated current or the output voltage is greater than the detection threshold (detection threshold is 50% x (back EMF + +0.25 x rated voltage).	Phase loss occurs on the three output phases of the drive.	Check whether the motor cable is disconnected.	Check whether the wiring between the drive and the motor is disconnected. If the wiring is normal, contact the manufacturer.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E031.1	PID feedback loss during operation of PID	If the PID feedback keeps lower than the value of FA-26 (feedback loss detection lower limit) after the time defined by FA-27 (Detection time of PID feedback loss) elapses, the AC drive reports this fault.	The PID feedback is lower than the value of FA-26.	Monitor the feedback channel through the software to check whether the values in the feedback channel is correct.	1. Check the PID feedback signal and analyze the system feedback error. 2. Set FA-26 properly.
E031.2/ L031.2	DI terminal disconnected	If the DI assigned with function 86 is active, the DI disconnection fault is reported.	The terminal assigned with function 86 is active.	Check whether the swing rod touches the limit of the DI terminal or the limit switch of the sensor.	Check whether the hardware of the DI assigned with function 86 is active.
E032.1/ L032.1	Parameter reset is abnormal.	This fault is reported when an abnormal interruption occurs during parameter initialization through FP-01.	Parameter reset is abnormal.	Check whether this fault is reported every time the parameter initialization is performed through FP-01. If yes, the control board is damaged.	Contact the manufacturer to replace the control board.
E032.2/ L032.2	Parameter backup error	This fault is reported when parameter backup fails.	Parameter backup error	Check whether this fault is reported every time parameter backup is performed. If yes, the control board is damaged.	Contact the manufacturer to replace the control board.
E032.3/ L032.3	A parameter power-off error occurs.	This fault is reported when parameters fail to be saved to EEPROM with retention enabled upon a power failure.	A parameter power-off error occurs.	Check whether this fault is reported every time the drive is powered off. If yes, the control board is damaged.	Contact the manufacturer to replace the control board.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E032.4/ L032.4	Parameter setting error	1. The "multi-point curve" parameter in the free module is set incorrectly. 2. The user load curve parameter in the auxiliary function is set incorrectly.	Parameters are set improperly.	Check whether L7-60 and L7-61 are set to non-zero values.	When L7-60 ≠ 0, check whether the multi-point curve parameters in group C7 are set properly. When L7-61 ≠ 0, check whether the curve parameters (F8-82 to F8-96) are set properly.
E032.6/ L032.6	Parameter check error upon power-on	This fault is reported when the parameter value saved by EEPROM is not within the corresponding parameter attribute limit (that is, the value saved by EEPROM is incorrect).	Parameter check error upon power-on	Restore parameters to default and power off and on the drive again to check whether the fault can be cleared.	If the fault persists, contact Inovance technical support.
E032.7/ L032.7	Parameter macro setting error	If two parameter macros are activated at the same time, this fault will be reported.	A parameter macro of the drive has already been activated.	Check whether the AC drive has an active parameter macro through FP-18.	Restore parameters to default and reset the new parameter macro through FP-17.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E040.1	Pulse-by-pulse current limit fault	The pulse-by-pulse current limit fault is applied only in the V/f control mode of the asynchronous motor. After the current keeps exceeding the pulse-by-pulse current limit threshold for 500 ms, the fault is reported.	The load is excessive, or the motor is stalled.	1. Check whether the load (output current) is too large during normal operation. 2. When an overload fault occurs, the motor is stalled (the motor does not rotate).	Reduce the load and check motor and mechanical conditions.
			Output ground fault	Check whether there is output grounding point and check the impedance to ground with a tramegger.	Remove the output grounding point.
			Motor inter-turn short circuit	Check whether the resistance on the output ends are symmetric with a multimeter.	Perform self-check to check whether inter-turn short circuit occurs. If yes, replace the motor.
			Motor nameplate parameters are set improperly.	Check whether motor parameters are consistent with those indicated on the nameplate.	Set motor parameters correctly.
			Output phase loss	Check for correct cable connection.	Check whether output phase loss occurs.
			V/f oscillation	Check whether oscillation occurs on the three-phase output current of the drive.	Set F3-12 to enable V/f oscillation suppression. If the oscillation persists, decrease the oscillation suppression coefficient of F3-11 by the step value of 5.
			The power rating of the drive is excessively low.	Check whether the AC drive power is lower than the motor power.	Replace with a drive of a higher power rating.
E042.1/ L042.1	Speed deviation excessively high fault	When the deviation between the actual motor speed and the set frequency is higher than F9-69 (Excessive speed deviation detection value) and such status lasts for the time longer than F9-70, this fault will be reported.	Parameter auto-tuning is not performed.	Check whether parameter auto-tuning is performed.	Set motor parameters correctly and perform auto-tuning on motor parameters.
			The load is excessive.	Check whether the output current is always equal to the torque upper limit set by F2-10.	Ensure the load is in the proper level.
			Speed deviation detection parameters F9-69 and F9-70 are set improperly.	Speed deviation detection parameters F9-69 and F9-70 are set to excessively low values.	Set detection parameters based on actual conditions.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E043.0	SVC divergence fault	The SVC internal algorithm determines that there is a deviation between the estimated speed and the actual speed.	Motor auto-tuning is not performed or motor auto-tuned motor parameters are incorrect.	Check whether parameter auto-tuning is performed.	Set motor parameters correctly and perform auto-tuning on motor parameters.
E043.1/ L043.1	Motor overspeed	If the deviation between the estimated frequency and the actual output frequency is greater than 15% of the rated frequency, and the judgment time is longer than the threshold, the motor overspeed fault is reported.	Parameter auto-tuning is not performed.	Check whether parameter auto-tuning is performed.	Set motor parameters correctly and perform auto-tuning on motor parameters.
			The motor overspeed detection parameters F9-67 and F9-68 are set improperly.	Speed deviation detection parameters F9-69 and F9-70 are set to excessively low values.	Set detection parameters based on actual conditions.
E045.1	Motor overtem perature fault	The motor temperature transmitted through the AI is higher than the set motor temperature alarm threshold.	The cable of the temperature sensor becomes loose.	Check the wiring of the temperature sensor.	Re-connect the cables.
			Motor overtempera ture occurs.	Check whether the value of U0-90 is higher than F9-76. Check whether the value of U0-34 is higher than F9-57.	Decrease the carrier frequency or take other measures to cool down the motor.
			The value of F9-57 or F9-76 is excessively low.	Check the values of F9-57 or F9-76.	Increase the motor overtemperature protection threshold F9-57 or F9-76 (90℃ to 100℃ for regular motors).
E045.2/ L045.2	Motor pre-overtem perature	The motor temperature transmitted through AI is higher than the pre-alarm threshold of the motor temperature.	The cable of the temperature sensor becomes loose.	Check the wiring of the temperature sensor.	Re-connect the cables.
			Motor overtempera ture occurs.	Check whether the value of U0-90 is higher than F9-77. Check whether the value of U0-34 is higher than F9-58.	Decrease the carrier frequency or take other measures to cool down the motor.
			The value of F9-58 or F9-77 is excessively low.	Check the values of F9-58 or F9-77.	Increase the motor pre-overtemperature threshold F9-58 or F9-77.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E047.2	STO triggering inconsis tency fault	This fault is reported when STO1 or STO2 has been disconnected through hardware detection.	The STO1 or STO2 signal on the control board terminal is disconnected.	Check the wiring of STO1 and STO2.	Restore the 24 V power supply of STO1 or STO2.
E047.3	STO power supply fault	This fault is reported when the supply voltage of the STO circuit does not exceed a certain threshold within the specified voltage range.	Undervoltage or overvoltage occurs on the STO circuit.	Restore the 24 V power supply of STO1 and STO2 and power off and on the drive again.	If the fault is constantly reported and reset cannot be performed, the STO module is damaged. Ask for technical support.
E047.4	The STO circuit input subsystem is faulty.	This fault is reported when the STO circuit hardware pins are abnormal.	The STO circuit input subsystem is abnormal.	Restore the 24 V power supply of STO1 and STO2 and power off and on the drive again.	If the fault is constantly reported and reset cannot be performed, the STO module is damaged. Ask for technical support.
E047.5	STO BUFFER chip fault	This fault is reported when the STO circuit hardware pins are abnormal.	The STO output block chip is abnormal.	Restore the 24 V power supply of STO1 and STO2 and power off and on the drive again.	If the fault is constantly reported and reset cannot be performed, the STO module is damaged. Ask for technical support.
E051.1	Magnetic pole position auto-tuning error	An error is detected during magnetic pole position auto-tuning.	Magnetic pole position auto-tuning error	Check whether motor parameters (F1-00 to F1-05) are set properly.	Set the motor parameters correctly according to the motor nameplate.
E055.1/ L055.1	Slave fault in master-slave control	When a fault occurs on the slave, the fault signal is transmitted to the master through the CAN bus. The master reports the fault.	The slave is faulty.	Rectify the fault according to the slave fault code.	Rectify the fault according to the slave fault code.
E056.2	VI self-check: IGBT U+ short circuit	The IGBT has detected an abnormal VCE signal.	The IGBT has detected an abnormal VCE signal.	Power the AC drive off and on again to check if the fault persists.	Contact Inovance for technical support or replace the drive.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E056.3	VI self-check: IGBT U- short circuit	The IGBT has detected an abnormal VCE signal.	The IGBT has detected an abnormal VCE signal.	Power the AC drive off and on again to check if the fault persists.	Contact Inovance for technical support or replace the drive.
E056.4	VI self-check: IGBT V+ short circuit	The IGBT has detected an abnormal VCE signal.	The IGBT has detected an abnormal VCE signal.	Power the AC drive off and on again to check if the fault persists.	Contact Inovance for technical support or replace the drive.
E056.5	VI self-check: IGBT V- short circuit	The IGBT has detected an abnormal VCE signal.	The IGBT has detected an abnormal VCE signal.	Power the AC drive off and on again to check if the fault persists.	Contact Inovance for technical support or replace the drive.
E056.9	Auto-inspection on system output phase loss	Motor output phase loss is detected.	Motor output phase loss occurs.	Check whether the cables of the output three phases are connected properly.	Ensure the motor and output contactor are connected properly.
E057.1	The IGBT in the upper arm of phase U or in the lower arm of phase V cannot be conduct ed.	Open circuit occurs on the IGBT in the upper arm of phase U or in the lower arm of phase V.	Open circuit occurs on the IGBT in the upper arm of phase U or in the lower arm of phase V.	-	Contact Inovance for technical support.
E057.2	The IGBT in the lower arm of phase U or in the upper arm of phase V cannot be conduct ed.	Open circuit occurs on the IGBT in the lower arm of phase U or in the upper arm of phase V.	Open circuit occurs on the IGBT in the lower arm of phase U or in the upper arm of phase V.	-	Contact Inovance for technical support.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E057.3	The IGBT in the upper arm of phase V or in the lower arm of phase W cannot be conduct ed.	Open circuit occurs on the IGBT in the upper arm of phase V or in the lower arm of phase W.	Open circuit occurs on the IGBT in the upper arm of phase V or in the lower arm of phase W.	-	Contact Inovance for technical support.
E057.4	The IGBT in the lower arm of phase V or in the upper arm of phase W cannot be conduct ed.	Open circuit occurs on the IGBT in the lower arm of phase V or in the upper arm of phase W.	Open circuit occurs on the IGBT in the lower arm of phase V or in the upper arm of phase W.	-	Contact Inovance for technical support.
E057.5	The IGBT in the upper arm of phase W or in the lower arm of phase U cannot be conduct ed.	Open circuit occurs on the IGBT in the upper arm of phase W or in the lower arm of phase U.	Open circuit occurs on the IGBT in the upper arm of phase W or in the lower arm of phase U.	-	Contact Inovance for technical support.
E057.6	The IGBT in the lower arm of phase W or in the upper arm of phase U cannot be conduct ed.	Open circuit occurs on the IGBT in the lower arm of phase W or in the upper arm of phase U.	Open circuit occurs on the IGBT in the lower arm of phase W or in the upper arm of phase U.	-	Contact Inovance for technical support.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E057.7	A short circuit between output phase U and phase V has been detected.	A short circuit between output phase U and phase V has been detected.	Output phase-to-phase short circuit occurs.	Check whether short circuit occurs between the output phases when the device is powered off through the resistance range of the multimeter.	Replace the cable or motor.
E057.8	A short circuit between output phase W and phase V has been detected.	A short circuit between output phase W and phase V has been detected.	Output phase-to-phase short circuit occurs.	Check whether short circuit occurs between the output phases when the device is powered off through the resistance range of the multimeter.	Replace the cable or motor.
E057.9	A short circuit between output phase W and phase U has been detected.	A short circuit between output phase W and phase U has been detected.	Output phase-to-phase short circuit occurs.	Check whether short circuit occurs between the output phases when the device is powered off through the resistance range of the multimeter.	Replace the cable or motor.
E058.1	Module phase U current sensor installed reversely	Phase U current is reversed.	The current sampling sensor is faulty.	The device is powered on properly. The input voltage of the three-phase 380 V model ranges from 342 VAC to 418 VAC. The input voltage of the three-phase 220 V model ranges from 198 VAC to 235.4 VAC.	Contact Inovance for technical support.
E058.2	Module phase V current sensor installed reversely	Phase V current is reversed.	The current sampling sensor is faulty.	The device is powered on properly. The input voltage of the three-phase 380 V model ranges from 342 VAC to 418 VAC. The input voltage of the three-phase 220 V model ranges from 198 VAC to 235.4 VAC.	Contact Inovance for technical support.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E058.3	Module phase W current sensor installed reversely	Phase W current is reversed.	The current sampling sensor is faulty.	The device is powered on properly. The input voltage of the three-phase 380 V model ranges from 342 VAC to 418 VAC. The input voltage of the three-phase 220 V model ranges from 198 VAC to 235.4 VAC.	Contact Inovance for technical support.
E058.4	Module phase U/V sensors inserted improperly	The phase U/V current sampling is abnormal.	The current sampling sensor is faulty.	The device is powered on properly. The input voltage of the three-phase 380 V model ranges from 342 VAC to 418 VAC. The input voltage of the three-phase 220 V model ranges from 198 VAC to 235.4 VAC.	Contact Inovance for technical support.
E058.5	Module phase V/W sensors inserted improperly	The phase V/W current sampling is abnormal.	The current sampling sensor is faulty.	The device is powered on properly. The input voltage of the three-phase 380 V model ranges from 342 VAC to 418 VAC. The input voltage of the three-phase 220 V model ranges from 198 VAC to 235.4 VAC.	Contact Inovance for technical support.
E058.6	Phase W/U sensor inserted improperly	The phase W/U current sampling is abnormal.	The current sampling sensor is faulty.	The device is powered on properly. The input voltage of the three-phase 380 V model ranges from 342 VAC to 418 VAC. The input voltage of the three-phase 220 V model ranges from 198 VAC to 235.4 VAC.	Contact Inovance for technical support.
E059.1	Phase V/W unbalance	The phase V/U output is unbalanced with the other phase.	The phase U/V output is unbalanced with the other phase.	Check whether phase-to-phase short circuit or motor winding-to-winding short circuit occurs.	Replace the motor.
E059.2	Phase U/W unbalance	The phase V/W output is unbalanced with the other phase.	The phase V/W output is unbalanced with the other phase.	Check whether phase-to-phase short circuit or motor winding-to-winding short circuit occurs.	Replace the motor.
E059.3	Phase U/V unbalance	The phase U/W output is unbalanced with the other phase.	The phase U/W output is unbalanced with the other phase.	Check whether phase-to-phase short circuit or motor winding-to-winding short circuit occurs.	Replace the motor.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E061.1	Braking transistor overload	Determine whether the braking transistor is overloaded based on the overload curve.	The power of the braking resistor is too high (resistance too low).	Check whether the braking resistor model is correct. For details, see the section on the braking resistor in the user guide.	Use a braking resistor of higher resistance.
E062.2	Braking transistor shoot through	This fault is reported when the brake transistor is turned off and the braking transistor current exceeds 0.375 x rated current of the braking transistor for 4s consecutively.	Braking module error	Check the bus voltage through the software tool to determine whether the braking voltage is active.	Contact the technical support.
			The braking resistor is short-circuited.	Use a multimeter to measure the resistance of the braking resistor and check whether it is consistent with the nominal value of the braking resistor. If the deviation is too large, the braking resistor is damaged.	Replace the braking resistor.
E062.3	Braking transistor overcur rent	If the braking transistor current is detected to exceed twice its maximum current multiple times, braking transistor overcurrent occurs.	The braking resistor is connected improperly.	Check whether the braking resistor is connected properly and whether the braking unit operates properly.	Connect the braking resistor properly.
E063.1	External alarm 1	This fault is reported when the value set by H2-02 is active.	The external alarm signal input through the connector is active.	Check the connector setting in H2-02.	Check the connector setting in H2-02 or set H2-02 to 0 to cancel this alarm.
E063.2	External alarm 2	This fault is reported when the value set by H2-03 is active.	The external alarm signal input through the connector is active.	Check the connector setting in H2-03.	Check the connector setting in H2-03 or set H2-03 to 1 to cancel this alarm.
E064.1/ L064.1	Water-cooling fault	This fault is reported when the terminal assigned with DI function 66 is active.	The water-cooling system control unit is faulty (for T13 model).	Check whether the DI assigned with function 66 is active.	1. Check that the water-cooling system is normal. 2. Perform a reset operation. 3. Replace the control unit.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E066.1/ L066.1	Low-liquid fault	This fault is reported when the terminal assigned with DI function 67 is active.	The tank liquid level is excessively low (for T13 model).	Check whether the DI assigned with function 67 is active.	Add the coolant.
E067.1	Capacitor leakage occurs.	This fault is reported when the bus voltage fluctuates beyond the set threshold for a certain period of time.	The bus voltage fluctuates violently due to bus capacitance leakage.	Check whether the capacitor is damaged.	Replace the capacitor.
E084.1	Brake cannot be released.	The brake release command is generated, but there is no feedback signal after the set time elapses.	1. Check signal feedback point or feedback source wiring, or positive and negative logic. 2. Check whether the set time is proper.	1. Check signal feedback point or feedback source wiring, or positive and negative logic. 2. Check whether the set time is proper.	1. The feedback contact of the brake is damaged. Replace the sensor. 2. Set A7-04 to a higher value.
E084.2	Brake cannot be applied	The brake apply command is generated, but there is no feedback signal after the set time elapses.	1. Check signal feedback point or feedback source wiring, or positive and negative logic. 2. Check whether the set time is proper.	1. Check signal feedback point or feedback source wiring, or positive and negative logic. 2. Check whether the set time is proper.	1. The feedback contact of the brake is damaged. Replace the sensor. 2. Set A7-04 to a higher value.
E084.6	Brake and dynamic parameter auto-tuning enabled simultaneously	The brake function and dynamic parameter auto-tuning function are enabled simultaneously.	The brake function and dynamic parameter auto-tuning function are enabled simultaneously.	Check whether the brake function is enabled through A7-00.	1. If the brake function is enabled through A7-00, select the static parameter auto-tuning mode. 2. In special cases, if the brake function and dynamic parameter auto-tuning function need to be enabled simultaneously, set bit0 of A7-22 to 1.
E085.4	Sequence fault	-	Software sequence calling errors occur.	Power off and on the drive again to check whether the fault can be cleared.	If yes, replace the drive.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E093.1/ L093.1	Motor stall	The stall detection threshold is met and the stall detection time is reached. Note: Set the stall detection threshold through AA-31/B8-31/BC-73/CC-73 and the stall detection time through AA-32/B8-32/BC-74/CC-74. Enable stall protection through the 6th bit of AA-30/B8-30/BC-72/CC-72. Note: The preceding parameters correspond to the first, second, third, and fourth motor parameter groups.	The motor load is too heavy or the brake is abnormal.	1. Check whether the brake is switched on. 2. Determine whether the output torque is always equal to the torque upper limit set by F2-10.	Ensure the motor load is within the proper range.
			Torque\current limit too low	Check whether the torque upper limit (F2-10) is excessively low.	Set the torque limit properly.
			Parameter auto-tuning is not performed.	Check whether parameter auto-tuning is performed.	Perform parameter auto-tuning before operation.
			The AC drive model is set improperly.	Check whether the AC drive model is set correctly.	Set the AC drive model correctly.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E093.2	Motor step loss	The step loss detection threshold is met and the step loss detection time is reached. Note: Set the motor step loss detection threshold through AA-33/B8-33/BC-75/CC-75 and the detection time through AA-34/B8-34/BC-76/CC-76. Enable step loss protection through the 5th bit of AA-30. Note: The preceding parameters correspond to the first, second, third, and fourth motor parameter groups.	Parameter auto-tuning is not performed.	Check whether parameter auto-tuning is performed.	Set rated motor parameters properly and perform auto-tuning on parameters of the motor in dynamic rotation state if available.
			The AC drive model is wrong.	Check whether the AC drive model is set correctly.	Set the drive model correctly.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E093.3	Current control error	The current control exception detection threshold is met and the detection time is reached. Note: Set the current control exception detection threshold through AA-35/B8-35/BC-77/CC-77 and the detection time through AA-36/B8-36/BC-78/CC-78. Enable current control exception protection through the 4th bit of AA-30. The preceding parameters correspond to the first, second, third, and fourth motor parameter groups.	Output phase loss	Check for correct cable connection.	Check whether output phase loss occurs.
			The bus voltage drops substantially.	Check whether the grid power supply is normal.	Keep the grid voltage stable.
E094.1	The calculated number of pole pairs does not match the setpoint.	Set A9-02 only when the number of motor pole pairs exceeds 12. (This minor fault is disabled by default. To enable it, set H1-00 to 94.1 and H1-01 to 2.)	The number of motor pole pairs is set incorrectly.	Check whether the motor nameplate parameters are set correctly.	Set the motor nameplate parameters correctly. Note: Set A9-02 only when the number of motor pole pairs exceeds 12.
E094.2	Motor power/voltage/current mismatch	If the power factor of the motor parameter is set to a value higher than 1 or lower than 0.5, the fault is reported.	The power, voltage, and current of the motor are not match.	Check whether the motor nameplate parameters are set correctly.	Confirm motor nameplate parameters and set motor rating information and power factors correctly.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E094.3	No-load current range error	This fault is reported when the no-load current is excessively high or low compared to the rated current.	The motor no-load current range is wrong.	Check the motor nameplate parameters to ensure the drive model is set correctly.	Set the motor nameplate parameters and the drive model correctly.
E094.4	The Lm (mutual induc tance) and I0 (no-load current) do not comply with the rated voltage.	The deviation between the rated flux and the flux calculated based on the rated voltage and frequency exceeds 10%.	The no-load current or mutual inductance is modified separately, leading to mismatch with the rated voltage.	Confirm motor nameplate parameters.	Set motor nameplate parameter properly and perform parameter auto-tuning.
E094.5	Rotor resistance setting range error	If the rotor resistance is excessively high, the fault is reported.	The rotor resistance exceeds the normal range.	Check whether the motor rotates during auto-tuning. Check whether motor nameplate parameters and AC drive model are set correctly.	Set the motor nameplate parameters correctly.
E095.1/ L095.1	The carrier ratio is excessively low.	The lower value between the maximum frequency and actual effective carrier frequency is used as the carrier ratio. If this carrier ratio is lower than the threshold defined by F9-93, a fault will be reported.	Carrier frequency excessively low	Calculate whether the ratio of the maximum frequency to the actual effective carrier frequency is lower than F9-93 manually.	Set the carrier frequency correctly to ensure that the carrier ratio is higher than the set carrier ratio threshold.
E140.1	Variable frequency contactor fault	The contactor control signal is not consistent with the feedback signal for more than 2.5s.	The DI valid logic is set incorrectly and the contactor feedback contact is selected incorrectly.	Check F4-38 and check whether the active logic of DI1 and DI2 is consistent with the contactor feedback contact (NO/NC).	When F4-38 is set to 11, connect the contactor to the NC contact.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E140.2	Power frequency contactor fault	The contactor control signal is not consistent with the feedback signal for more than 2.5s.	The DI valid logic is set incorrectly and the contactor feedback contact is selected incorrectly.	Check F4-38 and check whether the active logic of DI1 and DI2 is consistent with the contactor feedback contact (NO/NC).	When F4-38 is set to 0, connect the contactor to the NO contact.
E140.3	Grid frequency fault	This fault is reported when the value of (|D4-31-Grid frequency detection value|)/ D4-31 keeps higher than or equal to D4-32 for a period longer than or equal to D4-33.	The grid frequency is abnormal, or the grid frequency parameter D4-31 is set incorrectly.	Check the value of D4-31.	Modify the value of D4-31 to the grid frequency value.
E140.4	Grid voltage fault	This fault is reported when the value of |Mains voltage detection value - F1-02| keeps higher than or equal to D4-34 for a period longer than or equal to 100 ms.	The grid voltage and the rated motor voltage exceed the threshold set by D4-34.	Check whether the rated motor voltage is set correctly.	Connect the power supply to the power grid. If the power supply is connected to a self-generation system, check the transformer.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E140.5	Phase synchronization timeout fault	By adjusting the output frequency, the drive output phase is synchronized with the grid phase. 1. When the phase synchronization state machine is running, if the drive switches to the mains frequency and the value of |grid phase – drive output phase| keeps higher than or equal to D4-34 for at least 20s, the fault is reported. Continued	The motor load is too large. The output frequency of the AC drive cannot be adjusted normally and phase synchronization fails.	Check current state machine through L6-67 and the difference between L6-63 grid phase and drive phase.	Perform phase synchronization test under no-load condition.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E140.5	Phase synchronization timeout fault	Continued 2. When the phase synchronization state machine is running, if the drive switches from the mains frequency to the variable frequency and the value of |grid phase – drive output phase| keeps higher than or equal to D4-34 for at least 10s, the fault is reported. 3. When the drive tracking state machine is running, if the value of |grid frequency - drive output frequency| keeps higher than or equal to 0.5 Hz for at least 20s, the fault is reported.	The motor load is too large. The output frequency of the AC drive cannot be adjusted normally and phase synchronization fails.	Check current state machine through L6-67 and the difference between L6-63 grid phase and drive phase.	Perform phase synchronization test under no-load condition.
E150.1	Positive limit fault	This fault is reported when the DI assigned with function 64 (Positive limit switch) is activated.	The physical limit switch has been touched.	Check the status of each DI terminal and check whether the terminal assigned with No. 64 function is active.	Control the reverse run of the drive. After the positive limit switched is triggered during reverse run, the fault will be reset automatically.
E150.2	Negative limit fault	This fault is reported when the DI terminal assigned with No. 65 function (Negative limit switch) is active.	The physical negative limit switch has been touched.	Check the status of each DI terminal and check whether the terminal assigned with No. 65 function is active.	Control forward run of the drive. After the negative limit switch is triggered during forward run, the fault will be reset automatically.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E151.1	Cable drum vertical applica tion parameter setting error	The maximum torque for vertical cable drum applications is derived from (maximum tension D2-02) x (minimum reel diameter D1-11)/ (Mechanical gear ratio D1-03)/ (motor rated torque). The minimum torque for vertical cable drum applications is derived from (minimum set tension for vertical cable drum application D1-51) x (maximum reel diameter D1-10)/ (mechanical gear ratio D1-03)/ (motor rated torque). After the above calculation, if the minimum torque for vertical cable drum application is higher than the maximum torque for vertical cable drum application, Err150.01 is reported, indicating a fault in vertical application parameter settings.	Reset parameters properly.	The maximum torque for vertical cable drum applications is derived from (maximum tension D2-02) x (minimum reel diameter D1-11)/(Mechanical gear ratio D1-03)/(motor rated torque). The minimum torque for vertical cable drum applications is derived from (minimum set tension for vertical cable drum application D1-51) x (maximum reel diameter D1-10)/(mechanical gear ratio D1-03)/(motor rated torque). After the above calculation, if the minimum torque for vertical cable drum application is higher than the maximum torque for vertical cable drum application, Err150.01 is reported, indicating a fault in vertical application parameter settings.	Reset parameters properly.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E153.1	Break fault	1. The following conditions must be satisfied for break detection: (1) Line speed is used as the source for calculating the reel diameter; (2) D1-54 (Break automatic detection) is enabled; (3) The line speed during operation exceeds D1-55 (Break automatic detection minimum line speed). 2. When the change of the reel diameter within 2 ms exceeds the value of previous reel diameter multiplied by D1-56 (break automatic detection tolerance), a timer starts. When the cumulated time exceeds D1-57 (break automatic detection judgment delay), the fault is reported.	Check the material condition and re-load the material.	Check whether D1-56 [Error range of automatic material run-out detection] and D1-57 [Automatic material run-out detection judgment delay] are set properly.	If material run-out does not occur, check whether the parameters are set properly. If material run-out occurs, re-feeding the material and check whether the tension is set properly to avoid the material run-out again.
E159.1	Automatic fault reset failure	This fault is reported when the faults on the black list defined by H2-20 to H2-39 are reset by the automatic fault reset function.	Faults that inhibit automatic fault reset have been reset.	Check whether faults that cannot be reset are set in the black list set by H2-20 to H2-39.	Remove parameters from the black list set by H2-20 to H2-39.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E160.1/ L160.1	Modbus communication timeout	No data is received after communication is established.	Modbus communication timeout	1. Check whether the RS485 communication cable is correctly connected. 2. Check whether Fd-04 (Communication timeout) is proper (Fd-04 = 2 x Number of bytes sent x 10/ (1/Fd-00).	1. Ensure that the 485 communication cable is connected properly. 2. Check whether Fd-04 (Communication timeout) is proper (Fd-04 = 2 x Number of bytes sent x 10/ (1/Fd-00).
E161.1/ L161.1	CANopen heartbeat times out.	The heartbeat frame is not received after the CANopen heartbeat configuration is set.	CANopen communication timeout	1. Check whether the CAN communication cable is correctly connected. 2. Check whether the values of FD-15 to FD-17 keep increasing. If yes, interference exists.	1. Ensure that the CAN communication cable is connected correctly. 2. Eliminate interference. Common measures include: ① Remove other interference sources, such as other devices. ② Connect the drive to the grounding cable. ③ Route the signal cable and the power cable through different routes (do not twist them into a strand). ④ Do not cross-connect the power cable and signal cable.
E161.2/ L161.2	CANopen PDO mapping	The PDO configuration information does not match the setting of the drive parameter.	Inconsistency between PDO mapping configured by CANopen and actual communication mapping	1. Check whether the version of the communication configuration file (.eds format) is correct. 2. The parameters in group AF are consistent with the description in the .eds file.	1. Ensure that the communication configuration file (.eds format) is of the correct version. 2. Ensure that the parameters in group AF are consistent with the description in the .eds file.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E162.1/ L162.1	CANlink heartbeat timeout	The heartbeat times out after heartbeat is configured.	CANlink heartbeat timeout	1. Check whether the CAN communication cable is correctly connected. 2. Check whether the values of FD-15 to FD-17 keep increasing. If yes, interference exists.	1. Ensure that the CAN communication cable is connected correctly. 2. Eliminate interference. Common measures include: ① Remove other interference sources, such as other devices. ② Connect the drive to the grounding cable. ③ Route the signal cable and the power cable through different routes (do not twist them into a strand). ④ Do not cross-connect the power cable and signal cable.
E162.2/ L162.2	CANlink station number conflict	The same station number exists.	CANlink station number conflict	Read the value of Fd-02 to make comparison.	Modify the repeated CAN station numbers through Fd-02.
E164.1/ L164.1	Extension card fault	The expansion card is faulty.	The expansion card and the drive are in poor contact.	Check whether the expansion card is connected properly to the drive.	Check whether the expansion card is connected properly to the drive.
E174.1/ L174.1	HDI wire breakage	This fault is reported when the pulse frequency detected by DI5 ≤ F4-28 or lower than half of the setpoint set by F4-28 or F4-66.	HDI input disconnected	Check whether HDI input is disconnected.	Perform wiring again.
			The HDI input signal frequency is excessively low, which is much lower than the minimum value set in F4-28 or F4-66.	Check whether the HDI input signal frequency is normal.	Ensure the min. input frequency of HDI is the frequency lower limit of the signal.
E174.3/ L174.3	AI1 input error protection	This fault is reported when the voltage input of AI1 is outside the range of the lower limit (F8-45) to upper limit (F8-46). Note: This fault is not enabled by default.	AI1 input signal disconnected	Check whether AI1 input signal is disconnected.	Perform wiring again.
			AI1 input signal voltage or current is outside the range of the lower limit (F8-45) to upper limit (F8-46).	Check whether the AI1 input voltage or current signal is normal.	Ensure the upper limit and lower limit for input voltage (current) protection is not exceeded.

Fault code	Name	Fault mechanism	Cause	Verification method	Solution
E174.4/ L174.4	AI2 input error protection	This fault is reported when the voltage input of AI2 port is outside the range of the lower limit (A6-52) to upper limit (A6-51). Note: This fault is not enabled by default.	AI2 input signal disconnected	Check whether AI2 input signal is disconnected.	Perform wiring again.
			The AI2 input signal voltage or current is outside the range of A6-52 to A6-51.	Check whether the AI2 input voltage or current signal is normal.	Ensure the upper limit and lower limit for input voltage (current) protection is not exceeded.
E174.5/ L174.5	AI3 input error protection	This fault is reported when the voltage input of AI3 port is outside the range of the lower limit (A6-58) to upper limit (A6-57). Note: This fault is not enabled by default.	AI3 input signal disconnected	Check whether AI3 input signal is disconnected.	Perform wiring again.
			The AI3 input signal voltage or current is outside the range of A6-58 to A6-57.	Check whether the AI3 input voltage or current signal is normal.	Ensure the upper limit and lower limit for input voltage (current) protection is not exceeded.
A200.1	Online auto-tuning of asynchro nous motor no-load current and mutual inductance is activated.	When the drive is in the online auto-tuning of no-load current of asynchronous motor and mutual inductance, an alarm is displayed on the panel. This alarm is automatically cleared after auto-tuning is done.	The no-load current auto-tuning of asynchronous motor and mutual inductance are enabled. After auto-tuning is done, the alarm is automatically cleared.	Check whether F1-15 (Online auto-tuning of asynchronous motor no-load current and mutual inductance) is activated.	This alarm is cleared automatically after auto-tuning is done or you can set F1-15 to 0 to clear the alarm.
A200.2	Online auto-tuning of no-load current of asynchro nous motor and mutual inductance failure	An exception occurs during online auto-tuning of no-load current and mutual inductance.	Auto-tuned no-load current and mutual inductance not convergent	Contact the manufacturer.	Contact the manufacturer.

9 Parameter List

Parameter	Address	Name	Range	Default	Unit	Change Mode
F0-00	0xF000	Load type	0: High-load application 1: Light-load application	0	-	Unchangeable
F0-01	0xF001	Motor 1 control mode	0: SVC 2: V/f	2	-	At stop
F0-02	0xF002	Operation command source	0: Operating panel 1: Terminal 2: Communication 3: Custom	0	-	At stop
F0-03	0xF003	Selection of main frequency X source	0: Digital setting (non-retentive upon power failure) 1: Digital setting (retentive at power failure) 2: AI1 3: AI2 4: Determined by AI3 5: Pulse setting (DI5) 6: Multi-reference 7: Simple PLC 8: PID 9: Communication 10: Pulse synchronization Others: F connector	0	-	At stop
F0-04	0xF004	Selection of auxiliary frequency Y source	Same as F0-03	0	-	At stop
F0-05	0xF005	Base value of auxiliary frequency Y range upon superposition	0: Based on the maximum frequency 1: Relative to main frequency X	0	-	Real-time
F0-06	0xF006	Range of auxiliary frequency Y upon superposition	0 to 150	100	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F0-07	0xF007	Frequency superposition selection	Ones: Frequency reference selection 0: Main frequency X 1: Main and auxiliary frequency operation result (based on tens place) 2: Switchover between main frequency X and auxiliary frequency Y 3: Switchover between main frequency X and the main and auxiliary frequency operation result 4: Switchover between the auxiliary frequency Y and the main and auxiliary frequency operation result Tens: Main and auxiliary frequency operation 0: Main frequency + auxiliary frequency 1: Main frequency - auxiliary frequency 2: Max. (main frequency, auxiliary frequency) 3: Min. (main frequency, auxiliary frequency)	0	-	Real-time
F0-08	0xF008	Preset frequency	0.00 to F0-10	50.00	Hz	Real-time
F0-09	0xF009	Running direction selection	0: Default direction 1: Direction opposite to the default direction	0	-	Real-time
F0-10	0xF00A	Max. frequency	5.00 to 599.00	50.00	Hz	At stop
F0-11	0xF00B	Frequency upper limit source	0: F0-12 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication Others: F connector	0	-	At stop
F0-12	0xF00C	Frequency upper limit	F0-14 to F0-10	50.00	Hz	Real-time
F0-13	0xF00D	Frequency upper limit offset	0.00 to F0-10	0.00	Hz	Real-time
F0-14	0xF00E	Frequency lower limit	0.00 to F0-12	0.00	Hz	Real-time
F0-15	0xF00F	Carrier frequency	0.5 to 20.0	6.0	kHz	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F0-16	0xF010	Carrier frequency change with temperature	0: No 1: Yes	0	-	Real-time
F0-17	0xF011	Acceleration time 1	0.0 to 6500.0	20.0	s	Real-time
F0-18	0xF012	Deceleration time 1	0.0 to 6500.0	20.0	s	Real-time
F0-19	0xF013	Acceleration/ Deceleration time unit	0: 1s 1: 0.1s 2: 0.01s	1	-	At stop
F0-20	0xF014	Offset frequency source	0: F0-21 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	At stop
F0-21	0xF015	Digital setting of offset frequency	0.00 to F0-10	0.00	Hz	Real-time
F0-22	0xF016	Decimal places of frequency reference	2: 0.01 Hz	2	-	At stop
F0-23	0xF017	Retention of digital setting of frequency upon stop	0: Non-retentive at stop 1: Retentive at stop	0	-	Real-time
F0-24	0xF018	Motor parameter group selection	0: Motor parameter group 1 1: Motor parameter group 2 2: Motor parameter group 3 3: Motor parameter group 4	0	-	At stop
F0-25	0xF019	Base frequency of acceleration/ deceleration time	0: Maximum frequency (F0-10) 1: Frequency reference 2: 100 Hz 3: Rated frequency	0	-	At stop
F0-26	0xF01A	Base of frequency adjusted by UP/DOWN keys during operation	0: Operating frequency 1: Frequency reference	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F0-27	0xF01B	Bind command source to frequency source	Ones: Bind operation panel to frequency source 0: No binding 1: Digital setting 2: AI1 3: AI2 4: Determined by AI3 5: Pulse setting 6: Multi-reference 7: Simple PLC 8: PID 9: Communication Tens: Bind terminal to frequency source 0: No binding 1: Digital setting 2: AI1 3: AI2 4: Determined by AI3 5: Pulse setting 6: Multi-reference 7: Simple PLC 8: PID 9: Communication Hundreds: Bind communication to frequency source 0: No binding 1: Digital setting 2: AI1 3: AI2 4: Determined by AI3 5: Pulse setting 6: Multi-reference 7: Simple PLC 8: PID 9: Communication	0	-	Real-time
F0-28	0xF01C	Communication protocol selection	0: Modbus 1: Expansion communication protocol 2: Inobus protocol (through EtherCAT card)	0	-	At stop
F0-29	0xF01D	Load type	0: High-load application 1: Light-load application	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F1-00	0xF100	Motor type selection	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Permanent magnet synchronous motor 3: Synchronous reluctance motor without permanent magnet 4: Electromagnetic coil 5: Synchronous reluctance motor with permanent magnet	0	-	At stop
F1-01	0xF101	Rated motor power	0.1 to 1000.0	3.7	kW	At stop
F1-02	0xF102	Rated motor voltage	1 to 2000	380	V	At stop
F1-03	0xF103	Rated motor current	0.01 to 655.35	9.00	A	At stop
F1-04	0xF104	Rated motor frequency	0.01 to F0-10	50.00	Hz	At stop
F1-05	0xF105	Rated motor speed	1 to 65535	1460	rpm	At stop
F1-06	0xF106	Stator resistance of asynchronous motor	0.001 to 65.535	1.204	Ω	Real-time
F1-07	0xF107	Rotor resistance of asynchronous motor	0.001 to 65.535	0.908	Ω	Real-time
F1-08	0xF108	Leakage inductance of asynchronous motor	0.01 to 655.35	5.28	mH	Real-time
F1-09	0xF109	Mutual inductance of asynchronous motor	0.1 to 6553.5	156.8	mH	Real-time
F1-10	0xF10A	No-load current of asynchronous motor	0.01 to F1-03	4.20	A	Real-time
F1-15	0xF10F	No-load current of asynchronous motor	0: Disable 1: Activation mode 1 2: Activation mode 2 (speed limit) 3: Reserved	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F1-16	0xF110	Stator resistance of synchronous motor	0.001 to 65.535	1.204	Ω	Real-time
F1-17	0xF111	D-axis inductance of synchronous motor	0.01 to 655.35	5.28	mH	Real-time
F1-18	0xF112	Q-axis inductance of synchronous motor	0.01 to 655.35	5.28	mH	Real-time
F1-20	0xF114	Back EMF of synchronous motor	0.0 to 6553.5	350.0	V	Real-time
F1-33	0xF121	Rated speed of high-speed motor	0 to 65535	0	-	At stop
F1-37	0xF125	Motor parameter auto-tuning mode	0: Disable 1: Auto-tuning of some parameters for asynchronous motor in static state 2: Auto-tuning of parameters for asynchronous motor in dynamic state 3: Auto-tuning of all parameters for asynchronous motor in static state 4: Inertia auto-tuning 5: Dead zone auto-tuning 7: Inductance auto-tuning 8: Back EMF auto-tuning 11: With-load auto-tuning of synchronous motor parameters (excluding back EMF) 12: No-load auto-tuning of all parameters for synchronous motor in dynamic state 13: Auto-tuning of parameters (excluding zero point angle) for synchronous motor in static state 14: Auto-tuning on current sampling gain between phases U and V 21: Auto-tuning of parameters for reluctance motor in static state 22: Auto-tuning of parameters for reluctance motor in dynamic state	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F1-38	0xF126	Motor 1 model input window (tuning-free mode)	0: Self-defined motor 33001: MV33-18L55D30CD-ATA-EC 33003: MV33-18L90D30CD-ATA-EC 33005: MV33-22M11E30CD-ATA-EC 33008: MV33-22M18E30CD-ATA-EC 33009: MV33-22M20E30CD-ATA-EC 33013: MV33-25M31E30CD-ATA-EC 33020: MV33-22M75D15CD-ATA-EC 33025: MV33-25M13E15CD-ATA-EC 33028: MV33-25M20E15CD-ATA-EC 33029: MV33-18L30D10CD-ATA-EC 33032: MV33-20L55D10CD-ATA-EC 33038: MV33-25M13E10CD-ATA-EC 33039: MV33-18L18D75BD-ATA-EC 33043: MV33-20L45D75BD-ATA-EC 33044: MV33-22M37D75BD-ATA-EC 33048: MV33-25M90D75BD-ATA-EC	0	-	At stop
F1-39	0xF127	Motor 1 model display (tuning-free mode)	Same as F1-38	0	-	Unchangeable
F2-00	0xF200	Speed loop proportional gain 1	1 to 300	30	-	Real-time
F2-01	0xF201	Speed loop integral time 1	0.01 to 10.00	0.50	s	Real-time
F2-02	0xF202	Switchover frequency 1	0.00 to F2-05	5.00	Hz	Real-time
F2-03	0xF203	Speed loop proportional gain 2	1 to 300	20	-	Real-time
F2-04	0xF204	Speed loop integral time 2	0.01 to 10.00	1.00	s	Real-time
F2-05	0xF205	Switchover frequency 2	F2-02 to F0-10	10.00	Hz	Real-time
F2-06	0xF206	Vector control slip gain	50 to 200	100	%	Real-time
F2-07	0xF207	Speed feedback filter time in SVC mode	0.000 to 0.100	0.015	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F2-09	0xF209	Torque upper limit source in speed control mode (motoring)	0: F2-10 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) Others: F connector	0	-	Real-time
F2-10	0xF20A	Digital setting of torque upper limit in speed control mode	0.0 to 600.0	150.0	%	Real-time
F2-11	0xF20B	Torque upper limit source in speed control mode (generating)	0: F2-10 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) 8: F2-12 Others: F connector	0	-	Real-time
F2-12	0xF20C	Digital setting of torque upper limit in speed control mode (generating)	0.0 to 600.0	150.0	%	Real-time
F2-18	0xF212	Current loop mode of synchronous motor	0: No field weakening 1: Automatic adjustment 2: Calculation + automatic adjustment 3: Normal mode of synchronous motor 4: Normal mode of asynchronous motor	1	-	At stop
F2-19	0xF213	Field weakening gain	0.1 to 200.0	20.0	-	Real-time
F2-22	0xF216	Generating power limit	0: Invalid 1: Active in the whole process 2: Active during operation at constant speed 3: Active during deceleration	0	-	Real-time
F2-23	0xF217	Generating power upper limit	0.0 to 200.0	20.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F2-24	0xF218	Initial position angle detection current of synchronous motor	50 to 180	80	-	At stop
F2-25	0xF219	Synchronous motor initial position angle detection	0: Detected every time upon operation 1: Not detected 2: Detected during initial operation upon power-on	0	-	Real-time
F2-27	0xF21B	Saliency ratio adjustment gain of synchronous motor	0.20 to 3.00	1.00	-	Real-time
F2-28	0xF21C	Control on maximum ratio of torque to current of synchronous motor	0: Inactive 1: Active	1	-	Real-time
F2-37	0xF225	Low speed carrier frequency	0.5 to F0-15	2.0	kHz	Real-time
F2-43	0xF22B	Position lock enable	0 to 1	0	-	Real-time
F2-44	0xF22C	Switchover frequency	0.00 to F2-02	0.30	Hz	Real-time
F2-45	0xF22D	Zero servo speed loop proportional gain	1 to 100	10	-	Real-time
F2-46	0xF22E	Position lock speed loop integral time	0.01 to 10.00	0.50	s	Real-time
F2-49	0xF231	Motor tuning-free mode	0: Disable 1: Auto-tuning during initial operation upon power-on 2: Auto-tuning before operation	0	-	Real-time
F2-51	0xF233	Initial position compensation angle	0.0 to 359.9	0.0	-	Real-time
F3-00	0xF300	V/f curve setting	0: V/f line 1: Multi-point V/f curve 2-9: Reserved 10: V/f fully-decoupled mode 11: V/f semi-decoupled mode	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F3-01	0xF301	Torque boost	0.0 to 30.0	3.0	%	Real-time
F3-02	0xF302	Cut-off frequency of torque boost	0.00 to F0-10	50.00	Hz	At stop
F3-03	0xF303	Frequency 1 on multi-point V/f curve	0.00 to F3-05	0.00	Hz	At stop
F3-04	0xF304	Voltage 1 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop
F3-05	0xF305	Frequency 2 on multi-point V/f curve	F3-03 to F3-07	0.00	Hz	At stop
F3-06	0xF306	Voltage 2 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop
F3-07	0xF307	Frequency point 3 on multi-point V/f curve	F3-05 to F1-04	0.00	Hz	At stop
F3-08	0xF308	Voltage point 3 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop
F3-09	0xF309	Slip compensation gain in V/f mode	0.0 to 6553.5	0.0	-	Real-time
F3-10	0xF30A	Over-excitation gain in V/f mode	0 to 200	64	-	Real-time
F3-11	0xF30B	Oscillation suppression gain in V/f mode	0 to 100	40	-	Real-time
F3-12	0xF30C	Oscillation suppression in V/f mode	0: Disable 1: Enable	1	-	Real-time
F3-13	0xF30D	Voltage source in V/f decoupled mode	0: Digital setting (F3-14) 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F3-14	0xF30E	Voltage digital setting in V/f decoupled mode	0 to F1-02	0	V	Real-time
F3-15	0xF30F	Voltage rise time in V/f decoupled mode	0.0 to 1000.0	0.0	s	Real-time
F3-16	0xF310	Voltage decline time in V/f decoupled mode	0.0 to 1000.0	0.0	s	Real-time
F3-17	0xF311	Stop mode in V/f decoupled mode	0: Frequency and voltage decline to 0. 1: Frequency declines to 0 after voltage declines to 0. 2: Coast to stop (newly added)	0	-	Real-time
F3-18	0xF312	Action current of overcurrent stall suppression	50 to 200	150	%	At stop
F3-19	0xF313	Overcurrent stall suppression	0: Disable 1: Enable	1	-	At stop
F3-20	0xF314	Overcurrent stall suppression gain	1 to 500	20	-	Real-time
F3-21	0xF315	Action current compensation coefficient for overcurrent stall at multiplied rated frequency	50 to 200	100	%	At stop
F3-22	0xF316	Overvoltage stall suppression action voltage in V/f mode	330.0 to 800.0	770.0	V	Real-time
F3-23	0xF317	Overvoltage stall suppression in V/f mode	0: Disable 1: Enable	1	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F3-24	0xF318	Frequency gain for overvoltage stall suppression in V/f mode	1 to 500	30	-	Real-time
F3-25	0xF319	Voltage gain for overvoltage stall suppression in V/f mode	1 to 500	30	-	Real-time
F3-26	0xF31A	Frequency rise limit for overvoltage stall suppression in V/f mode	0 to 50	5	Hz	At stop
F7-27	0xF31B	Filter time of slip compensation	0.1 to 10.0	0.5	s	At stop
F3-28	0xF31C	Multi-point curve selection	0: Three-point curve 1: Multi-point curve module A 2: Multi-point curve module B	0	-	At stop
F3-29	0xF31D	Frequency for PWM inhibition at zero speed	0.0 to 100.0	1.0	%	At stop
F3-30	0xF31E	PWM inhibition hysteresis at zero speed	0.0 to 100.0	0.5	%	At stop
F3-31	0xF31F	PWM inhibition at zero speed	0: Inactive 1: Enable	0	-	At stop
F3-33	0xF321	Online torque compensation gain	80 to 150	100	-	At stop
F3-34	0xF322	Overcurrent stall suppression Ki coefficient	10 to 1000	100	%	At stop
F3-35	0xF323	Overcurrent stall suppression threshold (rated motor current as the base)	80 to 300	200	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F3-36	0xF324	Frequency for activating field weakening upon overcurrent stall suppression	100 to 500	100	%	At stop
F3-37	0xF325	IT filter time	10 to 1000	100	ms	At stop
F3-38	0xF326	Slip compensation mode	0: Disable 1: Without PG card slip compensation 2: With PG card slip compensation	1	-	At stop
F3-39	0xF327	Permissible operation time upon overvoltage suppression	0.0 to 100.0	0.0	s	At stop
F3-40	0xF328	Voltage upper limit in V/f decoupled mode	50.0 to 200.0	100.0	%	At stop
F3-41	0xF329	RFG time of the frequency in V/f decoupled mode	0: RFG time is forcibly set to zero. 1: Preset RFG time	0	-	At stop
F3-42	0xF32A	Cut-off frequency of oscillation suppression filter in V/f mode	1.0 to 50.0	8.0	Hz	Real-time
F3-43	0xF32B	Effective cut-off frequency of oscillation suppression in V/f mode	10 to 3000	200	Hz	Real-time
F3-44	0xF32C	Overvoltage suppression feedforward coefficient	0 to 500	0	%	Real-time
F3-45	0xF32D	Synchronous motor IF selection	0: Disable 1: Low speed IF 2: High-frequency injection in SVC mode 3: Reserved	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F3-46	0xF32E	Synchronous motor IF current	0.0 to 200.0	50.0	%	Real-time
F3-47	0xF32F	IF switchover frequency of synchronous motor	0.0 to 100.0	2.5	%	Real-time
F3-48	0xF330	IF switchover hysteresis frequency of synchronous motor	0.0 to 100.0	2.5	%	Real-time
F3-49	0xF331	IF current switchover time of synchronous motor	0.001 to 20.000	1.000	s	Real-time
F3-50	0xF332	VVCTLC processing at low speed	0: Disable 1: Low speed IF 2: High-frequency injection in TLC mode	1	-	At stop
F3-51	0xF333	PMVVC low-speed IF current	0 to 250	100	-	Real-time
F3-52	0xF334	PMVVC low-speed IF switchover speed threshold	0.0 to 100.0	10.0	%	Real-time
F3-53	0xF335	PMVVC oscillation suppression gain coefficient	0 to 500	100	-	Real-time
F3-54	0xF336	PMVVC filter time constant	0 to 500	100	-	Real-time
F3-55	0xF337	PMVVC energy-saving control mode	0: Fixed V/f line 1: Fixed to 30% of reactive current 2: MTPA control	2	-	At stop
F3-56	0xF338	VVC current loop adaptation coefficient	0 to 1000	0	%	Real-time
F3-57	0xF339	MTPA adaptation coefficient of VVC	0 to 1000	0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F3-58	0xF33A	TLC control word	bit0: CPC enable 0: Disable 1: Enable bit1: Speed source 0: Source 1 1: Source 2 bit2: Angle source 0: Source 1 1: Source 2 bit3: Energy-saving mode 0: Mode 1 1: Mode 2 bit4: Inductance calculation 0: Use saturation model 1: Not use saturation model bit5: Inverse curve 0: Enable 1: Disable bit6: Overvoltage suppression optimization 0: Enable 1: Disable bit7: Undervoltage suppression optimization 0: Enable 1: Disable bit8: Switch back to IF mode 0: Default 1: Non-default	1	-	Real-time
F3-59	0xF33B	TLC phase lock loop amplification coefficient	0.1 to 5000.0	100.0	%	Real-time
F3-60	0xF33C	TLC control enable switch	0 to 1	1	-	At stop
F3-61	0xF33D	Field weakening coefficient for TLC control	0.0 to 5000.0	100.0	%	Real-time
F3-62	0xF33E	d-axis proportion of TLC control	0.0 to 5000.0	100.0	%	Real-time
F3-63	0xF33F	d-axis integral in TLC control mode	0.0 to 5000.0	100.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F3-64	0xF340	q-axis proportion in TLC control mode	0.0 to 5000.0	100.0	%	Real-time
F3-65	0xF341	q-axis integral in TLC control mode	0.0 to 5000.0	100.0	%	Real-time
F3-66	0xF342	Lower limit of TLC setting	0.0 to 1000.0	0.0	%	Real-time
F3-67	0xF343	Waiting time of TLC switchover	0 to 10000	500	ms	At stop
F3-68	0xF344	TLC setting coefficient	0.1 to 1000.0	100.0	%	Real-time
F3-69	0xF345	Coil control mode	0: V/f separation mode 1: IF separation mode	0	-	At stop
F3-70	0xF346	Voltage source for coil IF separation	0: Digital setting (F3-71) 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication Others: F connector	0	-	Real-time
F3-71	0xF347	Current reference for coil IF separation	1.00 to 120.00	20.00	%	Real-time
F3-72	0xF348	Voltage rise time for coil IF separation	0.000 to 65.000	0.000	s	Real-time
F3-73	0xF349	Current fall time for coil IF separation	0.000 to 65.000	0.000	s	Real-time
F3-74	0xF34A	Max. current value for coil IF separation	1.00 to 120.00	100.00	%	At stop
F3-75	0xF34B	Stop mode for coil IF separation	0: Frequency and current decline to 0 independently. 1: Frequency declines to 0 after current declines to 0. 2: Coast to stop	2	-	Real-time
F3-76	0xF34C	PM observer stator resistance coefficient	0 to 1000	0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F3-77	0xF34D	Waiting time of PM observer auto-tuning	0 to 1000	0	s	Real-time
F3-78	0xF34E	Coil IF separation current control coefficient	1 to 1000	50	-	Real-time
F3-79	0xF34F	Coil IF separation sub-controller switch	0 to 1	0	-	Real-time
F3-80	0xF350	Proportional coefficient of coil IF separation sub-controller	1 to 1000	100	%	Real-time
F3-81	0xF351	Integral coefficient of coil IF separation sub-controller	1 to 1000	100	%	Real-time
F3-82	0xF352	Voltage limit of coil IF separation sub-controller	1 to 100	40	%	Real-time
F3-83	0xF353	Coil transformer change ratio	1.0 to 100.0	1.0	-	At stop
F3-85	0xF355	Synchronous motor observer switchover	0: Mode 0 1: Mode 1	0	-	Real-time
F3-86	0xF356	Switchover frequency of synchronous motor in SVC mode	0.0 to 100.0	10.0	%	Real-time
F3-87	0xF357	Switchover hysteresis frequency of synchronous motor in SVC mode	0.0 to 100.0	5.0	%	Real-time
F3-88	0xF358	Parameter 0 of synchronous motor in SVC mode	0 to 100	3	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F3-89	0xF359	Parameter 1 lower limit of synchronous motor in SVC mode	1 to 100	1	-	Real-time
F3-90	0xF35A	Parameter 6 of synchronous motor in SVC mode	1 to 10	10	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-00	0xF400	DI1 function selection	0: No function 1: Forward run (IN1) 2: Reverse run (IN2) 3: Three-wire control (IN3) 4: Forward jog (FJOG) 5: Reverse jog (RJOG) 6: Function as UP key for frequency adjustment 7: Function as DOWN key for frequency adjustment 8: Coast to stop 9: Fault reset (RESET) 10: Operation pause 11: External fault NO input 12: Multi-reference terminal 1 13: Multi-reference terminal 2 14: Multi-reference terminal 3 15: Multi-reference terminal 4 16: Acceleration/Deceleration selection terminal 1 17: Acceleration/Deceleration selection terminal 2 18: Frequency source switchover 19: Clear data set by terminal functioning as UP/DOWN key 20: Command source switchover terminal 1 21: Acceleration/Deceleration inhibited 22: PID pause 23: Simple PLC status reset 24: Swing frequency pause 25: Counter input 26: Counter reset 27: Length count input 28: Length reset 29: Torque control inhibited 30: Pulse frequency input (valid only for DI5) 31: Reserved 32: Immediate DC braking 33: External fault NC input 34: Frequency modification enabled 35: PID action direction reversal (Continued)	1	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-00	0xF400	DI1 function selection	(Continued) 36: External stop terminal 1 37: Command source switchover terminal 2 38: PID integral pause 39: Switchover between main frequency X and preset frequency 40: Switchover between auxiliary frequency Y and preset frequency 41: Motor selection terminal 1 42: Reserved 43: PID parameter switchover 44: User-defined fault 1 45: User-defined fault 2 46: Speed/Torque control selection 47: Emergency stop 48: External stop terminal 2 49: Deceleration DC braking 50: Clear the current operating time 51: Two-wire/Three-wire mode switchover 52: Reverse running inhibited 53: Thickness accumulation 54: Roll diameter reset 55: Initial roll diameter source selection terminal 1 56: Initial roll diameter source selection terminal 2 57: Pre-drive 58: Switchover between winding and unwinding 59: Roll diameter calculation stop 60: Exit tension mode 61: Terminal tension boost 62: Material thickness selection terminal 1 63: Material thickness selection terminal 2 56: Reserved 59: Reserved (Continued)	1	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-00	0xF400	DI1 function selection	(Continued) 61: Reserved 64: Forward limit switch 65: Reverse limit switch 66: Water-cooling fault input 67: Low liquid level fault input 68: Position synchronization - Pulse reference increase 69: Position synchronization - Pulse reference decrease 70: Control channel selection 71: Setting channel selection (reserved) 72: Terminal module A/B selection 73: Startup mode selection bit0 74: Startup mode selection bit1 75: Control command switchover terminal 3 76: Motor selection terminal 2 77: Running enable 78: Forward run permission 79: Reverse run permission 80: RFG input set to zero 81: Passive unwinding compensation 82: Positioning control enable with forward command (IN1) 83: Positioning control enable with reverse command (IN2) 84: Synchronous control enable with forward command (IN1) 85: Synchronous control enable with reverse command (IN2) 86: Wire breakage detection (wire drawing machine) 87: Forward deceleration limit switch 88: Reverse deceleration limit switch 89: Emergency stop PI enable	1	-	At stop
F4-01	0xF401	DI2 function selection	Same as F4-00	4	-	At stop
F4-02	0xF402	DI3 function selection	Same as F4-00	9	-	At stop
F4-03	0xF403	DI4 function selection	Same as F4-00	12	-	At stop
F4-04	0xF404	DI5 function selection	Same as F4-00	13	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-05	0xF405	DI6 function selection	Same as F4-00	0	-	At stop
F4-06	0xF406	DI7 function selection	Same as F4-00	0	-	At stop
F4-07	0xF407	DI8 function selection	Same as F4-00	0	-	At stop
F4-08	0xF408	DI9 function selection	Same as F4-00	0	-	At stop
F4-09	0xF409	DI10 function selection	Same as F4-00	0	-	At stop
F4-10	0xF40A	DI filter time	0.000 to 1.000	0.010	s	Real-time
F4-11	0xF40B	Terminal command mode	0: Two-wire mode 1 1: Two-wire mode 2 2: Three-wire mode 1 3: Three-wire mode 2	0	-	At stop
F4-12	0xF40C	Step value of frequency adjusted by terminal functioning as UP/DOWN keys	0.001 to 65.535	1.000	Hz/s	Real-time
F4-13	0xF40D	Minimum input of AI curve 1	-10.00 to F4-15	0.00	V	Real-time
F4-14	0xF40E	Percentage corresponding to the minimum input of AI curve 1	-100.0 to 100.0	0.0	%	Real-time
F4-15	0xF40F	Maximum input of AI curve 1	F4-13 to 10.00	10.00	V	Real-time
F4-16	0xF410	Percentage corresponding to the maximum input of AI curve 1	-100.0 to 100.0	100.0	%	Real-time
F4-17	0xF411	AI1 filter time	0.00 to 10.00	0.10	s	Real-time
F4-18	0xF412	Minimum input of AI curve 2	-10.00 to F4-20	0.00	V	Real-time
F4-19	0xF413	Percentage corresponding to the minimum input of AI curve 2	-100.0 to 100.0	0.0	%	Real-time
F4-20	0xF414	Maximum input of AI curve 2	F4-18 to 10.00 V	10.00	V	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-21	0xF415	Percentage corresponding to the maximum input of AI curve 2	-100.0 to 100.0	100.0	%	Real-time
F4-22	0xF416	AI2 filter time	0.00 to 10.00	0.10	s	Real-time
F4-23	0xF417	Minimum input of AI curve 3	-10.00 to F4-25	-10.00	V	Real-time
F4-24	0xF418	Percentage corresponding to the minimum input of AI curve 3	-100.0 to 100.0	-100.0	%	Real-time
F4-25	0xF419	Maximum input of AI curve 3	F4-23~10.00	10.00	V	Real-time
F4-26	0xF41A	Percentage corresponding to the maximum input of AI curve 3	-100.0 to 100.0	100.0	%	Real-time
F4-27	0xF41B	AI3 filter time	0.00 to 10.00	0.10	s	Real-time
F4-28	0xF41C	Minimum frequency for pulse input	0.00 to F4-30	0.00	kHz	Real-time
F4-29	0xF41D	Scaling of minimum frequency for pulse input	-100.0 to 100.0	0.0	%	Real-time
F4-30	0xF41E	Maximum frequency for pulse input	F4-28 to 100.00	50.00	kHz	Real-time
F4-31	0xF41F	Scaling of maximum frequency for pulse input	-100.0 to 100.0	100.0	%	Real-time
F4-32	0xF420	Pulse filter time	0.00 to 10.00	0.10	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-33	0xF421	AI curve selection	Ones: AI1 curve selection 1: Curve 1 (2 points, see F4-13 to F4-16) 2: Curve 2 (2 points, see F4-18 to F4-21) 3: Curve 3 (2 points, see F4-23 to F4-26) 4: Curve 4 (4 points, see A6-00 to A6-07) 5: Curve 5 (4 points, see A6-08 to A6-15) Tens: AI2 curve selection 1: Curve 1 (2 points, see F4-13 to F4-16) 2: Curve 2 (2 points, see F4-18 to F4-21) 3: Curve 3 (2 points, see F4-23 to F4-26) 4: Curve 4 (4 points, see A6-00 to A6-07) 5: Curve 5 (4 points, see A6-08 to A6-15) Hundreds: AI3 curve selection 1: Curve 1 (2 points, see F4-13 to F4-16) 2: Curve 2 (2 points, see F4-18 to F4-21) 3: Curve 3 (2 points, see F4-23 to F4-26) 4: Curve 4 (4 points, see A6-00 to A6-07) 5: Curve 5 (4 points, see A6-08 to A6-15)	0x321	-	Real-time
F4-34	0xF422	AI lower limit selection	Ones: Setting for AI1 lower than minimum input 0: Minimum value 1: 0.0% Tens: Setting for AI2 lower than minimum input 0: Minimum value 1: 0.0% Hundreds: Setting for AI3 lower than minimum input 0: Minimum value 1: 0.0%	0x0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-38	0xF426	DI active mode selection 1	Ones: DI1 0: Active high 1: Active low Tens: DI2 0: Active high 1: Active low Hundreds: DI3 0: Active high 1: Active low Thousands: DI4 0: Active high 1: Active low Ten thousands: DI5 0: Active high 1: Active low	0	-	At stop
F4-39	0xF427	DI active mode selection 2	Ones: DI6 0: Active high 1: Active low Tens: DI7 0: Active high 1: Active low Hundreds: DI8 0: Active high 1: Active low Thousands: DI9 0: Active high 1: Active low Ten thousands: DI10 0: Active high 1: Active low	0	-	At stop
F4-41	0xF429	DI1 switch-on delay	0.0 to 3600.0	0.0	s	At stop
F4-42	0xF42A	DI1 switch-off delay	0.0 to 3600.0	0.0	s	At stop
F4-43	0xF42B	DI2 switch-on delay	0.0 to 3600.0	0.0	s	At stop
F4-44	0xF42C	DI2 switch-off delay	0.0 to 3600.0	0.0	s	At stop
F4-45	0xF42D	DI3 switch-on delay	0.0 to 3600.0	0.0	s	At stop
F4-46	0xF42E	DI3 switch-off delay	0.0 to 3600.0	0.0	s	At stop
F4-47	0xF42F	DI4 switch-on delay	0.0 to 3600.0	0.0	s	At stop
F4-48	0xF430	DI4 switch-off delay	0.0 to 3600.0	0.0	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-49	0xF431	Forced DI data	bit0: DI1 setting 0: Inactive level 1: Active level bit1: DI2 setting 0: Inactive level 1: Active level bit2: DI3 setting 0: Inactive level 1: Active level bit3: DI4 setting 0: Inactive level 1: Active level bit4: DI5/HDI setting 0: Inactive level 1: Active level bit5: DI6 setting 0: Inactive level 1: Active level bit6: DI7 setting 0: Inactive level 1: Active level bit7: DI8 setting 0: Inactive level 1: Active level bit8: DI9 setting 0: Inactive level 1: Active level bit9: DI10 setting 0: Inactive level 1: Active level bit10: Reserved bit11: Reserved bit12: Reserved bit13: Reserved bit14: Reserved bit15: Reserved	0x0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-50	0xF432	DI communication data	bit0: DI1 setting 0: Inactive level 1: Active level bit1: DI2 setting 0: Inactive level 1: Active level bit2: DI3 setting 0: Inactive level 1: Active level bit3: DI4 setting 0: Inactive level 1: Active level bit4: DI5/HDI setting 0: Inactive level 1: Active level bit5: DI6 setting 0: Inactive level 1: Active level bit6: DI7 setting 0: Inactive level 1: Active level bit7: DI8 setting 0: Inactive level 1: Active level bit8: DI9 setting 0: Inactive level 1: Active level bit9: DI10 setting 0: Inactive level 1: Active level bit10: VDI1 setting 0: Inactive level 1: Active level bit11: VDI2 setting 0: Inactive level 1: Active level bit12: VDI3 setting 0: Inactive level 1: Active level bit13: VDI4 setting 0: Inactive level 1: Active level bit14: VDI5 setting 0: Inactive level 1: Active level bit15: VDI6 setting 0: Inactive level 1: Active level	0x0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-52	0xF434	DI2 hardware source	0: Hardware 1: Forced value Others: B connector	0	-	At stop
F4-53	0xF435	DI3 hardware source	0: Hardware 1: Forced value Others: B connector	0	-	At stop
F4-54	0xF436	DI4 hardware source	0: Hardware 1: Forced value Others: B connector	0	-	At stop
F4-55	0xF437	DI5/HDI hardware source	0: Hardware 1: Forced value Others: B connector	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-56	0xF438	DI6 hardware source	0: Hardware 1: Forced value 2: Communication 3: Reserved 4: Determined by AI1 5: AI2 6: AI3 11: DI1 12: DI2 13: DI3 14: DI4 15: DI5/HDI 17: DI7 18: DI8 19: DI9 20: DI10 21: VDI1 22: VDI2 23: VDI3 24: VDI4 25: VDI5 26: VDI6 36: Reserved 38: Reserved 39: Reserved 44: Reserved 51: Relay 1 52: Relay 2 53: DO1 54: Relay on expansion card 55: DO2 on expansion card 56: VDO1 57: VDO2 58: VDO3 59: VDO4 60: VDO5 61: VDO6 62: VDO7 63: VDO8 64: VDO9 65: VDO10 66: VDO11 Others: B connector	0	-	At stop
F4-57	0xF439	DI7 hardware source	Same as F4-56	0	-	At stop
F4-58	0xF43A	DI8 hardware source	Same as F4-56	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-59	0xF43B	DI9 hardware source	0: Hardware 1: Forced value Others: B connector	0	-	At stop
F4-60	0xF43C	DI10 hardware source	0: Hardware 1: Forced value Others: B connector	0	-	At stop
F4-61	0xF43D	DI5/HDI terminal type selection	0: Used as HDI 1: Used as DI	1	-	Unchangeable
F4-62	0xF43E	HDI polarity	0: Normal value 1: Absolute value 2: Inverted value 3: Opposite to absolute value	0	-	Real-time
F4-63	0xF43F	HDI input	0: Disable 1: Enable Others: B connector	0	-	Unchangeable
F4-64	0xF440	HDI hardware source	0: Hardware sampling 1: Forced value	0	-	Real-time
F4-65	0xF441	HDI forced value	0.00 to 100.00	1.00	kHz	Real-time
F4-66	0xF442	Minimum input of HDI four-point curve	0.00 to F4-68	10.00	kHz	Real-time
F4-67	0xF443	Scaling of minimum input of four-point HDI curve	-100.0 to 100.0	-100.0	%	Real-time
F4-68	0xF444	Inflection point 1 input of HDI four-point curve	F4-66 to F4-70	40.00	kHz	Real-time
F4-69	0xF445	Scaling of inflection point 1 input of four-point HDI curve	-100.0 to 100.0	-30.0	%	Real-time
F4-70	0xF446	Inflection point 2 input of HDI four-point curve	F4-68 to F4-72	70.00	kHz	Real-time
F4-71	0xF447	Scaling of inflection point 2 input of four-point HDI curve	-100.0 to 100.0	30.0	%	Real-time
F4-72	0xF448	Maximum input of HDI four-point curve	F4-70~100.00	100.00	kHz	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F4-73	0xF449	Scaling of maximum input of four-point HDI curve	-100.0 to 100.0	100.0	%	Real-time
F4-74	0xF44A	HDI curve setting	Ones: HDI curve selection 0: Two-point curve 1: Four-point curve	0	-	Real-time
F4-75	0xF44B	HDI de-noising threshold	0.0 to 10.0	0.0	%	Real-time
F4-76	0xF44C	HDI curve upper/lower limit selection	0: Limited 1: Not limited	0	-	Real-time
F4-77	0xF44D	DI9 switch-on delay	0.0 to 3600.0	0.0	s	At stop
F4-78	0xF44E	DI9 switch-off delay	0.0 to 3600.0	0.0	s	At stop
F4-79	0xF44F	DI10 switch-on delay	0.0 to 3600.0	0.0	s	At stop
F4-80	0xF450	DI10 switch-off delay	0.0 to 3600.0	0.0	s	At stop
F5-00	0xF500	FM multi-functional terminal output selection	0: Pulse output (FMP) 1: Digital output (FMR)	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-01	0xF501	FMR output function selection	0: No output 1: AC drive in operation 2: Fault 3: Frequency level detection FDT1 4: Frequency reach 5: Running at zero speed (no output at stop) 6: Motor overload pre-alarm 7: AC drive overload pre-alarm 8: Set counting value reached 9: Designated counting value reached 10: Length reached 11: Simple PLC cycle completed 12: Cumulative running time reached 13: Swing frequency limited 14: Torque limited 15: Ready to run 16: AI1 > AI2 17: Frequency upper limit reached 18: Frequency lower limit reached (no output at stop) 19: Undervoltage state 20: Communication setting 21: Brake output 22: Positioning completed 23: Running at zero speed 2 (output at stop) 24: Cumulative power-on time reached 25: Frequency level detection FDT2 26: Frequency 1 reached 27: Frequency 2 reached 28: Current 1 reached 29: Current 2 reached (Continued)	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-01	0xF501	FMR output function selection	(Continued) 30: Timing reached 31: AI1 input limit exceeded 32: Load loss 33: Reverse run in progress 34: Zero current state 35: Module temperature reached 36: Output current limit exceeded 37: Frequency lower limit reached (no output at stop) 38: Alarm (all faults) 39: Motor overtemperature 40: Current operating time reached 41: Fault (excluding undervoltage) 42: STO 43: Operation limited 44: Brake output at stop (wire drawing machine) 45: Position lock completed Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-02	0xF502	Output function selection of control panel relay (T/A-T/B-T/C)	0: No output 1: AC drive in operation 2: Fault output + D304:M304 3: Frequency level detection FDT1 4: Frequency reach 5: Running at zero speed (no output at stop) 6: Motor overload pre-alarm 7: AC drive overload pre-alarm 8: Set counting value reached 9: Designated counting value reached 10: Length reached 11: Simple PLC cycle completed 12: Cumulative running time reached 13: Swing frequency limited 14: Torque limited 15: Ready to run 16: AI1 > AI2 17: Frequency upper limit reached 18: Frequency lower limit reached (no output at stop) 19: Undervoltage state 20: Communication setting 21: Brake output 22: Positioning completed 23: Running at zero speed 2 (output at stop) 24: Cumulative power-on time reached 25: Frequency level detection FDT2 26: Frequency 1 reached 27: Frequency 2 reached 28: Current 1 reached 29: Current 2 reached (Continued)	2	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-02	0xF502	Output function selection of control panel relay (T/A-T/B-T/C)	(Continued) 30: Timing reached 31: AI1 input limit exceeded 32: Load loss 33: Reverse run in progress 34: Zero current state 35: Module temperature reached 36: Output current limit exceeded 37: Frequency lower limit reached (no output at stop) 38: Alarm (all faults) 39: Motor overtemperature 40: Current operating time reached 41: Fault (excluding undervoltage) 42: STO 43: Operation limited 44: Brake output at stop (wire drawing machine) 45: Position lock completed Other: B connector	2	-	Real-time
F5-03	0xF503	Output function selection of DO4 on expansion card relay (P/A-P/B-P/C)	Same as F5-01	0	-	Real-time
F5-04	0xF504	DO1 output function selection	Same as F5-01	1	-	Real-time
F5-05	0xF505	Output function selection of DO2 on expansion card	Same as F5-01	4	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-06	0xF506	FMP output function selection	0: Operating frequency 1: Frequency reference 2: Output current 3: Output torque (absolute value) 4: Output power 5: Output voltage 6: Pulse input 7: AI1 8: AI2 9: AI3 10: Length 11: Count value 12: Communication 13: Motor speed 14: Output current. 100.0% corresponds to 1000 or 1000.0 A. 15: Bus voltage. 100.0% corresponds to 1000 or 1000.0 V. 16: Output torque (actual value) 17: Taper output 18: Roll diameter output 19: Tension output Others: F connector	0	-	Real-time
F5-07	0xF507	AO1 function selection	Same as F5-06	0	-	Real-time
F5-08	0xF508	Output function selection of AO2 on expansion card	Same as F5-06	1	-	Real-time
F5-09	0xF509	Maximum frequency of FMP output	0.01 to 100.00	50.00	kHz	Real-time
F5-10	0xF50A	AO1 zero offset coefficient	-100.0 to 100.0	0.0	%	Real-time
F5-11	0xF50B	AO1 gain	-10.00 to +10.00	1.00	-	Real-time
F5-12	0xF50C	AO2 zero offset coefficient	-100.0 to 100.0	0.0	%	Real-time
F5-13	0xF50D	AO2 gain	-10.00 to +10.00	1.00	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-22	0xF516	DO active state selection	Ones: FMR 0: Positive logic 1: Negative logic Tens: Relay 1 (DO3) 0: Positive logic 1: Negative logic Hundreds: Relay 2 (DO4) 0: Positive logic 1: Negative logic Thousands: DO1 0: Positive logic 1: Negative logic Ten thousands: DO2 0: Positive logic 1: Negative logic	0	-	Real-time
F5-24	0xF518	Switch-on delay of control board relay (DO3)	0.0 to 3600.0	0.0	s	Real-time
F5-25	0xF519	Switch-off delay of control board relay (DO3)	0.0 to 3600.0	0.0	s	Real-time
F5-26	0xF51A	FMR output switch-on delay	0.0 to 3600.0	0.0	s	Real-time
F5-27	0xF51B	FMR output switch-off delay	0.0 to 3600.0	0.0	s	Real-time
F5-28	0xF51C	DO1 output switch-on delay	0.0 to 3600.0	0.0	s	Real-time
F5-29	0xF51D	DO1 output switch-off delay	0.0 to 3600.0	0.0	s	Real-time
F5-30	0xF51E	Switch-on delay of expansion card relay (DO4)	0.0 to 3600.0	0.0	s	Real-time
F5-31	0xF51F	Switch-off delay of expansion card relay (DO4)	0.0 to 3600.0	0.0	s	Real-time
F5-32	0xF520	Switch-on delay of expansion card DO2 output	0.0 to 3600.0	0.0	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-33	0xF521	Switch-off delay of expansion card DO2 output	0.0 to 3600.0	0.0	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-34	0xF522	DO/RO output source	bit0: Relay 1 (DO3) output source 0: Output function setting 1: Communication bit1: FMR output source 0: Output function setting 1: Communication bit2: DO1 output source 0: Output function setting 1: Communication bit3: Relay 2 (DO4) output source 0: Output function setting 1: Communication bit4: DO2 output source 0: Output function setting 1: Communication bit5: VDO1 output source 0: Output function setting 1: Communication bit6: VDO2 output source 0: Output function setting 1: Communication bit7: VDO3 output source 0: Output function setting 1: Communication bit8: VDO4 output source 0: Output function setting 1: Communication bit9: VDO5 output source 0: Output function setting 1: Communication bit10: VDO6 output source 0: Output function setting 1: Communication bit11: VDO7 output source 0: Output function setting 1: Communication bit12: VDO8 output source 0: Output function setting 1: Communication bit13: VDO9 output source 0: Output function setting 1: Communication bit14: VDO10 output source 0: Output function setting 1: Communication bit15: VDO11 output source 0: Output function setting 1: Communication	0x0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-35	0xF523	DO/RO output terminal communication setting	bit0: Relay 1 (DO3) communication setting 0: Inactive level 1: Active level bit1: FMR communication setting 0: Inactive level 1: Active level bit2: DO1 communication setting 0: Inactive level 1: Active level bit3: Relay 2 (DO4) communication setting 0: Inactive level 1: Active level bit4: DO2 communication setting 0: Inactive level 1: Active level bit5: VDO1 communication setting 0: Inactive level 1: Active level bit6: VDO2 communication setting 0: Inactive level 1: Active level bit7: VDO3 communication setting 0: Inactive level 1: Active level bit8: VDO4 communication setting 0: Inactive level 1: Active level bit9: VDO5 communication setting 0: Inactive level 1: Active level (Continued)	0x0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-35	0xF523	DO/RO output terminal communication setting	(Continued) bit10: VDO6 communication setting 0: Inactive level 1: Active level bit11: VDO7 communication setting 0: Inactive level 1: Active level bit12: VDO8 communication setting 0: Inactive level 1: Active level bit13: VDO9 communication setting 0: Inactive level 1: Active level bit14: VDO10 communication setting 0: Inactive level 1: Active level bit15: VDO11 communication setting 0: Inactive level 1: Active level	0x0	-	Real-time
F5-36	0xF524	Minimum input of AO1 curve	-100.0 to F5-38	0.0	%	Real-time
F5-37	0xF525	Percentage corresponding to minimum input of AO1 curve	0.00 to 10.00	0.00	V	Real-time
F5-38	0xF526	Maximum input of AO1 curve	F5-36~100.0	100.0	%	Real-time
F5-39	0xF527	Percentage corresponding to maximum input of AO1 curve	0.00 to 10.00	10.00	V	Real-time
F5-40	0xF528	AO1 output offset	-10.00 to +10.00	0.00	V	Real-time
F5-41	0xF529	Minimum input of AO2 curve	-100.0 to F5-43	0.0	%	Real-time
F5-42	0xF52A	Setting corresponding to AO2 curve minimum input	0.00 to 10.00	0.00	V	Real-time
F5-43	0xF52B	Maximum input of AO2 curve	F5-41~100.0	100.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-44	0xF52C	Setting corresponding to AO2 curve maximum input	0.00 to 10.00	10.00	V	Real-time
F5-45	0xF52D	AO2 output offset	-10.00 to +10.00	0.00	V	Real-time
F5-46	0xF52E	AO curve selection	Ones: AO1 curve 0: Two-point curve 1: Gain+Offset Tens: AO2 curve 0: Two-point curve 1: Gain+Offset	11	-	Real-time
F5-47	0xF52F	AO polarity selection	Ones: AO1 selection 0: Normal value 1: Absolute value 2: Inverted value 3: Opposite to absolute value Tens: AO2 selection 0: Normal value 1: Absolute value 2: Inverted value 3: Opposite to absolute value	11	-	Real-time
F5-48	0xF530	AO hardware source	Ones: AO1 source 0: Output function setting 1: Forced value Tens: AO2 source 0: Output function setting 1: Forced value	0	-	Real-time
F5-49	0xF531	AO forced value 1	0.00 to 10.00	0.00	V	Real-time
F5-50	0xF532	AO forced value 2	0.00 to 10.00	0.00	V	Real-time
F5-51	0xF533	Minimum input of HDO curve	-100.00 to F5-53	0.00	%	Real-time
F5-52	0xF534	Percentage corresponding to the minimum input of HDO curve	0.00 to 100.00	0.00	%	Real-time
F5-53	0xF535	Maximum input of HDO curve	F5-51~100.00	100.00	%	Real-time
F5-54	0xF536	Percentage corresponding to the maximum input of HDO curve	0.00 to 100.00	100.00	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-55	0xF537	HDO polarity selection	Ones: HDO selection 0: Normal value 1: Absolute value 2: Inverted value 3: Opposite to absolute value	0	-	Real-time
F5-56	0xF538	HDO hardware source	0: Output function setting 1: Forced value	0	-	Real-time
F5-57	0xF539	HDO forced value	0.00 to 100.00	0.00	%	Real-time
F5-60	0xF53C	Output function selection of control panel relay (T/A2-T/B2-T/C2)	0: No output 1: AC drive in operation 2: Fault output + D304:M304 3: Frequency level detection FDT1 4: Frequency reach 5: Running at zero speed (no output at stop) 6: Motor overload pre-alarm 7: AC drive overload pre-alarm 8: Set counting value reached 9: Designated counting value reached 10: Length reached 11: Simple PLC cycle completed 12: Cumulative running time reached 13: Swing frequency limited 14: Torque limited 15: Ready to run 16: AI1 > AI2 17: Frequency upper limit reached 18: Frequency lower limit reached (no output at stop) 19: Undervoltage state 20: Communication setting 21: Brake output 22: Positioning completed 23: Running at zero speed 2 (output at stop) (Continued)	2	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-60	0xF53C	Output function selection of control panel relay (T/A2-T/B2-T/C2)	(Continued) 24: Cumulative power-on time reached 25: Frequency level detection FDT2 26: Frequency 1 reached 27: Frequency 2 reached 28: Current 1 reached 29: Current 2 reached 30: Timing reached 31: AI1 input limit exceeded 32: Load loss 33: Reverse run in progress 34: Zero current state 35: Module temperature reached 36: Output current limit exceeded 37: Frequency lower limit reached (no output at stop) 38: Alarm (all faults) 39: Motor overtemperature 40: Current operating time reached 41: Fault (excluding undervoltage) 42: STO 43: Operation limited 44: Brake output at stop (wire drawing machine) 45: Position lock completed Others: B connector	2	-	Real-time
F5-61	0xF53D	Valid state selection for output terminal (T/A2-T/B2-T/C2)	Ones: T/A2-T/B2-T/C2 0: Positive logic 1: Negative logic Tens: Reserved Hundreds: Reserved Thousands: Reserved Ten thousands: Reserved	0	-	Real-time
F5-62	0xF53E	Switch-on delay time for control panel relay (T/A2-T/B2-T/C2)	0.0 to 3600.0	0.0	s	Real-time
F5-63	0xF53F	Switch-off delay time for control panel relay (T/A2-T/B2-T/C2)	0.0 to 3600.0	0.0	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F5-64	0xF540	Output source setting for T/A2-T/B2-T/C2	bit0: Output source for T/A2-T/B2-T/C2 0: Output function setting 1: Communication bit1 to bit15: Reserved	0x0	-	Real-time
F5-65	0xF541	Communication setting for output terminal (T/A2-T/B2-T/C2)	bit0: Communication setting for T/A2-T/B2-T/C2 0: Inactive level 1: Active level bit1 to bit15: Reserved	0x0	-	Real-time
F6-00	0xF600	Start-up mode	0: Direct start 1: Flying start 2: Pre-excitation start (AC asynchronous motor) 3: SVC quick start	0	-	Real-time
F6-01	0xF601	Flying start mode	0: Starting from the stop frequency 1: Starting from the line frequency 2: Starting from the maximum frequency 3: Reserved 4: Field-oriented flying start (MD290)	4	-	Real-time
F6-02	0xF602	Flying start speed	1 to 100	20	-	Real-time
F6-03	0xF603	Start frequency	0.00 to 10.00	0.00	Hz	Real-time
F6-04	0xF604	Start frequency hold time	0.0 to 100.0	0.0	s	At stop
F6-05	0xF605	DC braking current at start	0 to 100	50	%	At stop
F6-06	0xF606	DC braking time at start	0.0 to 100.0	0.0	s	At stop
F6-07	0xF607	Acceleration/Deceleration mode	0: Line 1: S-curve	0	-	At stop
F6-08	0xF608	Time proportion of S-curve start segment	0.0 to 100.0	30.0	%	At stop
F6-09	0xF609	Time proportion of S-curve end segment	0.0 to 100.0	30.0	%	At stop
F6-10	0xF60A	Stop mode	0: Decelerate to stop 1: Coast to stop 2: Stop with maximum capability	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F6-11	0xF60B	Start frequency of DC braking at stop	0.00 to F0-10	0.00	Hz	Real-time
F6-12	0xF60C	DC braking waiting time at stop	0.0 to 100.0	0.0	s	Real-time
F6-13	0xF60D	DC braking current at stop	0 to 100	50	%	Real-time
F6-14	0xF60E	DC braking time at stop	0.0 to 100.0	0.0	s	Real-time
F6-15	0xF60F	Braking transistor usage rate	0 to 100	100	%	Real-time
F6-16	0xF610	Frequency sweeping current amplitude closed-loop Kp in speed tracking	0 to 1000	500	-	Real-time
F6-17	0xF611	Sweep current amplitude closed loop Ki in flying start	0 to 1000	800	-	Real-time
F6-18	0xF612	Flying start current	30 to 200	80	%	At stop
F6-19	0xF613	Current loop multiple	10 to 600	100	%	Real-time
F6-20	0xF614	S curve setting	0: Symmetrical mode 1: Separate setting of acceleration and deceleration arcs	0	-	At stop
F6-21	0xF615	Demagnetization time (applies to asynchronous motors)	0.00 to 5.00	0.50	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F6-22	0xF616	Start/Stop frequency follow-up	0: 0 1: 1 2: Reserved 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
F6-23	0xF617	Over-excitation selection	0: Inactive 1: Enabled during deceleration (regenerative) 2: Enabled during deceleration (DC bus overvoltage)	0	-	Real-time
F6-24	0xF618	Overexcitation suppression additional current	0 to 200	100	%	Real-time
F6-26	0xF61A	Braking transistor auto-inspection	0: Disable 1: Enable	0	-	At stop
F6-28	0xF61C	Manual self-check	bit0: IGBT shoot-through self-check at start 0: Disable 1: Enable bit1: Self-test on ground short circuit at start 0: Disable 1: Enable bit2: Self-test on phase loss at start 0: Disable 1: Enable bit3: Reserved	0x7	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F6-29	0xF61D	Manual self-check command	0: Disable 1: Static self-check 2: Full self-check 3: Static fault automatic diagnosis 4: Fault automatic diagnosis for with-load rotation 5: Fault automatic diagnosis for no-load rotation	0	-	At stop
F6-30	0xF61E	Shut-down delay time	0.00 to 650.00	0.00	s	At stop
F6-31	0xF61F	Active short circuit control	0: Disable 1: Enable	0	-	At stop
F6-32	0xF620	Delay time for entering active short circuit control	0.0 to 5000.0	0.0	ms	At stop
F6-33	0xF621	Holding time of active short circuit control at stop	0.1 to 3600.0	10.0	s	At stop
F6-34	0xF622	Current hysteresis loop high point coefficient in active short circuit control	0.0 to 120.0	80.0	%	At stop
F6-35	0xF623	Current hysteresis loop high/low point coefficient ratio in active short circuit control	0.0 to 99.9	90.0	%	At stop
F6-36	0xF624	Overvoltage threshold in active short circuit control	330.0 to 820.0	780.0	V	At stop
F6-37	0xF625	Voltage control point in active short circuit control	330.0 to F6-36	750.0	V	At stop
F6-38	0xF626	Voltage control bandwidth in active short circuit control	0.00 to 100.00	5.00	Hz	At stop
F6-39	0xF627	Voltage control time constant in active short circuit control	0.001 to 10.000	0.500	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
F6-40	0xF628	DC braking current rise time	0.00 to 100.00	0.00	s	At stop
F6-41	0xF629	DC braking superposition frequency	0.00 to 100.00	0.00	Hz	Real-time
F6-42	0xF62A	Position lock command source	0: Invalid 1: Active 2: Invalid (Reserved) 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
F6-43	0xF62B	Zero speed value of position lock	0.1 to 200.0	2.0	%	Real-time
F6-44	0xF62C	Position lock end amplitude	0 to 20000	10	-	At stop
F6-45	0xF62D	Position lock Kp1	1 to 1000	100	-	Real-time
F6-46	0xF62E	Position lock Kp2	1 to 1000	20	-	Real-time
F6-47	0xF62F	Kp switchover threshold upon position lock	0 to 65535	0	-	Real-time
F6-48	0xF630	Position lock judgment source	0: The real-time frequency is the reference value. 1: The real-time frequency is the feedback value.	0	-	Real-time
F6-49	0xF631	Braking transistor enable at stop	0: Inactive 1: Active	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F7-01	0xF701	MF.K key function	0: MF.K key disabled 1: Forcibly change to operating panel control 2: Forward/reverse run switchover 3: Forward jog 4: Reverse jog	0	-	At stop
F7-02	0xF702	STOP/RESET key function	0: Valid only in the operating panel control mode 1: Valid at OFF1 command 2: Valid at OFF2 command 3: Valid at OFF3 command	1	-	Real-time
F7-03	0xF703	Parameter 1 displayed on LED operating panel during operation	bit0: Operating frequency (Hz) bit1: Frequency reference (Hz) bit2: Bus voltage (V) bit3: Output voltage (V) bit4: Output current (A) bit5: Output power (kW) bit6: Output torque (%) bit7: DI input status bit8: DO output status bit9: AI1 voltage (V) bit10: AI2 voltage (V) bit11: AI3 voltage (V) bit12: Counting value bit13: Length value bit14: Load speed bit15: PID reference	0x1F	-	Real-time
F7-04	0xF704	Parameter 2 displayed on LED operating panel during operation	bit0: PID feedback bit1: PLC stage bit2: Pulse input reference (kHz) bit3: Operating frequency 2 (Hz) bit4: Remaining operating time bit5: AI1 voltage before correction (V) bit6: Free mapping 0 bit7: Free mapping 1 bit8: Motor speed bit9: Current power-on time (hour) bit10: Current running time (min.) bit11: Pulse input reference (Hz) bit12: Communication setting value bit13: Reserved bit14: Main frequency X bit15: Auxiliary frequency Y	0x0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F7-05	0xF705	Parameter displayed on LED operating panel at stop	bit0: Frequency reference (Hz) bit1: Bus voltage (V) bit2: DI input status bit3: DO output status bit4: AI1 voltage (V) bit5: AI2 voltage (V) bit6: AI3 voltage (V) bit7: Counting value bit8: Length value bit9: PLC phase bit10: Load speed bit11: PID reference bit12: Pulse input reference (kHz) bit13: Reserved bit14: Free mapping 0 bit15: Free mapping 1	0x33	-	Real-time
F7-06	0xF706	Load speed display coefficient	0.0001 to 6.5000	1.0000	-	Real-time
F7-07	0xF707	Inverter heatsink temperature	-20 to 120	0	°C	Unchangeable
F7-08	0xF708	Product code	0 to 65535	0	-	Unchangeable
F7-09	0xF709	Cumulative operating time	0 to 65535	0	h	Unchangeable
F7-10	0xF70A	Performance software version	0.00 to 655.35	0.00	-	Unchangeable
F7-11	0xF70B	Function software version	0.00 to 655.35	0.00	-	Unchangeable
F7-12	0xF70C	Number of decimal places for load speed display	Ones: Number of decimal places for U0-14/U0-24 0: Zero decimal place 1: One decimal place 2: Two decimal places Tens: Number of decimal places for U0-19/U0-29 1: One decimal place 2: Two decimal places Hundreds: Number of decimal places for U0-30/U0-31 1: One decimal place 2: Two decimal places	220	-	Real-time
F7-13	0xF70D	Cumulative power-on time	0 to 65535	0	h	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
F7-14	0xF70E	Cumulative power consumption	0 to 65535	0	kWh	Unchangeable
F7-15	0xF70F	Temporary performance software version	0.00 to 655.35	0.00	-	Unchangeable
F7-16	0xF710	Temporary function software version	0.00 to 655.35	0.00	-	Unchangeable
F7-17	0xF711	Level 0 menu display address (free mapping 0)	0: Invalid address Others: K connector	0	-	Real-time
F7-18	0xF712	Level 0 menu display address (free mapping 1)	0: Invalid address Others: K connector	0	-	Real-time
F7-19	0xF713	Level 0 menu display format (free mapping 0)	Ones: Unit 0: Disable 1: Hz 2: A 3: rpm 4: V 5: Link 6: % 7: s 8: h 9: kW 10: kWh 11: ℃ Tens: Decimal place 0: Zero decimal place 1: One decimal place 2: Two decimal places 3: Three decimal places 4: Four decimal places Hundreds: Enable 0: Disable 1: Enable	0x0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F7-20	0xF714	Level 0 menu display format (free mapping 1)	Ones: Unit 0: Disable 1: Hz 2: A 3: rpm 4: V 5: Link 6: % 7: s 8: h 9: kW 10: kWh 11: ℃ Tens: Decimal place 0: Zero decimal place 1: One decimal place 2: Two decimal places 3: Three decimal places 4: Four decimal places Hundreds: Enable 0: Disable 1: Enable	0x0	-	Real-time
F7-21	0xF715	LED operating panel button test	0: Invalid 1: Active	0	-	At stop
F7-22	0xF716	LED display of update cycle	10 to 300	10	-	Real-time
F7-23	0xF717	LED direction display	Ones: Whether to display the stop direction 0: Hidden 1: Displayed Tens: Reserved 0: Reserved 1: Reserved	1	-	Real-time
F7-28	0xF71C	Cumulative running time (second)	0 to 3599	0	s	Unchangeable
F7-29	0xF71D	Cumulative power-on time (second)	0 to 3599	0	s	Unchangeable
F7-30	0xF71E	Auxiliary calculation of cumulative power consumption	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
F7-31	0xF71F	Auxiliary calculation of cumulative power consumption of group U0	0 to 65535	0	-	Unchangeable
F7-32	0xF720	Low-order bits of cumulative power consumption	0.0 to 6553.5	0.0	kWh	Unchangeable
F7-33	0xF721	High-order bits of cumulative power consumption	0 to 65535	0	kWh	Unchangeable
F7-34	0xF722	Cumulative energy saving (GWh)	0 to 65535	0	GWh	Unchangeable
F7-35	0xF723	Cumulative energy saving (MWh)	0 to 999	0	MWh	Unchangeable
F7-36	0xF724	Cumulative energy saving (kWh)	0.0 to 999.9	0.0	kWh	Unchangeable
F7-37	0xF725	Cumulative cost saving (K)	0 to 65535	0	-	Unchangeable
F7-38	0xF726	Cumulative cost saving	0.0 to 999.9	0.0	-	Unchangeable
F7-39	0xF727	Cumulative CO2 reduction (KT)	0 to 65535	0	-	Unchangeable
F7-40	0xF728	Cumulative CO2 reduction (T)	0.0 to 999.9	0.0	-	Unchangeable
F7-41	0xF729	Cumulative energy auxiliary calculation 1	0 to 65535	0	-	Unchangeable
F7-42	0xF72A	Cumulative energy auxiliary calculation 2	0 to 65535	0	-	Unchangeable
F7-43	0xF72B	Energy tax rate 1	0.0 to 6553.5	0.0	-	Real-time
F7-44	0xF72C	Energy tax rate 2	0.0 to 6553.5	0.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F7-45	0xF72D	Tax rate selection	0: Energy tax rate 2 1: Energy tax rate 1	0	-	Real-time
F7-46	0xF72E	Currency unit selection	0: RMB 1: EUR 2: USD	0	-	Real-time
F7-47	0xF72F	CO2 conversion factor	0.000 to 65.535	0.000	-	Real-time
F7-48	0xF730	Reference power	0.0 to 6553.5	0.0	kW	Real-time
F7-49	0xF731	Reset of cumulative energy calculation	0 to 1	0	-	Real-time
F7-50	0xF732	3000H status word display	0: All status displayed 1: Motor parameter auto-tuning/ fault status not displayed	0	-	Real-time
F7-52	0xF734	Relation between frequency display and operating direction	bit0: U0-19 display 0: Related to operation direction 1: Not related to operation direction bit1: U0-29 display 0: Related to operation direction 1: Not related to operation direction bit2: U0-59 display 0: Related to operation direction 1: Not related to operation direction bit3: U0-60 display 0: Related to operation direction 1: Not related to operation direction bit4: U0-69 display 0: Related to operation direction 1: Not related to operation direction bit5: U0-70 display 0: Related to operation direction 1: Not related to operation direction bit6: Relation between reverse frequency prohibition function and running direction (F0-09) 0: Reverse frequency prohibition function is associated with F0-09. 1: Reverse frequency prohibition function is not associated with F0-09.	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F7-53	0xF735	Synchronous motor SVC version	0 to 65535	0	-	Unchangeable
F7-54	0xF736	Update year of synchronous motor SVC version	0 to 65535	0	-	Unchangeable
F7-55	0xF737	Update date of synchronous motor SVC version	0 to 65535	0	-	Unchangeable
F7-56	0xF738	Synchronous motor TLC version	0 to 65535	0	-	Unchangeable
F7-57	0xF739	Update year of synchronous motor TLC version	0 to 65535	0	-	Unchangeable
F7-58	0xF73A	Update date of synchronous motor TLC version	0 to 65535	0	-	Unchangeable
F8-00	0xF800	Jog frequency	0.00 to F0-10	2.00	Hz	Real-time
F8-01	0xF801	Jog acceleration time	0.0 to 6500.0	20.0	s	Real-time
F8-02	0xF802	Jog deceleration time	0.0 to 6500.0	20.0	s	Real-time
F8-03	0xF803	Acceleration time 2	0.0 to 6500.0	20.0	s	Real-time
F8-04	0xF804	Deceleration time 2	0.0 to 6500.0	20.0	s	Real-time
F8-05	0xF805	Acceleration time 3	0.0 to 6500.0	20.0	s	Real-time
F8-06	0xF806	Deceleration time 3	0.0 to 6500.0	20.0	s	Real-time
F8-07	0xF807	Acceleration time 4	0.0 to 6500.0	0.0	s	Real-time
F8-08	0xF808	Deceleration time 4	0.0 to 6500.0	0.0	s	Real-time
F8-09	0xF809	Jump frequency 1	0.00 to F0-10	0.00	Hz	Real-time
F8-10	0xF80A	Jump frequency 2	0.00 to F0-10	0.00	Hz	Real-time
F8-11	0xF80B	Jump frequency amplitude	0.00 to F0-10	0.00	Hz	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F8-12	0xF80C	Dead time for forward/ reverse run switchover	0.0 to 3000.0	0.0	s	Real-time
F8-13	0xF80D	Reverse run frequency inhibited	0: Invalid 1: Active	0	-	Real-time
F8-14	0xF80E	Operation mode at frequencies below the lower limit	0: Run at frequency lower limit 1: Stop 2: Run at zero speed 3: Coast to stop	0	-	Real-time
F8-15	0xF80F	Droop control	0.00 to 10.00	0.00	%	Real-time
F8-16	0xF810	Power-on time threshold in hours	0 to 65535	0	h	Real-time
F8-17	0xF811	Set operating time threshold in hours	0 to 65535	0	h	Real-time
F8-18	0xF812	Protection upon start	0: Disable 1: Enable	1	-	Real-time
F8-19	0xF813	Frequency detection value (FDT1)	0.00 to F0-10	50.00	Hz	Real-time
F8-20	0xF814	Frequency detection hysteresis (FDT1)	0.0 to 100.0	5.0	%	Real-time
F8-21	0xF815	Frequency detection window	0.0 to 100.0	0.0	%	Real-time
F8-22	0xF816	Jump frequency state during acceleration/ deceleration	0: Invalid 1: Active	0	-	Real-time
F8-23	0xF817	Output voltage filter	1 to 65535	128	-	Real-time
F8-24	0xF818	Output power filter	1 to 65535	128	-	Real-time
F8-25	0xF819	Frequency for ramp-up time 1/2 switchover	0.00 to F0-10	0.00	Hz	Real-time
F8-26	0xF81A	Frequency threshold for ramp-down time 1/2 switchover	0.00 to F0-10	0.00	Hz	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F8-27	0xF81B	JOG priority mode selection	0: Priority not differentiated 1: Jog command has priority. 2: OFF1 command has priority.	0	-	Real-time
F8-28	0xF81C	Frequency detection value (FDT2 level)	0.00 to F0-10	50.00	Hz	Real-time
F8-29	0xF81D	Frequency detection hysteresis (FDT2)	0.0 to 100.0	5.0	%	Real-time
F8-30	0xF81E	Frequency detection value 1	0.00 to F0-10	50.00	Hz	Real-time
F8-31	0xF81F	Frequency arrival amplitude 1	0.1 to 100.0	0.1	%	Real-time
F8-32	0xF820	Frequency detection value 2	0.00 to F0-10	50.00	Hz	Real-time
F8-33	0xF821	Frequency arrival amplitude 2	0.1 to 100.0	0.1	%	Real-time
F8-34	0xF822	Zero current detection level	0.0 to 300.0	5.0	%	Real-time
F8-35	0xF823	Zero current detection delay time	0.01 to 600.00	0.10	s	Real-time
F8-36	0xF824	Output current overlimit threshold	0.0 to 300.0	200.0	%	Real-time
F8-37	0xF825	Delay time for output current limit violation detection	0.00 to 600.00	0.00	s	Real-time
F8-38	0xF826	Current detection base value 1	0.0 to 300.0	100.0	%	Real-time
F8-39	0xF827	Current detection window 1	0.0 to 300.0	0.0	%	Real-time
F8-40	0xF828	Current detection base value 2	0.0 to 300.0	100.0	%	Real-time
F8-41	0xF829	Current detection window 2	0.0 to 300.0	0.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F8-42	0xF82A	Timing function	0: Invalid 1: Active	0	-	At stop
F8-43	0xF82B	Timing operation time setting source	0: Set by F8-44 (Running time) 1: AI1 2: AI2 3: AI3 Others: F connector	0	-	At stop
F8-44	0xF82C	Timing operation time	0.0 to 6500.0	0.0	min.	At stop
F8-45	0xF82D	Lower limit of AI1 input voltage protection value	0.00 to F8-46	3.10	V	Real-time
F8-46	0xF82E	Upper limit of AI1 input voltage protection value	F8-45~10.00	6.80	V	Real-time
F8-47	0xF82F	Module temperature reach (threshold)	0 to 100	75	°C	Real-time
F8-48	0xF830	Fan control	0: Operating during drive running 1: Always operating 2: Reserved	0	-	Real-time
F8-49	0xF831	Wakeup frequency source	F8-51 to F0-10	0.00	Hz	Real-time
F8-50	0xF832	Wakeup delay time	0.0 to 6500.0	0.0	s	Real-time
F8-51	0xF833	Hibernation frequency	0.00 to F8-49	0.00	Hz	Real-time
F8-52	0xF834	Hibernation delay time	0.0 to 6500.0	0.0	s	Real-time
F8-53	0xF835	Current operating time threshold	0.0 to 6500.0	0.0	min.	At stop
F8-54	0xF836	Output power calibration factor	0.0 to 200.0	100.0	%	Real-time
F8-55	0xF837	Ramp-down time for quick stop	0.0 to 6500.0	0.0	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F8-56	0xF838	Real-time target speed source	0: RFG output (default) 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	At stop
F8-57	0xF839	Scaling of undervoltage storage	70 to 120	100	%	Real-time
F8-58	0xF83A	EEPROM operation count per unit time	0 to 100	0	-	Real-time
F8-59	0xF83B	Forced DI function	0: Non-forced DI function in group F4 (To activate the DI function, set the corresponding parameter to "2: terminal function input".) 1: DI function of parameters in group F4 is forcibly prioritized.	1	-	Real-time
F8-60	0xF83C	Main status setting word 1	0: Invalid 1: Set to 1 Others: B connector	0	-	Real-time
F8-61	0xF83D	Main status setting word 2	0: Invalid 1: Set to 1 Others: B connector	0	-	Real-time
F8-62	0xF83E	Hysteresis value when target speed is reached	0.0 to 600.0	3.0	%	Real-time
F8-63	0xF83F	Target speed arrival time	0.00 to 100.00	3.00	s	Real-time
F8-64	0xF840	Speed comparison arrival threshold 1	0.0 to 600.0	100.0	%	Real-time
F8-65	0xF841	Speed comparison arrival hysteresis 1	0.0 to 600.0	3.0	%	Real-time
F8-66	0xF842	Speed comparison arrival time 1	0.00 to 100.00	3.00	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F8-67	0xF843	Speed comparison arrival threshold 2	0.0 to 600.0	100.0	%	Real-time
F8-68	0xF844	Speed comparison arrival hysteresis 2	0.0 to 600.0	3.0	%	Real-time
F8-69	0xF845	Speed comparison arrival time 2	0.00 to 100.00	3.00	s	Real-time
F8-70	0xF846	Output current calibration coefficient	80.0 to 120.0	100.0	%	Real-time
F8-71	0xF847	Output current filter	1 to 65535	128	-	Real-time
F8-72	0xF848	Jump frequency 3	0.00 to F0-10	0.00	Hz	Real-time
F8-73	0xF849	Jump frequency 4	0.00 to F0-10	0.00	Hz	Real-time
F8-74	0xF84A	Power-on time threshold in seconds	0 to 3599	0	s	Real-time
F8-75	0xF84B	Set operating time threshold in seconds	0 to 3599	0	s	Real-time
F8-76	0xF84C	CiA 402 related value selection	Ones: Acceleration/Deceleration time selection 0: System acceleration/ deceleration time 1: CiA402 acceleration/ deceleration time Tens: Frequency upper and lower limit selection 0: Not written to F0-12/F0-14 through CiA 402 1: Written to F0-12/F0-14 through CiA 402	0	-	At stop
F8-77	0xF84D	Hardware position limit function	0: Invalid 1: Enable	0	-	At stop
F9-00	0xF900	Motor overload protection selection	0: Disable 1: Enable	1	-	Real-time
F9-01	0xF901	Motor overload protection gain	0.20 to 10.00	1.00	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-02	0xF902	Motor overload warning coefficient	50 to 100	80	%	Real-time
F9-03	0xF903	Overvoltage stall suppression gain	1 to 500	30	-	Real-time
F9-04	0xF904	Overvoltage stall suppression protection voltage	330.0 to 800.0	770.0	V	Real-time
F9-06	0xF906	Reset mode upon short circuit to ground	0: Reset allowed only after power-off 1: Reset allowed	0	-	At stop
F9-07	0xF907	Protection against short circuit to ground	Ones: Protection against short circuit to ground upon power-on 0: Invalid 1: Active Tens: Protection against short circuit to ground before running 0: Invalid 1: Active	1	-	Real-time
F9-08	0xF908	Start voltage for braking unit action	330.0 to 800.0	760.0	V	At stop
F9-09	0xF909	Number of automatic fault resets	0 to 100	0	-	Real-time
F9-10	0xF90A	Selection of relay action during automatic fault reset	0: Not act 1: Act	0	-	Real-time
F9-11	0xF90B	Interval time of automatic fault reset	0.1 to 600.0	1.0	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-12	0xF90C	Protective functions	Ones: Protection against input phase loss 0: Disable 1: Protection enabled when both software and hardware input phase loss conditions are met 2: Protection enabled when software input phase loss conditions are met 3: Protection enabled when hardware input phase loss conditions are met Tens: contactor pickup protection 0: Disable 1: Enable Hundreds: T13 rectifier fault protection 0: Disable 1: Enable	11	-	Real-time
F9-13	0xF90D	Output phase loss protection	Ones: Protection against output phase loss during running 0: Disable 1: Enable Tens: Protection against output phase loss before running 0: Disable 1: Enable	1	-	Real-time
F9-14	0xF90E	Type of the 1st fault	0 to 65535	0	-	Unchangeable
F9-15	0xF90F	Type of the 2nd fault	0 to 65535	0	-	Unchangeable
F9-16	0xF910	Type of the 3rd (latest) fault	0 to 65535	0	-	Unchangeable
F9-17	0xF911	Frequency upon the 3rd (latest) fault	-327.68 to 327.67	0.00	Hz	Unchangeable
F9-18	0xF912	Current upon the 3rd (latest) fault	-327.68 to 327.67	0.00	A	Unchangeable
F9-19	0xF913	Bus voltage upon the 3rd (latest) fault	0.0 to 6553.5	0.0	V	Unchangeable
F9-20	0xF914	Input terminal state upon the 3rd (latest) fault	0x0 to 0xFFFF	0x0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-21	0xF915	Output terminal state upon the 3rd (latest) fault	0x0 to 0xFFFF	0x0	-	Unchangeable
F9-22	0xF916	AC drive state upon the 3rd (latest) fault	0 to 65535	0	-	Unchangeable
F9-23	0xF917	Power-on duration upon the 3rd (latest) fault	0 to 65535	0	min.	Unchangeable
F9-24	0xF918	Running duration upon the 3rd (latest) fault	0.0 to 6553.5	0.0	min.	Unchangeable
F9-25	0xF919	Status word A upon the 3rd (latest) fault	0x0 to 0xFFFF	0x0	-	Unchangeable
F9-26	0xF91A	Status word B upon the third (latest) fault	0x0 to 0xFFFF	0x0	-	Unchangeable
F9-27	0xF91B	Frequency upon the 2nd fault	-327.68 to 327.67	0.00	Hz	Unchangeable
F9-28	0xF91C	Current upon the 2nd fault	-327.68 to 327.67	0.00	A	Unchangeable
F9-29	0xF91D	Bus voltage upon the 2nd fault	0.0 to 6553.5	0.0	V	Unchangeable
F9-30	0xF91E	Input terminal state upon the 2nd fault	0x0 to 0xFFFF	0x0	-	Unchangeable
F9-31	0xF91F	Output terminal state upon the 2nd fault	0x0 to 0xFFFF	0x0	-	Unchangeable
F9-32	0xF920	AC drive state upon 2nd fault	0 to 65535	0	-	Unchangeable
F9-33	0xF921	Power-on time upon the 2nd fault	0 to 65535	0	min.	Unchangeable
F9-34	0xF922	Operating time upon the 2nd fault	0.0 to 6553.5	0.0	min.	Unchangeable
F9-35	0xF923	Status word A upon the 2nd fault	0x0 to 0xFFFF	0x0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-36	0xF924	Status word B upon the 2nd fault	0x0 to 0xFFFF	0x0	-	Unchangeable
F9-37	0xF925	Frequency upon the 1st fault	-327.68 to 327.67	0.00	Hz	Unchangeable
F9-38	0xF926	Current upon the 1st fault	-327.68 to 327.67	0.00	A	Unchangeable
F9-39	0xF927	Bus voltage upon the 1st fault	0.0 to 6553.5	0.0	V	Unchangeable
F9-40	0xF928	Input terminal state upon the 1st fault	0x0 to 0xFFFF	0x0	-	Unchangeable
F9-41	0xF929	Output terminal state upon the 1st fault	0x0 to 0xFFFF	0x0	-	Unchangeable
F9-42	0xF92A	AC drive state upon the 1st fault	0 to 65535	0	-	Unchangeable
F9-43	0xF92B	Power-on time upon the 1st fault	0 to 65535	0	min.	Unchangeable
F9-44	0xF92C	Running time upon the 1st fault	0.0 to 6553.5	0.0	min.	Unchangeable
F9-45	0xF92D	Status word A upon the 1st fault	0x0 to 0xFFFF	0x0	-	Unchangeable
F9-46	0xF92E	Status word B upon the 1st fault	0x0 to 0xFFFF	0x0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-47	0xF92F	Protective action selection 1 upon fault	Ones: Motor overload (E011.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault Tens: Input phase loss (E012.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault Hundreds: Output phase loss (E013.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current Thousands: External fault (E015.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current Ten thousands: Reserved	0	-	Real-time
F9-48	0xF930	Fault protection action selection 2	Ones: Reserved Tens: Parameter read/write error (E021.x) 0: Coast to stop 1: Stop according to the stop mode Hundreds: Reserved Ten thousands: Rectifier fault (E025.x) 0: Coast to stop Ten thousands: Running time arrival (E026.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-49	0xF931	Fault protection action selection 3	Ones: User-defined fault 1 (E027.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current Tens: User-defined fault 2 (E028.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current Hundreds: Power-on time arrival (E029.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current Thousands: Load loss (E030.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault Ten thousands: PID feedback loss during running (E031.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current	20	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-50	0xF932	Fault protection action selection 4	Ones: Excessive speed deviation (E042.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault Tens: Motor overspeed (E043.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault Hundreds: Error in magnetic pole position auto-tuning (E051.x) 0: Coast to stop Thousands: Low liquid level fault (E066.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault Ten thousands: Internal fan fault (E65.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current	2000	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-51	0xF933	Protective action selection 5 upon fault	Ones: Modbus timeout (E160.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault Tens: CANopen fault (E161.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault Hundreds: CANlink fault (E162.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault Thousands: Reserved Ten-thousands: Expansion card fault (E164.x) 0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault	10111	-	Real-time
F9-54	0xF936	Operating frequency upon fault	0: Current running frequency 1: Frequency reference 2: Frequency upper limit 3: Frequency lower limit 4: Backup frequency upon fault (F9-55) 5: Running frequency after being filtered for a period of time (F9-66)	1	-	Real-time
F9-55	0xF937	Backup frequency upon fault	0.0 to 100.0	100.0	%	Real-time
F9-56	0xF938	AI3 temperature mode - motor temperature sensor type	0: No temperature sensor (AI used for analog input) 1: PT100 2: PT1000	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-57	0xF939	AI3 temperature mode - motor overtemperature protection threshold	F9-58~200	110	℃	Real-time
F9-58	0xF93A	AI3 temperature mode - motor overheat warning threshold	0 to F9-57	90	℃	Real-time
F9-59	0xF93B	Power dip ride-through function	0: Invalid 1: Deceleration (Bus voltage constant control) 2: Decelerate to stop 3: Voltage dip suppression	0	-	At stop
F9-60	0xF93C	Threshold for recovery from power dip ride-through	80 to 100	85	%	At stop
F9-61	0xF93D	Duration for judging voltage recovery from power dip ride-through	0.0 to 100.0	0.5	s	At stop
F9-62	0xF93E	Threshold for enabling power dip ride-through	60 to 100	80	%	At stop
F9-64	0xF940	Load loss detection level	0.0 to 100.0	10.0	%	Real-time
F9-65	0xF941	Load loss detection time	0.0 to 60.0	1.0	s	Real-time
F9-66	0xF942	Operating frequency filter time upon fault	0.00 to 30.00	0.50	s	Real-time
F9-67	0xF943	Overspeed detection value	0.0 to 50.0	20.0	%	Real-time
F9-68	0xF944	Overspeed detection time	0.0 to 60.0	1.0	s	Real-time
F9-69	0xF945	Detection value for excessive speed deviation	0.0 to 50.0	20.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-70	0xF946	Detection time for excessive speed deviation	0.0 to 60.0	5.0	s	Real-time
F9-71	0xF947	Power dip ride-through gain Kp	1 to 100	40	-	Real-time
F9-72	0xF948	Integral coefficient Ki of power dip ride-through	1 to 100	30	-	Real-time
F9-73	0xF949	Deceleration time of power dip ride-through	0.0 to 300.0	20.0	s	Real-time
F9-74	0xF94A	Voltage dip suppression time	0.1 to 600.0	0.5	s	Real-time
F9-75	0xF94B	AI2 temperature mode - Motor temperature sensor type	0: No temperature sensor (AI used for analog input) 1: PT100 2: PT1000 3: KTY84-130 4: Single-conductor PTC-130 5: Three-conductor PTC-130 6: Single-conductor PTC150 7: Three-conductor PTC150 8: Three PT100s connected in series 9: KTY83-110	0	-	Real-time
F9-76	0xF94C	AI2 temperature mode - Motor overtemperature protection threshold	F9-77~200	110	°C	Real-time
F9-77	0xF94D	AI2 temperature mode - motor overheat warning threshold	0 to F9-76	90	°C	Real-time
F9-78	0xF94E	AI2 temperature mode - Motor temperature arrival	0 to 100	75	°C	Real-time
F9-79	0xF94F	Automatic reset of STO status	0: Manual reset 1: Automatic reset	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
F9-80	0xF950	AI3 temperature mode - motor temperature reach	0 to 100	75	°C	Real-time
F9-87	0xF957	Dual-STO disconnection fault selection	0 to 1	0	-	Real-time
F9-88	0xF958	Asynchronous judgment time for disconnection of dual STOs	0.010 to 0.200	0.010	s	Real-time
F9-91	0xF95B	Target frequency of deceleration limit	0.00 to 50.00	8.00	Hz	Real-time
F9-92	0xF95C	Excessively low carrier ratio alarm	0: Disable 1: Enable	1	-	Real-time
F9-93	0xF95D	Excessively low carrier ratio alarm threshold	10.00 to 30.00	10.00	-	Real-time
F9-94	0xF95E	Effective time of flux linkage change in energy-saving control	0.10 to 5.00	1.00	-	Real-time
F9-95	0xF95F	Frequency lower limit in energy-saving control	0.00 to 0.30	0.10	-	Real-time
FA-00	0xFA00	PID reference source	0: FA-01 1: AI1 2: AI2 3: AI3 4: Pulse input (DI5) 5: Communication 6: Multi-reference Others: F connector	0	-	Real-time
FA-01	0xFA01	PID digital setting	0.0 to 100.0	50.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FA-02	0xFA02	PID feedback source	0: AI1 1: AI2 2: AI3 3: AI1 – AI2 4: Pulse reference (DIO1) 5: Communication 6: AI1 + AI2 7: Max. (|AI1|, |AI2|) 8: Min. (|AI1|, |AI2|) Others: F connector	0	-	Real-time
FA-03	0xFA03	PID action direction	0: Direct acting 1: Negative Others: B connector	0	-	Real-time
FA-04	0xFA04	PID reference feedback range	0 to 65535	1000	-	Real-time
FA-05	0xFA05	Proportional gain Kp1	0.0 to 1000.0	20.0	-	Real-time
FA-06	0xFA06	Integral time Ti1	0.01 to 10.00	2.00	s	Real-time
FA-07	0xFA07	Derivative time Td 1	0.000 to 10.000	0.000	s	Real-time
FA-08	0xFA08	Cut-off frequency of PID reverse acting	0.00 to F0-10	2.00	Hz	Real-time
FA-09	0xFA09	PID deviation limit	0.0 to 100.0	0.0	%	Real-time
FA-10	0xFA0A	PID differential limit	0.00 to 100.00	0.10	%	Real-time
FA-11	0xFA0B	PID reference change time	0.00 to 650.00	0.00	s	Real-time
FA-12	0xFA0C	PID feedback filter time	0.00 to 60.00	0.00	s	Real-time
FA-13	0xFA0D	PID output filter time	0.00 to 60.00	0.00	s	Real-time
FA-15	0xFA0F	Proportional gain Kp 2	0.0 to 1000.0	20.0	-	Real-time
FA-16	0xFA10	Integral time Ti 2	0.01 to 10.00	2.00	s	Real-time
FA-17	0xFA11	Derivative time Td 2	0.000 to 10.000	0.000	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FA-18	0xFA12	PID parameter switchover condition	0: Not switchover 1: Switched by DI 2: Switched automatically based on deviation 3: Switched automatically based on operating frequency 4: Automatic adjustment mode 1 based on roll diameter 5: Automatic adjustment mode 2 based on roll diameter	0	-	Real-time
FA-19	0xFA13	PID parameter switchover deviation 1	0.0 to FA-20	20.0	%	Real-time
FA-20	0xFA14	PID parameter switchover deviation 2	FA-19 to 100.0	80.0	%	Real-time
FA-21	0xFA15	PID initial value	0.0 to 100.0	0.0	%	Real-time
FA-22	0xFA16	PID initial value holding time	0.00 to 650.00	0.00	s	Real-time
FA-25	0xFA19	PID integral property	Ones: Integral separation 0: Invalid 1: Active Tens: Whether to stop integral operation when the output reaches the limit 0: Continue integral operation 1: Stop integral operation	10	-	Real-time
FA-26	0xFA1A	Detection lower limit of PID feedback loss	0.0 to 100.0	0.0	%	Real-time
FA-27	0xFA1B	Detection time for PID feedback loss	0.0 to 20.0	0.0	s	Real-time
FA-28	0xFA1C	PID operation at stop	0: No operation at stop 1: Operation performed at stop Others: B connector	0	-	Real-time
FA-29	0xFA1D	Detection upper limit of PID feedback loss	0.0 to 100.0	100.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FA-30	0xFA1E	Source of maximum output value	0: [1] 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
FA-31	0xFA1F	Source of minimum output value	0: [0] 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
FA-32	0xFA20	Forced output value	0: [0] 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
FA-33	0xFA21	Forced output value	0: Invalid 1: Valid Others: B connector	0	-	Real-time
FA-34	0xFA22	General PID enable	0: Disable 1: Enable Others: B connector	1	-	Real-time
FA-35	0xFA23	PID saturation integral processing mode selection	0: Disable 1: Active	0	-	Real-time
FA-36	0xFA24	PID open circuit detection delay upon start	0.0 to 20.0	6.0	s	Real-time
FA-37	0xFA25	Reference value changing from current feedback	0: Disable 1: Active	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
FB-00	0xFB00	Wobble frequency setting mode	0: Relative to the central frequency 1: Relative to the maximum frequency	0	-	Real-time
FB-01	0xFB01	Wobble amplitude	0.0 to 100.0	0.0	%	Real-time
FB-02	0xFB02	Wobble step	0.0 to 50.0	0.0	%	Real-time
FB-03	0xFB03	Wobble frequency cycle	0.1 to 3000.0	10.0	s	Real-time
FB-04	0xFB04	Triangular wave rise time of wobble frequency	0.1 to 100.0	50.0	%	Real-time
FB-05	0xFB05	Length setpoint	0 to 65535	1000	m	Real-time
FB-06	0xFB06	Actual length	0 to 65535	0	m	Unchangeable
FB-07	0xFB07	Number of pulses per meter	0.1 to 6553.5	100.0	-	Real-time
FB-08	0xFB08	Set count value	0 to 65535	1000	-	Real-time
FB-09	0xFB09	Specified count value	0 to 65535	1000	-	Real-time
FB-20	0xFB14	Motorized potentiometer enable	0: Disable 1: Enable 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
FB-21	0xFB15	Retention of motorized potentiometer upon power failure	0: Disable 1: Enable	0	-	Real-time
FB-22	0xFB16	Initial value of motorized potentiometer	-600.0 to 600.0	0.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FB-23	0xFB17	Motor-driven potentiometer time increase benchmark	0.00 to 655.35	20.00	s	Real-time
FB-24	0xFB18	Motor-driven potentiometer time decrease benchmark	0.00 to 655.35	20.00	s	Real-time
FB-25	0xFB19	Motor-driven potentiometer increase command source	0: Invalid 1: Active 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
FB-26	0xFB1A	Motor-driven potentiometer decrease command source	Same as FB-25	0	-	Real-time
FB-27	0xFB1B	Motor-driven potentiometer max. output	-600.0 to 600.0	600.0	%	Real-time
FB-28	0xFB1C	Motor-driven potentiometer min. output	-600.0 to 600.0	-600.0	%	Real-time
FB-29	0xFB1D	Motor-driven potentiometer pause command source 1	Same as FB-25	0	-	Real-time
FB-30	0xFB1E	Source 2 of motorized potentiometer pause command	Same as FB-25	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FB-31	0xFB1F	Motor-driven potentiometer reset command source 1	Same as FB-25	0	-	Real-time
FB-32	0xFB20	Source 2 of motorized potentiometer reset command	Same as FB-25	0	-	Real-time
FB-33	0xFB21	Source of reset value of motor-driven potentiometer	0: Digital setting 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
FB-34	0xFB22	Motor-driven potentiometer reset value digital setting	-600.0 to 600.0	0.0	%	Real-time
FB-35	0xFB23	Motor-driven potentiometer force command source	Same as FB-25	0	-	Real-time
FB-36	0xFB24	Source of motorized potentiometer force value	0: Digital setting 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
FB-37	0xFB25	Digital reference of motorized potentiometer forced value	-600.0 to 600.0	0.0	%	Real-time
FB-38	0xFB26	High bits of the value saved by motorized potentiometer	0 to 65535	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FB-39	0xFB27	High bits of the value saved by motorized potentiometer	0 to 65535	0	-	Real-time
FB-45	0xFB2D	SOP timeout detection threshold	0.50 to 655.35	0.50	s	Real-time
FB-46	0xFB2E	Adjustment of UP/DOWN key or terminal functioning as UP/DOWN key	-32767 to +32767	0	-	Unchangeable
FC-00	0xFC00	Multi-reference 1	-100.0 to 100.0	0.0	%	Real-time
FC-01	0xFC01	Multi-reference 2	-100.0 to 100.0	0.0	%	Real-time
FC-02	0xFC02	Multi-reference 3	-100.0 to 100.0	0.0	%	Real-time
FC-03	0xFC03	Multi-reference 4	-100.0 to 100.0	0.0	%	Real-time
FC-04	0xFC04	Multi-reference 5	-100.0 to 100.0	0.0	%	Real-time
FC-05	0xFC05	Multi-reference 6	-100.0 to 100.0	0.0	%	Real-time
FC-06	0xFC06	Multi-reference 7	-100.0 to 100.0	0.0	%	Real-time
FC-07	0xFC07	Multi-reference 8	-100.0 to 100.0	0.0	%	Real-time
FC-08	0xFC08	Multi-reference 9	-100.0 to 100.0	0.0	%	Real-time
FC-09	0xFC09	Multi-reference 10	-100.0 to 100.0	0.0	%	Real-time
FC-10	0xFC0A	Multi-reference 11	-100.0 to 100.0	0.0	%	Real-time
FC-11	0xFC0B	Multi-reference 12	-100.0 to 100.0	0.0	%	Real-time
FC-12	0xFC0C	Multi-reference 13	-100.0 to 100.0	0.0	%	Real-time
FC-13	0xFC0D	Multi-reference 14	-100.0 to 100.0	0.0	%	Real-time
FC-14	0xFC0E	Multi-reference 15	-100.0 to 100.0	0.0	%	Real-time
FC-15	0xFC0F	Multi-reference 16	-100.0 to 100.0	0.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FC-16	0xFC10	Simple PLC operation mode	0: Stop after a single-shot operation 1: Keep final values after single-shot operation 2: Running cyclically	0	-	Real-time
FC-17	0xFC11	Simple PLC retention selection	Ones: Retention upon power failure 0: Non-retentive 1: Retentive Tens: Retention at stop 0: No 1: Yes	0	-	Real-time
FC-18	0xFC12	Operating time of multi-reference 1 set by simple PLC	0.0 to 6553.5	0.0	s (h)	Real-time
FC-19	0xFC13	Ramp-up/down time of multi-reference 1 set by simple PLC	0 to 3	0	-	Real-time
FC-20	0xFC14	Running time of multi-reference 2 set by simple PLC	0.0 to 6553.5	0.0	s (h)	Real-time
FC-21	0xFC15	Acceleration/Deceleration time of multi-reference 2 set through simple PLC	0 to 3	0	-	Real-time
FC-22	0xFC16	Operating time of multi-reference 3 set by simple PLC	0.0 to 6553.5	0.0	s (h)	Real-time
FC-23	0xFC17	Acceleration/deceleration time of simple PLC reference 3	0 to 3	0	-	Real-time
FC-24	0xFC18	Operating time of multi-reference 4 set by simple PLC	0.0 to 6553.5	0.0	s (h)	Real-time
FC-25	0xFC19	Acceleration/deceleration time of simple PLC reference 4	0 to 3	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FC-26	0xFC1A	Running time of simple PLC reference 5	0.0 to 6553.5	0.0	s (h)	Real-time
FC-27	0xFC1B	Acceleration/ deceleration time of simple PLC reference 5	0 to 3	0	-	Real-time
FC-28	0xFC1C	Running time of simple PLC reference 6	0.0 to 6553.5	0.0	s (h)	Real-time
FC-29	0xFC1D	Acceleration/ Deceleration time of multi-reference 6 set by simple PLC	0 to 3	0	-	Real-time
FC-30	0xFC1E	Running time of simple PLC reference 7	0.0 to 6553.5	0.0	s (h)	Real-time
FC-31	0xFC1F	Acceleration/ Deceleration time of multi-reference 7 set by simple PLC	0 to 3	0	-	Real-time
FC-32	0xFC20	Running time of simple PLC reference 8	0.0 to 6553.5	0.0	s (h)	Real-time
FC-33	0xFC21	Acceleration/ Deceleration time of multi-reference 8 set by simple PLC	0 to 3	0	-	Real-time
FC-34	0xFC22	Running time of simple PLC reference 9	0.0 to 6553.5	0.0	s (h)	Real-time
FC-35	0xFC23	Acceleration/ deceleration time of simple PLC reference 9	0 to 3	0	-	Real-time
FC-36	0xFC24	Running time of simple PLC reference 10	0.0 to 6553.5	0.0	s (h)	Real-time
FC-37	0xFC25	Acceleration/ deceleration time of simple PLC reference 10	0 to 3	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FC-38	0xFC26	Running time of simple PLC reference 11	0.0 to 6553.5	0.0	s (h)	Real-time
FC-39	0xFC27	Acceleration/ deceleration time of simple PLC reference 11	0 to 3	0	-	Real-time
FC-40	0xFC28	Running time of simple PLC reference 12	0.0 to 6553.5	0.0	s (h)	Real-time
FC-41	0xFC29	Acceleration/ deceleration time of simple PLC reference 12	0 to 3	0	-	Real-time
FC-42	0xFC2A	Running time of simple PLC reference 13	0.0 to 6553.5	0.0	s (h)	Real-time
FC-43	0xFC2B	Acceleration/ deceleration time of simple PLC reference 13	0 to 3	0	-	Real-time
FC-44	0xFC2C	Running time of simple PLC reference 14	0.0 to 6553.5	0.0	s (h)	Real-time
FC-45	0xFC2D	Acceleration/ deceleration time of simple PLC reference 14	0 to 3	0	-	Real-time
FC-46	0xFC2E	Running time of simple PLC reference 15	0.0 to 6553.5	0.0	s (h)	Real-time
FC-47	0xFC2F	Acceleration/ deceleration time of simple PLC reference 15	0 to 3	0	-	Real-time
FC-48	0xFC30	Running time of simple PLC reference 16	0.0 to 6553.5	0.0	s (h)	Real-time
FC-49	0xFC31	Acceleration/ deceleration time of simple PLC reference 16	0 to 3	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FC-50	0xFC32	Time unit of simple PLC operating time	0: s (second) 1: h (hour)	0	-	Real-time
FC-51	0xFC33	Reference 1 source	0: FC-00 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: PID 6: Preset frequency (F0-08) Others: F connector	0	-	Real-time
FC-52	0xFC34	Current multi-reference	0: Multi-reference 1 1: Multi-reference 2 2: Multi-reference 3 3: Multi-reference 4 4: Multi-reference 5 5: Multi-reference 6 6: Multi-reference 7 7: Multi-reference 8 8: Multi-reference 9 9: Multi-reference 10 10: Multi-reference 11 11: Multi-reference 12 12: Multi-reference 13 13: Multi-reference 14 14: Multi-reference 15 15: Multi-reference 16	0	-	Unchangeable
FC-53	0xFC35	Current multi-reference value	-600.0 to 600.0	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
FC-55	0xFC37	Multi-reference selection through K1	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
FC-56	0xFC38	Multi-reference selection through K2	Same as FC-55	0	-	Real-time
FC-57	0xFC39	Multi-reference selection through K3	Same as FC-55	0	-	Real-time
FC-58	0xFC3A	Multi-reference selection through K4	Same as FC-55	0	-	Real-time
FC-59	0xFC3B	Number of segments that the PLC runs upon power failure	0 to 65535	0	-	Unchangeable
FC-60	0xFC3C	High bit of PLC operating time upon power failure	0 to 65535	0	-	Unchangeable
FC-61	0xFC3D	Low bit of PLC operating time upon power failure	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
FD-00	0xFD00	Baud rate	Ones: Modbus 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 Tens: Reserved Hundreds: Reserved Thousands: CANlink/CANopen baud rate 0: 20 kbps 1: 50 kbps 2: 100 kbps 3: 125 kbps 4: 250 kbps 5: 500 kbps 6: 1 Mbps	5005	-	At stop
FD-01	0xFD01	Modbus data format	0: No check (8-N-2) 1: Even parity check (8-E-1) 2: Odd parity check (8-O-1) 3: No check (8-N-1) 4: No check (7-N-2) 5: Even parity check (7-E-1) 6: Odd parity check (7-O-1) 7: No check (7-N-1)	0	-	Real-time
FD-02	0xFD02	Local address	1 to 247	1	-	At stop
FD-03	0xFD03	Modbus response delay time	0 to 20	2	ms	Real-time
FD-04	0xFD04	Communication timeout	0.0 to 60.0	0.0	s	Real-time
FD-06	0xFD06	Current resolution read through communication	0: 0.01 A (active when the power is lower than or equal to 55 kW) 1: 0.1 A	0	-	Real-time
FD-09	0xFD09	Speed reference type	0: Frequency 1: Speed 2: Percentage	0	-	At stop
Fd-10	0xFD0A	CANopen/ CANlink switchover	1: CANopen 2: CANlink	2	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FD-11	0xFD0B	CiA402 protocol	0 to 1	0	-	At stop
FD-14	0xFD0E	Number of frames received per unit time	0 to 65535	0	-	Unchangeable
Fd-15	0xFD0F	Maximum number of error frames received by node	0 to 65535	0	-	Unchangeable
Fd-16	0xFD10	Maximum number of error frame sent by node	0 to 65535	0	-	Unchangeable
Fd-17	0xFD11	Number of bus disconnection times per unit of time	0 to 65535	0	-	Unchangeable
Fd-19	0xFD13	CAN communication disconnection coefficient	1 to 15	3	-	At stop
FD-26	0xFD1A	CIA 402 parameter-write storage	0: Do not save to EEPROM 1: Save to EEPROM	0	-	Real-time
FD-27	0xFD1B	Save parameters written through communication	0 to 1	0	-	Real-time
FD-28	0xFD1C	Communication fault automatic reset	0 to 1	1	-	Real-time
FD-29	0xFD1D	Communication state	0 to 999	0	-	Unchangeable
Fd-34	0xFD22	CANopen mode	0: Default mode 1: Expert mode	0	-	At stop
Fd-35	0xFD23	CANopen disable time	0 to 65535	0	μs	At stop
Fd-36	0xFD24	CANopen event time	0 to 65535	0	ms	At stop
FD-37	0xFD25	DHCP enable	0: Disable 1: Enable	0	-	At stop
FD-38	0xFD26	IP address highest byte	0 to 255	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
Fd-39	0xFD27	IP address second highest byte	0 to 255	0	-	At stop
Fd-40	0xFD28	IP address third byte	0 to 255	0	-	At stop
Fd-41	0xFD29	IP address lowest byte	0 to 255	0	-	At stop
Fd-42	0xFD2A	Subnet mask highest byte	0 to 255	0	-	At stop
Fd-43	0xFD2B	Subnet mask second highest byte	0 to 255	0	-	At stop
Fd-44	0xFD2C	Third byte of subnet mask	0 to 255	0	-	At stop
Fd-45	0xFD2D	Subnet mask lowest byte	0 to 255	0	-	At stop
Fd-46	0xFD2E	Gateway highest byte	0 to 255	0	-	At stop
Fd-47	0xFD2F	Gateway second highest byte	0 to 255	0	-	At stop
Fd-48	0xFD30	Third byte of gateway	0 to 255	0	-	At stop
FD-49	0xFD31	Gateway lowest byte	0 to 255	0	-	At stop
FD-58	0xFD3A	Ethernet expansion card error code	0 to 255	0	-	Unchangeable
Fd-61	0xFD3D	MAC address high byte	0x0 to 0xFFFF	0x0	-	At stop
Fd-62	0xFD3E	MAC address middle byte	0x0 to 0xFFFF	0x0	-	At stop
Fd-63	0xFD3F	MAC address low byte	0x0 to 0xFFFF	0x0	-	At stop
Fd-92	0xFD5C	Slave alias backup	0 to 65535	0	-	Real-time
Fd-94	0xFD5E	Communication software version	0.00 to 655.35	0.00	-	Unchangeable
FP-00	0x1F00	User password	0 to 65535	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FP-01	0x1F01	Parameter initialization	0: No action 1: Restore parameters (excluding motor parameters) to factory settings 2: Clear log information 4: Back up current user parameters 501: Restore user backup parameters 503: Restore parameters (including motor parameters) to factory settings	0	-	At stop
FP-02	0x1F02	Parameter group display	bit0: Group U 0: Hidden 1: Displayed bit1: Group A 0: Hidden 1: Displayed bit2: Group B 0: Hidden 1: Displayed bit3: Group C 0: Hidden 1: Displayed bit4: Group H 0: Hidden 1: Displayed bit5: Group L 0: Hidden 1: Displayed	63	-	Real-time
FP-03	0x1F03	User-defined parameter display	Ones: User-defined parameter group 0: Hidden 1: Displayed Tens: User-modified parameter group 0: Hidden 1: Displayed Hundreds: Error menu 0: Hidden 1: Displayed	111	-	Real-time
FP-04	0x1F04	Parameter modification attribute	0: Enable 1: Disable	0	-	Real-time
FP-06	0x1F06	Monitoring password setting	0 to 65535	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
FP-07	0x1F07	Expert password setting	0 to 65535	1430	-	Real-time
FP-09	0x1F09	Password input window	0 to 65535	0	-	Real-time
FP-10	0x1F0A	Current permission level	0 to 65535	0	-	Unchangeable
FP-17	0x1F11	Industry macro selection	0: No selection 1: Air compressor macro 30: Mains synchronization 105: Winding macro (wire drawing machine) 106: Unwinding macro (wire drawing machine)	0	-	At stop
FP-18	0x1F12	Current industry application mode	0: No selection 1: Air compressor macro 30: Mains synchronization 105: Winding macro (wire drawing machine) 106: Unwinding macro (wire drawing machine)	0	-	Unchangeable
A0-00	0xA000	Speed/Torque control selection	0: Speed control 1: Torque control	0	-	Real-time
A0-01	0xA001	Mode A - Torque reference source in torque control (drive torque upper limit source)	0: Digital setting (A0-03) 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) Others: F connector	0	-	At stop
A0-03	0xA003	Mode A - Torque digital setting in torque control	-200.0 to 200.0	150.0	%	Real-time
A0-04	0xA004	Mode A- Torque reference filter time (upper limit)	0 to 10000	0	ms	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A0-05	0xA005	Mode A - Maximum positive frequency in torque control	0.00 to F0-10	50.00	Hz	Real-time
A0-06	0xA006	Mode A - Maximum negative frequency in torque control	0.00 to F0-10	50.00	Hz	Real-time
A0-07	0xA007	Mode A - Torque rise filter time	0.00 to 650.00	0.00	s	Real-time
A0-08	0xA008	Mode A - Torque drop filter time	0.00 to 650.00	0.00	s	Real-time
A0-10	0xA00A	Used to select the torque mode.	0: Torque upper limit mode in speed control mode (mode A) 1: Torque mode (mode B)	0	-	At stop
A0-11	0xA00B	Mode B - Torque acceleration time gain	0: 100% 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
A0-12	0xA00C	Mode B - Torque deceleration time gain	0: 100% 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A0-13	0xA00D	Mode B - Torque reference source	0: Digital setting 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
A0-14	0xA00E	Mode B - Digital setting of torque reference	-400.0 to 400.0	0.0	%	Real-time
A0-15	0xA00F	Mode B- Torque control speed limit source	0: Digital setting 1: Speed channel	0	-	Real-time
A0-16	0xA010	Mode B - Digital setting of speed limit in torque control	-100.0 to 100.0	100.0	%	Real-time
A0-17	0xA011	Mode B - Speed limit offset mode	0: Bidirectional offset 1: Unidirectional bias 2: Compatibility mode	0	-	Real-time
A0-18	0xA012	Mode B - Speed limit offset source	0: Digital setting 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
A0-19	0xA013	Mode B - Speed limit digital setting	0.0 to 100.0	5.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A0-20	0xA014	Source of additional torque reference 1	0: Digital setting 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
A0-21	0xA015	Digital setting of additional torque reference 1	-400.0 to 400.0	0.0	%	Real-time
A0-22	0xA016	Supplementary torque reference 2	0: 0 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
A0-23	0xA017	Enable additional torque reference 2 input	0: Disable 1: Enable 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A0-24	0xA018	Mode B - Torque filter time	0 to 10000	0	ms	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A0-25	0xA019	Mode B - Torque acceleration time	0.000 to 60.000	0.000	s	Real-time
A0-26	0xA01A	Mode B - Torque deceleration time	0.000 to 60.000	0.000	s	Real-time
A0-27	0xA01B	Mode B - Torque reference gain	0: 100% 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-00	0xA100	VDI1 function selection	0: No function 1: Forward run (IN1) 2: Reverse run (IN2) 3: Three-wire control (IN3) 4: Forward jog (FJOG) 5: Reverse jog (RJOG) 6: Function as UP key for frequency adjustment 7: Function as DOWN key for frequency adjustment 8: Coast to stop 9: Fault reset (RESET) 10: Operation pause 11: External fault NO input 12: Multi-reference terminal 1 13: Multi-reference terminal 2 14: Multi-reference terminal 3 15: Multi-reference terminal 4 16: Acceleration/Deceleration selection terminal 1 17: Acceleration/Deceleration selection terminal 2 18: Frequency source switchover 19: Clear data set by terminal functioning as UP/DOWN key 20: Command source switchover terminal 1 21: Acceleration/Deceleration inhibited 22: PID pause 23: Simple PLC status reset 24: Swing frequency pause 25: Counter input 26: Counter reset 27: Length count input 28: Length reset 29: Torque control inhibited (Continued)	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-00	0xA100	VDI1 function selection	(Continued) 30: Pulse frequency input (valid only for DI5) 31: Reserved 32: Immediate DC braking 33: External fault NC input 34: Frequency modification enabled 35: PID action direction reversal 36: External stop terminal 1 37: Command source switchover terminal 2 38: PID integral pause 39: Switchover between main frequency X and preset frequency 40: Switchover between auxiliary frequency Y and preset frequency 41: Motor selection terminal 1 42: Reserved 43: PID parameter switchover 44: User-defined fault 1 45: User-defined fault 2 46: Speed/Torque control selection 47: Emergency stop 48: External stop terminal 2 49: Deceleration DC braking (Continued)	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-00	0xA100	VDI1 function selection	(Continued) 50: Clear the current operating time 51: Two-wire/Three-wire mode switchover 52: Reverse running inhibited 53: Thickness accumulation 54: Roll diameter reset 55: Initial roll diameter source selection terminal 1 56: Initial roll diameter source selection terminal 2 57: Pre-drive 58: Switchover between winding and unwinding 59: Roll diameter calculation stop 60: Exit tension mode 61: Terminal tension boost 62: Material thickness selection terminal 1 63: Material thickness selection terminal 2 56: Reserved 59: Reserved 61: Reserved 64: Forward limit switch 65: Reverse limit switch 66: Water-cooling fault input 67: Low liquid level fault input 68: Position synchronization - Pulse reference increase 69: Position synchronization - Pulse reference decrease (Continued)	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-00	0xA100	VDI1 function selection	(Continued) 70: Control channel selection 71: Setting channel selection (reserved) 72: Terminal module A/B selection 73: Startup mode selection bit0 74: Startup mode selection bit1 75: Control command switchover terminal 3 76: Motor selection terminal 2 77: Running enable 78: Forward run permission 79: Reverse run permission 80: RFG input set to zero 81: Passive unwinding compensation 82: Positioning control enable with forward command (IN1) 83: Positioning control enable with reverse command (IN2) 84: Synchronous control enable with forward command (IN1) 85: Synchronous control enable with reverse command (IN2) 86: Wire breakage detection (wire drawing machine) 87: Forward deceleration limit switch 88: Reverse deceleration limit switch 89: Emergency stop PI enable	0	-	At stop
A1-01	0xA101	VDI2 function selection	Same as A1-00	0	-	At stop
A1-02	0xA102	VDI3 function selection	Same as A1-00	0	-	At stop
A1-03	0xA103	VDI4 function selection	Same as A1-00	0	-	At stop
A1-04	0xA104	VDI5 function selection	Same as A1-00	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-05	0xA105	Virtual VDI state setting mode	Ones: VDI1 state 0: Determined by VDO1 state 1: Determined by A1-06 2: Determined by DI1 state 3: Determined by communication value (bit10 of F4-50) 4: Determined by AI1 5: Reserved Tens: VDI2 state 0: Determined by VDO2 state 1: Determined by A1-06 2: Determined by DI2 state 3: Determined by communication value (bit11 of F4-50) 4: Determined by AI2 5: Reserved Hundreds: VDI3 state 0: Determined by VDO3 state 1: Determined by A1-06 2: Determined by DI3 state 3: Determined by communication value (bit12 of F4-50) 4: Determined by AI3 5: Reserved Thousands: VDI4 state 0: Determined by VDO4 state 1: Determined by A1-06 2: Determined by DI4 state 3: Determined by communication value (bit13 of F4-50) 4: Reserved 5: Reserved Ten thousands: VDI5 state 0: Determined by VDO5 state 1: Determined by A1-06 2: Determined by DI5 state 3: Determined by communication value (bit14 of F4-50) 4: Reserved 5: Reserved	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-06	0xA106	VDI state setting	Ones: VDI1 state 0: Invalid 1: Active Tens: VDI2 state 0: Invalid 1: Active Hundreds: VDI3 state 0: Invalid 1: Active Thousands: VDI4 state 0: Invalid 1: Active Ten thousands: VDI5 state 0: Invalid 1: Active	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-07	0xA107	AI1 (used as DI) function	0: No function 1: Forward run (IN1) 2: Reverse run (IN2) 3: Three-wire control (IN3) 4: Forward jog (FJOG) 5: Reverse jog (RJOG) 6: Function as UP key for frequency adjustment 7: Function as DOWN key for frequency adjustment 8: Coast to stop 9: Fault reset (RESET) 10: Operation pause 11: External fault NO input 12: Multi-reference terminal 1 13: Multi-reference terminal 2 14: Multi-reference terminal 3 15: Multi-reference terminal 4 16: Acceleration/Deceleration selection terminal 1 17: Acceleration/Deceleration selection terminal 2 18: Frequency source switchover 19: Clear data set by terminal functioning as UP/DOWN key 20: Command source switchover terminal 1 21: Acceleration/Deceleration inhibited 22: PID pause 23: Simple PLC status reset 24: Swing frequency pause 25: Counter input 26: Counter reset 27: Length count input 28: Length reset 29: Torque control inhibited 30: Pulse frequency input (valid only for DI5) 31: Reserved (Continued)	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-07	0xA107	AI1 (used as DI) function	(Continued) 32: Immediate DC braking 33: External fault NC input 34: Frequency modification enabled 35: PID action direction reversal 36: External stop terminal 1 37: Command source switchover terminal 2 38: PID integral pause 39: Switchover between main frequency X and preset frequency 40: Switchover between auxiliary frequency Y and preset frequency 41: Motor selection terminal 1 42: Reserved 43: PID parameter switchover 44: User-defined fault 1 45: User-defined fault 2 46: Speed/Torque control selection 47: Emergency stop 48: External stop terminal 2 49: Deceleration DC braking (Continued)	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-07	0xA107	AI1 (used as DI) function	(Continued) 50: Clear the current operating time 51: Two-wire/Three-wire mode switchover 52: Reverse running inhibited 53: Thickness accumulation 54: Roll diameter reset 55: Initial roll diameter source selection terminal 1 56: Initial roll diameter source selection terminal 2 57: Pre-drive 58: Switchover between winding and unwinding 59: Roll diameter calculation stop 60: Exit tension mode 61: Terminal tension boost 62: Material thickness selection terminal 1 63: Material thickness selection terminal 2 56: Reserved 59: Reserved 61: Reserved 64: Forward limit switch 65: Reverse limit switch 66: Water-cooling fault input 67: Low liquid level fault input 68: Position synchronization - Pulse reference increase 69: Position synchronization - Pulse reference decrease 70: Control channel selection (Continued)	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-07	0xA107	AI1 (used as DI) function	(Continued) 71: Setting channel selection (reserved) 72: Terminal module A/B selection 73: Startup mode selection bit0 74: Startup mode selection bit1 75: Control command switchover terminal 3 76: Motor selection terminal 2 77: Running enable 78: Forward run permission 79: Reverse run permission 80: RFG input set to zero 81: Passive unwinding compensation 82: Positioning control enable with forward command (IN1) 83: Positioning control enable with reverse command (IN2) 84: Synchronous control enable with forward command (IN1) 85: Synchronous control enable with reverse command (IN2) 86: Wire breakage detection (wire drawing machine) 87: Forward deceleration limit switch 88: Reverse deceleration limit switch 89: Emergency stop PI enable	0	-	At stop
A1-08	0xA108	AI2 (used as DI) function	Same as A1-07	0	-	At stop
A1-09	0xA109	AI3 (used as DI) function	Same as A1-07	0	-	At stop
A1-10	0xA10A	Active state selection for AI used as DI	Ones: AI1 0: Active low 1: Active high Tens: AI2 0: Active low 1: Active high Hundreds: AI3 0: Active low 1: Active high	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-11	0xA10B	VDO1 output selection	0: No output 1: AC drive in operation 2: Fault 3: Frequency level detection FDT1 4: Frequency reach 5: Running at zero speed (no output at stop) 6: Motor overload pre-alarm 7: AC drive overload pre-alarm 8: Set counting value reached 9: Designated counting value reached 10: Length reached 11: Simple PLC cycle completed 12: Cumulative running time reached 13: Swing frequency limited 14: Torque limited 15: Ready to run 16: AI1 > AI2 17: Frequency upper limit reached 18: Frequency lower limit reached (no output at stop) 19: Undervoltage state 20: Communication setting 21: Brake output 22: Positioning completed 23: Running at zero speed 2 (output at stop) 24: Cumulative power-on time reached 25: Frequency level detection FDT2 26: Frequency 1 reached 27: Frequency 2 reached 28: Current 1 reached (Continued)	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-11	0xA10B	VDO1 output selection	(Continued) 29: Current 2 reached 30: Timing reached 31: AI1 input limit exceeded 32: Load loss 33: Reverse run in progress 34: Zero current state 35: Module temperature reached 36: Output current limit exceeded 37: Frequency lower limit reached (no output at stop) 38: Alarm (all faults) 39: Motor overtemperature 40: Current operating time reached 41: Fault (excluding undervoltage) 42: STO 43: Operation limited 44: Brake output at stop (wire drawing machine) 45: Position lock completed Other: B connector	0	-	Real-time
A1-12	0xA10C	VDO2 output selection	Same as A1-11	0	-	Real-time
A1-13	0xA10D	VDO3 output selection	Same as A1-11	0	-	Real-time
A1-14	0xA10E	VDO4 output selection	Same as A1-11	0	-	Real-time
A1-15	0xA10F	VDO5 output selection	Same as A1-11	0	-	Real-time
A1-21	0xA115	VDO active mode selection	Ones: VDO1 0: Positive logic 1: Negative logic Tens position: VDO2 0: Positive logic 1: Negative logic Hundreds: VDO3 0: Positive logic 1: Negative logic Thousands: VDO4 0: Positive logic 1: Negative logic Ten thousands: VDO5 0: Positive logic 1: Negative logic	0	-	Real-time
A1-22	0xA116	VDO1 output switch-on delay	0.0 to 3600.0	0.0	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-23	0xA117	VDO2 output switch-on delay	0.0 to 3600.0	0.0	s	Real-time
A1-24	0xA118	VDO3 output switch-on delay	0.0 to 3600.0	0.0	s	Real-time
A1-25	0xA119	VDO4 output switch-on delay	0.0 to 3600.0	0.0	s	Real-time
A1-26	0xA11A	VDO5 output switch-on delay	0.0 to 3600.0	0.0	s	Real-time
A1-27	0xA11B	VDO1 output switch-off delay time	0.0 to 3600.0	0.0	s	Real-time
A1-28	0xA11C	VDO2 output switch-off delay time	0.0 to 3600.0	0.0	s	Real-time
A1-29	0xA11D	VDO3 output switch-off delay time	0.0 to 3600.0	0.0	s	Real-time
A1-30	0xA11E	VDO4 output switch-off delay time	0.0 to 3600.0	0.0	s	Real-time
A1-31	0xA11F	VDO5 output switch-off delay time	0.0 to 3600.0	0.0	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-32	0xA120	VDO6 function selection	0: No output 1: AC drive in operation 2: Fault 3: Frequency level detection FDT1 4: Frequency reach 5: Running at zero speed (no output at stop) 6: Motor overload pre-alarm 7: AC drive overload pre-alarm 8: Set counting value reached 9: Designated counting value reached 10: Length reached 11: Simple PLC cycle completed 12: Cumulative running time reached 13: Swing frequency limited 14: Torque limited 15: Ready to run 16: AI1 > AI2 17: Frequency upper limit reached 18: Frequency lower limit reached (no output at stop) 19: Undervoltage state (Continued)	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-32	0xA120	VDO6 function selection	(Continued) 20: Communication setting 21: Brake output 22: Positioning completed 23: Running at zero speed 2 (output at stop) 24: Cumulative power-on time reached 25: Frequency level detection FDT2 26: Frequency 1 reached 27: Frequency 2 reached 28: Current 1 reached 29: Current 2 reached 30: Timing reached 31: AI1 input limit exceeded 32: Load loss 33: Reverse run in progress 34: Zero current state 35: Module temperature reached 36: Output current limit exceeded 37: Frequency lower limit reached (no output at stop) 38: Alarm (all faults) 39: Motor overtemperature 40: Current operating time reached 41: Fault (excluding undervoltage) 42: STO 43: Operation limited 44: Brake output at stop (wire drawing machine) 45: Position lock completed Other: B connector	0	-	Real-time
A1-33	0xA121	VDO7 function selection	Same as A1-32	0	-	Real-time
A1-34	0xA122	VDO8 function selection	Same as A1-32	0	-	Real-time
A1-35	0xA123	VDO9 function selection	Same as A1-32	0	-	Real-time
A1-36	0xA124	VDO10 function selection	Same as A1-32	0	-	Real-time
A1-37	0xA125	VDO11 function selection	Same as A1-32	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-38	0xA126	VDO6 to VDO10 active mode selection	Ones: VDO6 0: Positive logic 1: Negative logic Tens: VDO7 0: Positive logic 1: Negative logic Hundreds: VDO8 0: Positive logic 1: Negative logic Thousands: VDO9 0: Positive logic 1: Negative logic Ten thousands: VDO10 0: Positive logic 1: Negative logic	0	-	Real-time
A1-39	0xA127	VDO11 active mode selection	0: Positive logic 1: Negative logic	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-40	0xA128	VDI6 function selection	0: No function 1: Forward run (IN1) 2: Reverse run (IN2) 3: Three-wire control (IN3) 4: Forward jog (FJOG) 5: Reverse jog (RJOG) 6: Function as UP key for frequency adjustment 7: Function as DOWN key for frequency adjustment 8: Coast to stop 9: Fault reset (RESET) 10: Operation pause 11: External fault NO input 12: Multi-reference terminal 1 13: Multi-reference terminal 2 14: Multi-reference terminal 3 15: Multi-reference terminal 4 16: Acceleration/Deceleration selection terminal 1 17: Acceleration/Deceleration selection terminal 2 18: Frequency source switchover 19: Clear data set by terminal functioning as UP/DOWN key 20: Command source switchover terminal 1 21: Acceleration/Deceleration inhibited 22: PID pause 23: Simple PLC status reset 24: Swing frequency pause 25: Counter input 26: Counter reset 27: Length count input 28: Length reset 29: Torque control inhibited 31: Reserved 32: Immediate DC braking 33: External fault NC input 34: Frequency modification enabled 35: PID action direction reversal (Continued)	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-40	0xA128	VDI6 function selection	(Continued) 36: External stop terminal 1 37: Command source switchover terminal 2 38: PID integral pause 39: Switchover between main frequency X and preset frequency 40: Switchover between auxiliary frequency Y and preset frequency 41: Motor selection terminal 1 42: Reserved 43: PID parameter switchover 44: User-defined fault 1 45: User-defined fault 2 46: Speed/Torque control selection 47: Emergency stop 48: External stop terminal 2 49: Deceleration DC braking 50: Clear the current operating time 51: Reserved 52: Reverse running inhibited 64: Forward limit switch 65: Reverse limit switch 66: Water-cooling fault input 67: Low liquid level fault input 70: Control channel selection 71: Setting channel selection (reserved) 72: Terminal module A/B selection 73: Startup mode selection bit0 74: Startup mode selection bit1 75: Control command switchover terminal 3 76: Motor selection terminal 2 77: Running enable 78: Forward run permission 79: Reverse run permission 80: RFG input set to zero 86: Wire breakage detection (wire drawing machine)	0	-	At stop
A1-41	0xA129	VDI6 hardware source	Ones: VDI6 state 0: Determined by VDO6 state 1: Determined by A1-42 2: Determined by DI6 state 3: Determined by communication value (bit15 of F4-50) 4: Reserved 5: Reserved	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-42	0xA12A	VDI6 state setting	Ones: VDI6 state 0: Invalid 1: Active	0	-	Real-time
A1-43	0xA12B	VDI1 to VDI5 active mode	Ones: VDI1 0: Active low 1: Active high Tens: VDI2 0: Active low 1: Active high Hundreds: VDI3 0: Active low 1: Active high Thousands: VDI4 0: Active low 1: Active high Ten thousands: VDI5 0: Active low 1: Active high	0	-	At stop
A1-44	0xA12C	VDI6 active mode	Ones: VDI6 0: Active low 1: Active high	0	-	At stop
A1-50	0xA132	DIO edge counting reset	0: Disable 1: First counting module 2: Second counting module 3: Third counting module 4: Fourth counting module 5: All counting modules	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-51	0xA133	Channel selection for DIO edge counting module 1	0: Disable 1: DI1 2: DI2 3: DI3 4: DI4 5: DI5 6: DI6 7: DI7 8: DI8 9: DI9 10: DI10 11: VDI1 12: VDI2 13: VDI3 14: VDI4 15: VDI5 16: VDI6 17: RELAY1 (DO3) 18: FMR 19: DO1 20: RELAY2 (DO4) 21: DO2 22: VDO1 23: VDO2 24: VDO3 25: VDO4 26: VDO5 27: VDO6 28: VDO7 29: VDO8 30: VDO9 31: VDO10 32: VDO11	0	-	Real-time
A1-52	0xA134	DIO edge counting channel selection 2	Same as A1-51	0	-	Real-time
A1-53	0xA135	Channel selection for DIO edge counting module 3	Same as A1-51	0	-	Real-time
A1-54	0xA136	Channel selection for DIO edge counting module 4	Same as A1-51	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A1-55	0xA137	Comparison value of DIO edge counting module 1	0 to 65535	0	-	Real-time
A1-56	0xA138	DIO edge counting comparison value setting 2	0 to 65535	0	-	Real-time
A1-57	0xA139	Comparison value of DIO edge counting module 3	0 to 65535	0	-	Real-time
A1-58	0xA13A	Comparison value of DIO edge counting module 4	0 to 65535	0	-	Real-time
A1-59	0xA13B	Counting value of DIO edge counting module 1	0 to 65535	0	-	Unchangeable
A1-60	0xA13C	Counting value 2 of DIO edge counting module	0 to 65535	0	-	Unchangeable
A1-61	0xA13D	Counting value of DIO edge counting module 3	0 to 65535	0	-	Unchangeable
A1-62	0xA13E	Counting value of DIO edge counting module 4	0 to 65535	0	-	Unchangeable
A2-00	0xA200	Motor type selection	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Permanent magnet synchronous motor 3: Synchronous reluctance motor without permanent magnet 4: Electromagnetic coil 5: Synchronous reluctance motor with permanent magnet	0	-	At stop
A2-01	0xA201	Rated motor power	0.1 to 1000.0	3.7	kW	At stop
A2-02	0xA202	Rated motor voltage	1 to 2000	380	V	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A2-03	0xA203	Rated motor current	0.01 to 655.35	9.00	A	At stop
A2-04	0xA204	Rated motor frequency	0.01 to F0-10	50.00	Hz	At stop
A2-05	0xA205	Rated motor speed	1 to 65535	1460	rpm	At stop
A2-06	0xA206	Stator resistance of asynchronous motor	0.001 to 65.535	1.204	Ω	Real-time
A2-07	0xA207	Rotor resistance of asynchronous motor	0.001 to 65.535	0.908	Ω	Real-time
A2-08	0xA208	Leakage inductance of asynchronous motor	0.01 to 655.35	5.28	mH	Real-time
A2-09	0xA209	Mutual inductance of asynchronous motor	0.1 to 6553.5	156.8	mH	Real-time
A2-10	0xA20A	No-load current of asynchronous motor	0.01 to A2-03	4.20	A	Real-time
A2-15	0xA20F	No-load current of asynchronous motor	0: Disable 1: Activation mode 1 2: Activation mode 2 (speed limit) 3: Reserved	0	-	At stop
A2-16	0xA210	Stator resistance of synchronous motor	0.001 to 65.535	1.204	Ω	Real-time
A2-17	0xA211	D-axis inductance of synchronous motor	0.01 to 655.35	5.28	mH	Real-time
A2-18	0xA212	Q-axis inductance of synchronous motor	0.01 to 655.35	5.28	mH	Real-time
A2-20	0xA214	Back EMF of synchronous motor	0.0 to 6553.5	350.0	V	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A2-33	0xA221	Rated speed of high-speed motor	0 to 65535	0	rpm	At stop
A2-37	0xA225	Motor parameter auto-tuning mode	0: Disable 1: Auto-tuning of some parameters for asynchronous motor in static state 2: Auto-tuning of parameters for asynchronous motor in dynamic state 3: Auto-tuning of all parameters for asynchronous motor in static state 4: Inertia auto-tuning 5: Dead zone auto-tuning 7: Inductance saturation model auto-tuning 8: Back EMF auto-tuning 11: With-load auto-tuning of synchronous motor parameters (excluding back EMF) 12: No-load auto-tuning of all parameters for synchronous motor in dynamic state 13: Auto-tuning of parameters (excluding zero point angle) for synchronous motor in static state 14: Auto-tuning on current sampling gain between phases U and V 21: Auto-tuning of parameters for reluctance motor in static state 22: Auto-tuning of parameters for reluctance motor in dynamic state	0	-	At stop
A2-38	0xA226	Speed loop proportional gain 1	1 to 300	30	-	Real-time
A2-39	0xA227	Speed loop integral time 1	0.01 to 10.00	0.50	s	Real-time
A2-40	0xA228	Switchover frequency 1	0.00 to A2-43	5.00	Hz	Real-time
A2-41	0xA229	Speed loop proportional gain 2	1 to 300	20	-	Real-time
A2-42	0xA22A	Speed loop integral time 2	0.01 to 10.00	1.00	s	Real-time
A2-43	0xA22B	Switchover frequency 2	A2-40~F0-10	10.00	Hz	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A2-44	0xA22C	Vector control slip gain	50 to 200	100	%	Real-time
A2-45	0xA22D	Speed feedback filter time in SVC mode	0.000 to 0.100	0.015	s	Real-time
A2-47	0xA22F	Torque upper limit source in speed control mode (motoring)	0: A2-48 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) Others: F connector	0	-	Real-time
A2-48	0xA230	Digital setting of torque upper limit in speed control mode	0.0 to 600.0	150.0	%	Real-time
A2-49	0xA231	Torque upper limit source in speed control mode (generating)	0: A2-48 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) 8: A2-50 Others: F connector	0	-	Real-time
A2-50	0xA232	Digital setting of torque upper limit in speed control mode (generating)	0.0 to 600.0	150.0	%	Real-time
A2-56	0xA238	Current loop mode of synchronous motor	0: No field weakening 1: Automatic adjustment 2: Calculation + automatic adjustment 3: Normal mode of synchronous motor 4: Normal mode of asynchronous motor	1	-	At stop
A2-57	0xA239	Field weakening gain	0.1 to 200.0	20.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A2-60	0xA23C	Generating power limit	0: Invalid 1: Active in the whole process 2: Active during operation at constant speed 3: Active during deceleration	0	-	Real-time
A2-61	0xA23D	Generating power upper limit	0.0 to 200.0	20.0	%	Real-time
A2-62	0xA23E	Motor 2 control mode	0: SVC 2: V/f	2	-	At stop
A2-64	0xA240	Torque boost	0.0 to 30.0	3.0	%	Real-time
A2-66	0xA242	Oscillation suppression gain in V/f mode	0 to 100	40	-	Real-time
A2-67	0xA243	Initial position angle detection current of synchronous motor	50 to 180	80	-	At stop
A2-68	0xA244	Synchronous motor initial position angle detection	0: Detected every time upon operation 1: Not detected 2: Detected during initial operation upon power-on	0	-	Real-time
A2-70	0xA246	Saliency ratio adjustment gain of synchronous motor	0.20 to 3.00	1.00	-	Real-time
A2-71	0xA247	Control on maximum ratio of torque to current of synchronous motor	0: Inactive 1: Active	1	-	Real-time
A2-80	0xA250	Low speed carrier frequency	0.5 to F0-15	2.0	kHz	Real-time
A2-86	0xA256	Position lock enable	0 to 1	0	-	Real-time
A2-87	0xA257	Switchover frequency	0.00 to A2-40	0.30	Hz	Real-time
A2-88	0xA258	Zero servo speed loop proportional gain	1 to 100	10	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A2-89	0xA259	Position lock speed loop integral time	0.01 to 10.00	0.50	s	Real-time
A2-92	0xA25C	Motor tuning-free mode	0: Disable 1: Motor parameter auto-tuning before initial operation after power-on 2: Motor parameter auto-tuning before operation	0	-	Real-time
A2-94	0xA25E	Initial position compensation angle	0.0 to 359.9	0.0	-	Real-time
A3-00	0xA300	V/f curve setting	0: V/f line 1: Multi-point V/f curve 2: Reserved 3: Reserved 4: Reserved 5: Reserved 6: Reserved 7: Reserved 8: Reserved 9: Reserved 10: V/f fully-decoupled mode 11: V/f semi-decoupled mode	0	-	At stop
A3-01	0xA301	Torque boost	0.0 to 30.0	3.0	%	Real-time
A3-02	0xA302	Cut-off frequency of torque boost	0.00 to F0-10	50.00	Hz	At stop
A3-03	0xA303	Frequency 1 on multi-point V/f curve	0.00 to A3-05	0.00	Hz	At stop
A3-04	0xA304	Voltage 1 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop
A3-05	0xA305	Frequency 2 on multi-point V/f curve	A3-03~A3-07	0.00	Hz	At stop
A3-06	0xA306	Voltage 2 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop
A3-07	0xA307	Frequency point 3 on multi-point V/f curve	A3-05~A2-04	0.00	Hz	At stop
A3-08	0xA308	Voltage point 3 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A3-09	0xA309	Slip compensation gain in V/f mode	0.0 to 6553.5	0.0	-	Real-time
A3-10	0xA30A	Over-excitation gain in V/f mode	0 to 200	64	-	Real-time
A3-11	0xA30B	Oscillation suppression gain in V/f mode	0 to 100	40	-	Real-time
A3-12	0xA30C	Oscillation suppression in V/f mode	0: Disable 1: Enable	1	-	Real-time
A3-13	0xA30D	Voltage source in V/f decoupled mode	0: Digital setting (A3-14) 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication Others: F connector	0	-	Real-time
A3-14	0xA30E	Voltage digital setting in V/f decoupled mode	0 to A2-02	0	V	Real-time
A3-15	0xA30F	Voltage rise time in V/f decoupled mode	0.0 to 1000.0	0.0	s	Real-time
A3-16	0xA310	Voltage decline time in V/f decoupled mode	0.0 to 1000.0	0.0	s	Real-time
A3-17	0xA311	Stop mode in V/f decoupled mode	0: Frequency and voltage decline to 0. 1: Frequency declines to 0 after voltage declines to 0. 2: Coast to stop (newly added)	0	-	Real-time
A3-18	0xA312	Action current of overcurrent stall suppression	50 to 200	150	%	At stop
A3-19	0xA313	Overcurrent stall suppression	0: Disable 1: Enable	1	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A3-20	0xA314	Overcurrent stall suppression gain	1 to 500	20	-	Real-time
A3-21	0xA315	Action current compensation coefficient for overcurrent stall at multiplied rated frequency	50 to 200	100	%	At stop
A3-22	0xA316	Overvoltage stall suppression action voltage in V/f mode	330.0 to 800.0	770.0	V	Real-time
A3-23	0xA317	Overvoltage stall suppression in V/f mode	0: Disable 1: Enable	1	-	At stop
A3-24	0xA318	Frequency gain for overvoltage stall suppression in V/f mode	1 to 500	30	-	Real-time
A3-25	0xA319	V/f overvoltage stall suppression voltage gain	1 to 500	30	-	Real-time
A3-26	0xA31A	Frequency rise limit for overvoltage stall suppression in V/f mode	0 to 50	5	Hz	At stop
A3-27	0xA31B	Filter time of slip compensation	0.1 to 10.0	0.5	s	At stop
A3-28	0xA31C	Multi-point curve selection	0: Three-point curve 1: Multi-point curve module A 2: Multi-point curve module B	0	-	At stop
A3-29	0xA31D	Frequency for PWM inhibition at zero speed	0.0 to 100.0	1.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A3-30	0xA31E	PWM inhibition hysteresis at zero speed	0.0 to 100.0	0.5	%	At stop
A3-31	0xA31F	PWM inhibition at zero speed	0: Inactive 1: Enable	0	-	At stop
A3-33	0xA321	Online torque compensation gain	80 to 150	100	-	At stop
A3-34	0xA322	IMAXKI coefficient	10 to 1000	100	%	At stop
A3-35	0xA323	Overcurrent stall suppression threshold (rated motor current as the base)	80 to 300	200	%	At stop
A3-36	0xA324	Frequency for activating field weakening upon overcurrent stall suppression	100 to 500	100	%	At stop
A3-37	0xA325	IT filter time	10 to 1000	100	ms	At stop
A3-38	0xA326	Slip compensation mode	0: Disable 1: Without PG card slip compensation 2: With PG card slip compensation	1	-	At stop
A3-39	0xA327	Permissible overvoltage suppression time in V/f mode	0.0 to 100.0	0.0	s	At stop
A3-40	0xA328	Voltage upper limit in V/f decoupled mode	50.0 to 200.0	100.0	%	At stop
A3-41	0xA329	RFG time of the frequency in V/f decoupled mode	0: RFG time is forcibly set to zero. 1: Preset RFG time	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A3-42	0xA32A	Cut-off frequency of oscillation suppression filter in V/f mode	1.0 to 50.0	8.0	Hz	Real-time
A3-43	0xA32B	Effective cut-off frequency of oscillation suppression in V/f mode	10 to 3000	200	Hz	Real-time
A3-44	0xA32C	Overvoltage suppression feedforward coefficient in V/f mode	0 to 500	0	%	Real-time
A3-45	0xA32D	Synchronous motor IF selection	0: Disable 1: Low speed IF 2: High-frequency injection in SVC mode 3: Reserved	0	-	At stop
A3-46	0xA32E	Synchronous motor IF current	0.0 to 200.0	50.0	%	Real-time
A3-47	0xA32F	IF switchover frequency of synchronous motor	0.0 to 100.0	2.5	%	Real-time
A3-48	0xA330	IF switchover hysteresis frequency of synchronous motor	0.0 to 100.0	2.5	%	Real-time
A3-49	0xA331	IF current switchover time of synchronous motor	0.001 to 20.000	1.000	s	Real-time
A3-50	0xA332	VVCTLC processing at low speed	0: Disable 1: Low speed IF 2: High-frequency injection in TLC mode	1	-	At stop
A3-51	0xA333	PMVVC low-speed IF current	0 to 250	100	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A3-52	0xA334	PMVVC low-speed IF switchover speed threshold	0.0 to 100.0	10.0	%	At stop
A3-53	0xA335	PMVVC oscillation suppression gain coefficient	0 to 500	100	-	Real-time
A3-54	0xA336	PMVVC filter time constant	0 to 500	100	-	Real-time
A3-55	0xA337	PMVVC energy-saving control mode	0: Fixed V/f line 1: Fixed to 30% of reactive current 2: MTPA control	2	-	At stop
A3-56	0xA338	VVC current loop adaptation coefficient	0 to 1000	0	%	Real-time
A3-57	0xA339	MTPA adaptation coefficient of VVC	0 to 1000	0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A3-58	0xA33A	TLC control word	bit0: CPC enable 0: Disable 1: Enable bit1: Speed source 0: Source 1 1: Source 2 bit2: Angle source 0: Source 1 1: Source 2 bit3: Energy-saving mode 0: Mode 1 1: Mode 2 bit4: Inductance calculation 0: Use saturation model 1: Not use saturation model bit5: Inverse curve 0: Enable 1: Disable bit6: Overvoltage suppression optimization 0: Enable 1: Disable bit7: Undervoltage suppression optimization 0: Enable 1: Disable bit8: Switch back to IF mode 0: Default 1: Non-default	1	-	Real-time
A3-59	0xA33B	TLC phase lock loop amplification coefficient	0.1 to 5000.0	100.0	-	Real-time
A3-60	0xA33C	TLC control enable switch	0 to 1	1	-	At stop
A3-61	0xA33D	Field weakening coefficient for TLC control	0.0 to 5000.0	100.0	-	Real-time
A3-62	0xA33E	d-axis proportion of TLC control	0.0 to 5000.0	100.0	-	Real-time
A3-63	0xA33F	d-axis integral in TLC control mode	0.0 to 5000.0	100.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A3-64	0xA340	q-axis proportion in TLC control mode	0.0 to 5000.0	100.0	-	Real-time
A3-65	0xA341	q-axis integral in TLC control mode	0.0 to 5000.0	100.0	-	Real-time
A3-66	0xA342	Lower limit of TLC setting	0.0 to 1000.0	0.0	%	Real-time
A3-67	0xA343	Waiting time of TLC switchover	0 to 10000	500	ms	At stop
A3-68	0xA344	TLC setting coefficient	0.1 to 1000.0	100.0	%	Real-time
A3-69	0xA345	Coil control mode	0: V/f separation mode 1: IF separation mode	0	-	At stop
A3-70	0xA346	Voltage source for coil IF separation	0: Digital setting (F3-71) 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication setting Others: F connector	0	-	Real-time
A3-71	0xA347	Current reference for coil IF separation	1.00 to 120.00	20.00	%	Real-time
A3-72	0xA348	Voltage rise time for coil IF separation	0.000 to 65.000	0.000	s	Real-time
A3-73	0xA349	Current fall time for coil IF separation	0.000 to 65.000	0.000	s	Real-time
A3-74	0xA34A	Max. current value for coil IF separation	1.00 to 120.00	100.00	%	At stop
A3-75	0xA34B	Stop mode for coil IF separation	0: Frequency and current decline to 0 independently. 1: Frequency declines to 0 after current declines to 0. 2: Coast to stop	2	-	Real-time
A3-76	0xA34C	PM observer stator resistance coefficient	0 to 1000	0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A3-77	0xA34D	Waiting time of PM observer auto-tuning	0 to 1000	0	s	Real-time
A3-78	0xA34E	Coil IF separation current control coefficient	1 to 1000	50	-	Real-time
A3-79	0xA34F	Coil IF separation sub-controller switch	0 to 1	0	-	Real-time
A3-80	0xA350	Proportional coefficient of coil IF separation sub-controller	1 to 1000	100	%	Real-time
A3-81	0xA351	Integral coefficient of coil IF separation sub-controller	1 to 1000	100	%	Real-time
A3-82	0xA352	Voltage limit of coil IF separation sub-controller	1 to 100	40	%	Real-time
A3-83	0xA353	Coil transformer change ratio	1.0 to 100.0	1.0	-	At stop
A3-85	0xA355	Synchronous motor observer switchover	0: Mode 0 1: Mode 1	0	-	Real-time
A3-86	0xA356	Switchover frequency of synchronous motor in SVC mode	0.0 to 100.0	10.0	%	Real-time
A3-87	0xA357	Switchover hysteresis frequency of synchronous motor in SVC mode	0.0 to 100.0	5.0	%	Real-time
A3-88	0xA358	Parameter 0 of synchronous motor in SVC mode	0 to 100	3	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A3-89	0xA359	Parameter 1 lower limit of synchronous motor in SVC mode	1 to 100	1	-	Real-time
A3-90	0xA35A	Parameter 6 of synchronous motor in SVC mode	1 to 10	10	-	Real-time
A4-00	0xA400	Control channel selection	0: Control channel 1 1: Control channel 2	0	-	Real-time
A4-01	0xA401	User-defined OFF1 source	0: Invalid 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-02	0xA402	User-defined OFF2 source 1	0: Active 1: Inactive 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-03	0xA403	Self-defined OFF3 source 1	0: Active 1: Inactive 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-04	0xA404	User-defined operation permission source	0: Operation inhibited 1: Operation allowed 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-05	0xA405	User-defined fault reset command source 1	0: Invalid 1: Active 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-06	0xA406	User-defined JOG1 source	0: Invalid 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
A4-07	0xA407	User-defined JOG2 source	0: Invalid 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-08	0xA408	Custom speed inversion source	0: Invalid 1: Active 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Other: B connector	0	-	Real-time
A4-10	0xA40A	OFF2 source 2	0: Active 1: Inactive 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-11	0xA40B	OFF2 source 3	0: Active 1: Inactive 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-12	0xA40C	OFF3 source 2	0: Active 1: Inactive 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-13	0xA40D	OFF3 source 3	0: Active 1: Inactive 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-14	0xA40E	Fault reset source 2	0: Invalid 1: Activated 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-15	0xA40F	Fault reset source 3	0: Invalid 1: Activated 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
A4-16	0xA410	RFG inhibition source	0: Active 1: Inactive 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-17	0xA411	RFG pause source	0: Active 1: Inactive 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-18	0xA412	Source of setting RFG reference to 0	0: Active 1: Inactive 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-21	0xA415	User-defined OFF1 source	0: Invalid 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
A4-22	0xA416	User-defined OFF2 source 1	0: Active 1: Inactive 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-23	0xA417	Self-defined OFF3 source 1	0: Active 1: Inactive 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-24	0xA418	User-defined operation permission source	0: Operation inhibited 1: Operation allowed 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-25	0xA419	User-defined fault reset command source 1	0: Invalid 1: Active 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
A4-26	0xA41A	User-defined JOG1 source	0: Invalid 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-27	0xA41B	User-defined JOG2 source	0: Invalid 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
A4-28	0xA41C	Custom speed inversion source	0: Invalid 1: Active 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-30	0xA41E	OFF2 source 2	0: Active 1: Inactive 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-31	0xA41F	OFF2 source 3	0: Active 1: Inactive 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-32	0xA420	OFF3 source 2	0: Active 1: Inactive 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-33	0xA421	OFF3 source 3	0: Active 1: Inactive 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-34	0xA422	Fault reset source 2	0: Invalid 1: Activated 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
A4-35	0xA423	Fault reset source 3	0: Invalid 1: Activated 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-36	0xA424	RFG inhibition source	0: Active 1: Inactive 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-37	0xA425	RFG pause source	0: Active 1: Inactive 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-38	0xA426	Source of setting RFG reference to 0	0: Active 1: Inactive 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-41	0xA429	Terminal start/ stop module A/ B selection	0: Module A 1: Module B	0	-	Real-time
A4-43	0xA42B	Terminal start/ stop module A input 1	0: Invalid 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-44	0xA42C	Terminal start/ stop command A input 2	0: Invalid 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time
A4-45	0xA42D	Terminal start/ stop command A input 3	0: Invalid 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-46	0xA42E	Operation permission source of terminal start/ stop module A	0: Invalid 1: Active 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A4-47	0xA42F	Fault reset source of terminal start/ stop module A	0: Invalid 1: Active 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-48	0xA430	JOG1 source of terminal start/ stop module A	0: Invalid 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time
A4-49	0xA431	JOG2 source of terminal start/ stop module A	0: Invalid 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time
A4-50	0xA432	Mode of terminal start/ stop module B	0: Two-wire mode 1 1: Two-wire mode 2 2: Three-wire mode 1 3: Three-wire mode 2	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-51	0xA433	Terminal start/stop module B input 1	0: Invalid 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time
A4-52	0xA434	Terminal start/stop module B input 2	0: Invalid 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-53	0xA435	Terminal start/ stop module B input 3	0: Invalid 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time
A4-54	0xA436	Operation permission source of terminal start/ stop module B	0: Invalid 1: Active 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-55	0xA437	Fault reset source of terminal start/ stop module B	0: Invalid 1: Active 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time
A4-56	0xA438	JOG1 source of terminal start/ stop module B	0: Invalid 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-57	0xA439	JOG2 source of terminal start/ stop module B	0: Invalid 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	2	-	Real-time
A4-61	0xA43D	Speed control supplementary speed source	0: 0 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
A4-62	0xA43E	Jog 1 speed source	0: Digital setting 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
A4-65	0xA441	Ramp arc mode	0: Discontinuous smoothing 1: Continuous smoothing	0	-	Real-time
A4-66	0xA442	Jog ramp source	0: Ramp time of normal operation 1: Ramp time of jog	1	-	Real-time
A4-67	0xA443	Initial arc ratio at the start of acceleration	0.0 to 100.0	30.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-68	0xA444	Arc ratio at the end of acceleration	0.0 to 100.0	30.0	%	At stop
A4-69	0xA445	Arc ratio at the start of deceleration	0.0 to 100.0	30.0	%	At stop
A4-70	0xA446	Arc ratio at the end of deceleration	0.0 to 100.0	30.0	%	At stop
A4-71	0xA447	Forced ramp output	0: Disable 1: Enable 2: Reserved 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
A4-72	0xA448	Ramp output forced value	0: 100% 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-73	0xA449	Ramp change enable of ramp input	0: Disable 1: Enable 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
A4-74	0xA44A	Ramp input update interval	2 to 10000	50	ms	Real-time
A4-75	0xA44B	Ramp tracking enable	0: Disable 1: Enable	0	-	Real-time
A4-76	0xA44C	Ramp tracking error	0.0 to 100.0	10.0	%	Real-time
A4-77	0xA44D	Frequency acceleration time in torque control	0.0 to 6500.0	0.0	s	Real-time
A4-78	0xA44E	Frequency deceleration time in torque control	0.0 to 6500.0	0.0	s	Real-time
A4-79	0xA44F	The fourth set of time is used by torque control forcibly.	0 to 1	1	-	Real-time
A4-80	0xA450	Operation with the limited speed	0: Limit the maximum operation speed 1: Run at a specified safe speed	1	-	Real-time
A4-81	0xA451	Forward speed limit in limited operation mode	0.0 to 100.0	100.0	%	Real-time
A4-82	0xA452	Reverse speed limit in limited operation mode	0.0 to 100.0	100.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A4-83	0xA453	Maximum motoring power in limited operation mode	0.0 to 400.0	50.0	%	Real-time
A4-84	0xA454	Maximum regenerative power in limited operation mode	0.0 to 400.0	50.0	%	Real-time
A4-85	0xA455	Used to limit the positive torque limit during operation.	0.0 to 400.0	50.0	%	Real-time
A4-86	0xA456	Used to limit the negative torque limit during operation.	0.0 to 400.0	50.0	%	Real-time
A4-87	0xA457	Used to limit the max. permissible current during operation.	0.0 to 400.0	90.0	%	Real-time
A5-00	0xA500	DPWM switchover frequency upper limit	5.0 to 6000.0	2000.0	Hz	Real-time
A5-01	0xA501	PWM modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0	-	Real-time
A5-02	0xA502	Dead time compensation mode	0: No compensation 1: Compensation mode 1	1	-	Real-time
A5-03	0xA503	Random PWM depth	0 to 10	0	-	Real-time
A5-04	0xA504	Pulse-by-pulse current limit protection	0: Disable 1: Enable	1	-	Real-time
A5-05	0xA505	Voltage overmodulation coefficient	100 to 115	103	%	Real-time
A5-06	0xA506	Undervoltage threshold	140.0 to 420.0	350.0	V	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A5-08	0xA508	Low speed carrier frequency upper limit	0.0 to 8.0	0.0	kHz	Real-time
A5-09	0xA509	Overvoltage threshold	330.0 to 820.0	820.0	V	Real-time
A5-10	0xA50A	Energy-saving control	0: Invalid 1: Active	0	-	Real-time
A5-11	0xA50B	Udc filtering for the previous or next cycle	0: Disable 1: Enable	1	-	Real-time
A5-12	0xA50C	Carrier frequency of single/dual pulsing switchover	0 to 24	0	kHz	At stop
A5-16	0xA510	Stall detection sensitivity	0 to 20	0	-	Real-time
A6-00	0xA600	Minimum input of AI curve 4	-10.00 to A6-02	0.00	V	Real-time
A6-01	0xA601	Scaling of the minimum input of AI curve 4	-100.0 to 100.0	0.0	%	Real-time
A6-02	0xA602	Inflection point 1 input of AI curve 4	A6-00 to A6-04	3.00	V	Real-time
A6-03	0xA603	Scaling of inflection point 1 input of AI curve 4	-100.0 to 100.0	30.0	%	Real-time
A6-04	0xA604	Inflection point 2 input of AI curve 4	A6-02 to A6-06	6.00	V	Real-time
A6-05	0xA605	Scaling of inflection point 2 input of AI curve 4	-100.0 to 100.0	60.0	%	Real-time
A6-06	0xA606	Maximum input of AI curve 4	A6-04 to 10.00	10.00	V	Real-time
A6-07	0xA607	Scaling of the maximum input of AI curve 4	-100.0 to 100.0	100.0	%	Real-time
A6-08	0xA608	Minimum input of AI curve 5	-10.00 to A6-10	-10.00	V	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A6-09	0xA609	Scaling of the minimum input of AI curve 5	-100.0 to 100.0	-100.0	%	Real-time
A6-10	0xA60A	Inflection point 1 input of AI curve 5	A6-08 to A6-12	-3.00	V	Real-time
A6-11	0xA60B	Scaling of inflection point 1 input of AI curve 5	-100.0 to 100.0	-30.0	%	Real-time
A6-12	0xA60C	Inflection point 2 input of AI curve 5	A6-10 to A6-14	3.00	V	Real-time
A6-13	0xA60D	Scaling of inflection point 2 input of AI curve 5	-100.0 to 100.0	30.0	%	Real-time
A6-14	0xA60E	Maximum input of AI curve 5	A6-12 to 10.00	10.00	V	Real-time
A6-15	0xA60F	Scaling of the maximum input of AI curve 5	-100.0 to 100.0	100.0	%	Real-time
A6-24	0xA618	AI1 jump point	-100.0 to 100.0	0.0	%	Real-time
A6-25	0xA619	AI1 jump amplitude	0.0 to 100.0	0.1	%	Real-time
A6-26	0xA61A	AI2 jump point	-100.0 to 100.0	0.0	%	Real-time
A6-27	0xA61B	AI2 jump amplitude	0.0 to 100.0	0.1	%	Real-time
A6-28	0xA61C	AI3 jump point	-100.0 to 100.0	0.0	%	Real-time
A6-29	0xA61D	AI3 jump amplitude	0.0 to 100.0	0.1	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A6-30	0xA61E	AI automatic adjustment curve	Ones: Point selection (for setting) 0: Disable 1: Point 1 2: Point 2 3: Point 3 4: Point 4 Tens: AI channel selection (for setting) 0: Disable 1: AI1 2: AI2 3: AI3 Hundreds: Enable control (for setting) 0: Disable 1: Enable Thousands: X-point curve (for display) 0: The control function is disabled or the channel is not selected. 2: Two-point curve 4: Four-point curve Ten thousands: Reserved	0	-	Real-time
A6-31	0xA61F	AI1 input	0: Disable 1: Enable Others: B connector	1	-	Real-time
A6-32	0xA620	AI2 input	0: Disable 1: Enable Others: B connector	1	-	Real-time
A6-33	0xA621	AI3 input	0: Disable 1: Enable Others: B connector	1	-	Real-time
A6-34	0xA622	AI polarity selection	Ones: AI1 selection 0: Normal value 1: Absolute value 2: Inverted value 3: Opposite to absolute value Tens: AI2 selection 0: Normal value 1: Absolute value 2: Inverted value 3: Opposite to absolute value Hundreds: AI3 polarity 0: Normal value 1: Absolute value 2: Inverted value 3: Opposite to absolute value	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A6-35	0xA623	AI hardware source selection	Ones: AI1 source 0: Hardware sampling 1: Forced value Tens: AI2 source 0: Hardware sampling 1: Forced value Hundreds: AI3 source 0: Hardware sampling 1: Forced value	0	-	At stop
A6-36	0xA624	AI1 forced value	-10.00 to +10.00	0.00	V	Real-time
A6-37	0xA625	AI2 forced value	-10.00 to +10.00	0.00	V	Real-time
A6-38	0xA626	AI3 forced value	-10.00 to +10.00	0.00	V	Real-time
A6-39	0xA627	High level judgment threshold when AI uses as DI	5.5 to 9.0	7.0	V	Real-time
A6-40	0xA628	Low level judgment threshold when AI uses as DI	1.0 to 4.5	3.0	V	Real-time
A6-41	0xA629	AI1 gain	-10.00 to +10.00	1.00	-	Real-time
A6-42	0xA62A	AI1 offset	-10.00 to +10.00	0.00	V	Real-time
A6-43	0xA62B	AI1 denoising threshold	0.0 to 100.0	0.0	%	Real-time
A6-44	0xA62C	AI1 dead zone width	0.0 to 100.0	0.0	%	Real-time
A6-47	0xA62F	AI2 gain	-10.00 to +10.00	1.00	-	Real-time
A6-48	0xA630	AI2 offset	-10.00 to +10.00	0.00	V	Real-time
A6-49	0xA631	AI2 denoising threshold	0.0 to 100.0	0.0	%	Real-time
A6-50	0xA632	AI2 dead zone width	0.0 to 100.0	0.0	%	Real-time
A6-51	0xA633	Upper limit of AI2 input protection	A6-52~10.00	8.00	V	Real-time
A6-52	0xA634	Lower limit of AI2 input protection	0.00 to A6-51	2.00	V	Real-time
A6-53	0xA635	AI3 gain	-10.00 to +10.00	1.00	-	Real-time
A6-54	0xA636	AI3 offset	-10.00 to +10.00	0.00	V	Real-time
A6-55	0xA637	AI3 denoising threshold	0.0 to 100.0	0.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A6-56	0xA638	AI3 dead zone width	0.0 to 100.0	0.0	%	Real-time
A6-57	0xA639	Upper limit of AI3 input protection	A6-58~10.00	8.00	V	Real-time
A6-58	0xA63A	Lower limit of AI3 input protection	0.00 to A6-57	2.00	V	Real-time
A6-59	0xA63B	AI input protection time	0.00 to 1.00	0.01	s	Real-time
A7-00	0xA700	Brake function selection	0: Disable brake 1: Enable brake without detection information 2: Enable brake with detection information	0	-	At stop
A7-01	0xA701	Brake release action time	0.00 to 30.00	0.30	s	Real-time
A7-02	0xA702	Brake apply action time (Actuating time of brake-apply)	0.00 to 30.00	0.30	s	Real-time
A7-03	0xA703	Brake feedback source	0: Invalid 1: Active 2: Invalid 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
A7-04	0xA704	Brake feedback fault delay	0.00 to 30.00	2.00	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A7-05	0xA705	Start torque direction	0: Digital reference of starting torque 1: Defined by digital reference of starting torque and motor operating direction	0	-	Real-time
A7-06	0xA706	Starting torque source in vector control	0: Disable 1: Retentive torque 2: Digital setting of starting torque Others: F connector	0	-	Real-time
A7-07	0xA707	Digital setting of starting torque	-200.0 to 200.0	0.0	%	Real-time
A7-08	0xA708	Retentive starting torque gain factor	0.0 to 300.0	100.0	%	Real-time
A7-09	0xA709	Starting speed source	0: Disable 1: Digital setting of starting speed 2: Defined by digital reference of starting speed and motor operating direction	0	-	Real-time
A7-10	0xA70A	Digital setting of torque reference	-30.0 to 30.0	0.0	%	Real-time
A7-11	0xA70B	Forced brake close command source	0: Invalid 1: Active 2: Invalid 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
A7-12	0xA70C	Actual speed monitoring threshold for brake apply	0.0 to 100.0	3.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A7-13	0xA70D	Actual speed monitoring time for brake apply	0.00 to 300.00	0.10	s	Real-time
A7-14	0xA70E	Set speed monitoring threshold for brake apply	0.0 to 100.0	0.0	%	Real-time
A7-15	0xA70F	Set speed monitoring time for brake apply	0.00 to 60.00	5.00	s	Real-time
A7-16	0xA710	Brake open command source	0: Invalid 1: Active 2: Invalid 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	1	-	Real-time
A7-17	0xA711	Compare value source of brake release	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
A7-18	0xA712	Comparison threshold for brake release	0.0 to 300.0	0.0	%	Real-time
A7-19	0xA713	Brake release delay	0.00 to 30.00	0.20	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A7-20	0xA714	Acceleration time of starting torque	0.01 to 5.00	0.30	s	At stop
A7-21	0xA715	Stop torque deceleration time	0.01 to 5.00	0.20	s	At stop
A7-22	0xA716	Special auxiliary function configuration	bit0: Allow brake release during dynamic parameter auto-tuning 0: Disable 1: Enable	0x0	-	At stop
A7-30	0xA71E	Brake action frequency at stop (wire drawing machine)	0.00 to F0-10	1.5	Hz	Real-time
A7-31	0xA71F	Brake action delay at stop (wire drawing machine)	0.0 to 20.0	6.0	s	Real-time
A7-32	0xA720	DI terminal open circuit detection delay (wire drawing machine)	0.0 to 20.0	6.0	s	Real-time
A8-00	0xA800	Master-slave control function selection	0: Invalid 1: Active	0	-	Real-time
A8-01	0xA801	Master/Slave selection	0: Master 1: Slave	0	-	Real-time
A8-02	0xA802	Selection of action of the slave	Ones: Follow the master command 0: Disable 1: Enable Tens: Transmission of the fault information of the slave 0: Disable 1: Enable Hundreds: The master displays the offline fault of the salve. 0: Disable 1: Enable	11	-	At stop
A8-03	0xA803	Function selection for data received by the slave	0: Operating frequency 1: Frequency reference	0	-	Real-time
A8-04	0xA804	Zero offset of received data	-100.00 to +100.00	0.00	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
A8-05	0xA805	Gain of received data	-10.00 to 100.00	1.00	%	Real-time
A8-06	0xA806	Master-slave communication heartbeat time	0.0 to 10.0	1.0	s	Real-time
A8-07	0xA807	Master data sending cycle in point-to-point communication	0.001 to 10.000	0.001	s	Real-time
A8-12	0xA80C	Master/Slave frequency multiplier	1 to 6	1	-	Real-time
A9-00	0xA900	Number of parallel motors	1 to 200	1	-	At stop
A9-01	0xA901	Motor information command word	bit0: Mutual inductance curve enable 0: Disable 1: Enable bit1: D/Q inductance curve enable 0: Disable 1: Enable bit2: Online rotor resistance auto-tuning 0: Disable 1: Enable bit3: Online rotor resistance auto-tuning method 0: Amplitude 1: Phase bit4: Motor thermal model 0: Disable 1: Enable bit5: Motor thermal model temperature source 0: Estimated temperature 1: Sensor detected temperature bit6: Torque coefficient calculation method of asynchronous motor 0: Torque formula 1: Current distribution bit7: Torque coefficient calculation method of synchronous motor 0: Torque formula 1: Rated value match (Continued)	0x3	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A9-01	0xA901	Motor information command word	(Continued) bit8: Zero-speed friction torque calculation method 0: Linearly decreased to zero 1: Maintain minimum speed torque bit9: Enable model parameter calculation based on nameplate parameters 0: Disable 1: Enable bit10: Parameter confirmation key of nameplate parameter calculation model 0: Default 1: OK bit11: Reserved bit12: Ld curve selection of the reluctance motor 0: Dynamic auto-tuning result 1: Static auto-tuning result bit13: Synchronous motor torque accuracy calibration 0: Disable 1: Enable	0x3	-	At stop
A9-02	0xA902	Defines the number of motor pole pairs.	0 to 64	0	-	At stop
A9-03	0xA903	Power factor of the motor	0.600 to 1.000	0.860	-	At stop
A9-15	0xA90F	Stator leakage inductance	0.000 to 65.535	6.540	mH	At stop
A9-16	0xA910	Electromechanical time constant	0.01 to 655.35	1.00	s	Unchangeable
A9-17	0xA911	Inertia ratio	0.0 to 6553.5	120.0	%	At stop
A9-18	0xA912	Friction torque	0.0 to 6553.5	2.0	%	At stop
A9-19	0xA913	Defines the excitation current coefficient 1 (within rated current range) of mutual inductance curve.	5.0 to 100.0	50.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A9-20	0xA914	Defines the excitation current coefficient 2 (within rated current range) of mutual inductance curve.	5.0 to 100.0	75.0	%	At stop
A9-21	0xA915	Defines the excitation current point 3 of mutual inductance curve.	100.0 to 800.0	150.0	%	At stop
A9-22	0xA916	Defines the excitation current point 4 of mutual inductance curve.	100.0 to 800.0	210.0	%	At stop
A9-23	0xA917	Defines the flux coefficient 1 (within rated range) of mutual inductance curve.	10.0 to 100.0	50.0	%	At stop
A9-24	0xA918	Defines the flux coefficient 2 (within rated range) of mutual inductance curve.	10.0 to 100.0	85.0	%	At stop
A9-25	0xA919	Flux coefficient 3 of mutual inductance curve	100.0 to 300.0	115.0	%	At stop
A9-26	0xA91A	Flux coefficient 4 of mutual inductance curve	100.0 to 300.0	125.0	%	At stop
A9-27	0xA91B	Speed point 1 of friction curve	0 to 30000	15	rpm	At stop
A9-28	0xA91C	Speed point 2 of friction curve	0 to 30000	30	rpm	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A9-29	0xA91D	Speed point 3 of friction curve	0 to 30000	60	rpm	At stop
A9-30	0xA91E	Speed point 4 of friction curve	0 to 30000	120	rpm	At stop
A9-31	0xA91F	Speed point 5 of friction curve	0 to 30000	150	rpm	At stop
A9-32	0xA920	Speed point 6 of friction curve	0 to 30000	300	rpm	At stop
A9-33	0xA921	Speed point 7 of friction curve	0 to 30000	600	rpm	At stop
A9-34	0xA922	Speed point 8 of friction curve	0 to 30000	1200	rpm	At stop
A9-35	0xA923	Speed point 9 of friction curve	0 to 30000	1500	rpm	At stop
A9-36	0xA924	Speed point 10 of friction curve	0 to 30000	3000	rpm	At stop
A9-37	0xA925	Torque point 1 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
A9-38	0xA926	Torque point 2 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
A9-39	0xA927	Torque point 3 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
A9-40	0xA928	Torque point 4 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
A9-41	0xA929	Torque point 5 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
A9-42	0xA92A	Torque point 6 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
A9-43	0xA92B	Torque point 7 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
A9-44	0xA92C	Torque point 8 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
A9-45	0xA92D	Torque point 9 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
A9-46	0xA92E	Torque point 10 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
A9-47	0xA92F	Defines the starting point of D/Q-axis inductance curve current coefficient.	-800.0 to 800.0	-200.0	%	At stop
A9-48	0xA930	Defines the end point of D/Q-axis inductance curve current coefficient.	-800.0 to 800.0	200.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A9-49	0xA931	Defines the D-axis inductance 1 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
A9-50	0xA932	D-axis inductance 2 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
A9-51	0xA933	D-axis inductance 3 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
A9-52	0xA934	D-axis inductance 4 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
A9-53	0xA935	D-axis inductance 5 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
A9-54	0xA936	D-axis inductance 6 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
A9-55	0xA937	D-axis inductance 7 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
A9-56	0xA938	D-axis inductance 8 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
A9-57	0xA939	D-axis inductance 9 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A9-58	0xA93A	D-axis inductance 10 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
A9-59	0xA93B	D-axis inductance 11 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-60	0xA93C	D-axis inductance 12 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
A9-61	0xA93D	Q-axis inductance 1 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-62	0xA93E	Q-axis inductance 2 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-63	0xA93F	Q-axis inductance 3 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-64	0xA940	Q-axis inductance 4 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-65	0xA941	Q-axis inductance 5 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-66	0xA942	Q-axis inductance 6 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
A9-67	0xA943	Q-axis inductance 7 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-68	0xA944	Q-axis inductance 8 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-69	0xA945	Q-axis inductance 9 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-70	0xA946	Q-axis inductance 10 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-71	0xA947	Q-axis inductance 11 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
A9-72	0xA948	Q-axis inductance 12 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-00	0xAA00	Parameter auto-tuning before startup	bit0: Magnetic pole position auto-tuning of synchronous motor before startup 0: Disable 1: Enable bit1: Quick auto-tuning of stator resistance before startup 0: Disable 1: Enable bit2: Magnetic pole position auto-tuning based on high-frequency injection before startup 0: Disable 1: Enable 2: Adaptive bit4: IGBT shoot-through self-check before start 0: Disable 1: Enable bit5: Short-circuit to ground self-check before start (reserved) 0: Disable 1: Enable bit6: Phase loss self-check before start (reserved) 0: Disable 1: Enable bit7: Pre-positioning before synchronous motor start 0: Disable 1: Enable bit8: Auto-tuning of stator resistance before startup 0: Disable 1: Enable	1	-	At stop
AA-01	0xAA01	Motor parameter auto-tuning direction	0 to 1	1	-	At stop
AA-02	0xAA02	Vibration suppression gain during back EMF auto-tuning of synchronous motor	0.0 to 30.0	3.2	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-03	0xAA03	Target speed during dynamic rotation auto-tuning	30.0 to 100.0	70.0	%	At stop
AA-04	0xAA04	Target speed 1 of rotation inertia auto-tuning	10.0 to AA-05	40.0	%	At stop
AA-05	0xAA05	Target speed 2 of rotation inertia auto-tuning	AA-04~100.0	60.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-06	0xAA06	Motor parameter auto-tuning item configuration 2	bit0: Overcurrent prevention during auto-tuning of mutual inductance saturation curve 0: Disable 1: Active bit1: Auto-tuning scheme switchover 0: Scheme 1 1: Scheme 2 bit2: Auto-tuning calibration switch 0: Enable 1: Disable bit3: Second-segment auto-tuning switchover 0: Disable 1: Active bit4: Auto-tuning method 0: Fixed 1: Adjustable bit5: Reserved 0: Disable 1: Active bit6: DC injection during inductance auto-tuning 0: Injected 1: Not injected bit7: Adaptive magnetic pole position auto-tuning based on high-frequency injection (reserved) 0: Determined by bit7 of AA-07 1: Forcibly adaptive bit8: Current limit for rotor resistance leakage inductance auto-tuning 0: High current 1: Low current bit9: Leakage inductance auto-tuning of small motor/high-speed motor 0: Scheme 1 1: Scheme 2 (Continued)	5121	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-06	0xAA06	Motor parameter auto-tuning item configuration 2	(Continued) bit10: Frequency adaptation based on rotor resistance auto-tuning of small/high-peed motor 0: Disable 1: Active bit11: Frequency adaptation based on rotor resistance auto-tuning of all motors 0: Disable 1: Active bit12: Calculation scheme selection for small motor/high-speed motor rotor resistance auto-tuning result 0: Scheme 1 1: Scheme 2 bit13: Calculation scheme selection for rotor resistance auto-tuning result of all motors 0: Scheme 1 1: Scheme 2 bit14: Current search based on high-frequency injection 0: Disable 1: Enable bit15: Rotor resistance and leakage inductance auto-tuning scheme switchover 0: Disable 1: Enable	5121	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-07	0xAA07	Motor parameter auto-tuning item configuration	bit0: Speed loop parameter adaptation 0: Disable 1: Enable bit1: Current loop parameter adaptation 0: Disable 1: Enable bit2: Non-linear auto-tuning of the drive 0: Disable 1: Enable bit3: Auto-tuning of phase-to-phase deviation coefficient 0: Disable 1: Enable bit4: Initial magnetic pole position auto-tuning of synchronous motor 0: Disable 1: Enable bit5: D/Q-axis inductance model auto-tuning of synchronous motor 0: Disable 1: Enable bit6: System moment of inertia auto-tuning 0: Disable 1: Enable bit7:Magnetic pole position auto-tuning based on high-frequency injection 0: Disable 1: Enable (Continued)	125	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-07	0xAA07	Motor parameter auto-tuning item configuration	(Continued) bit8: DC injection auto-tuning 0: Disable 1: Enable bit9: No-load current vector auto-tuning 0: Disable 1: Enable bit10: Speed reference source for no-load current vector auto-tuning 0: User-defined 1: Internal-defined bit11: Back EMF calculation 0: Disable 1: Enable bit12: Back EMF auto-tuning calculation mode 0: Mode 0 1: Mode 1 bit13: Reserved 0: Disable 1: Enable	125	-	At stop
AA-08	0xAA08	OFF3 stop mode	0: Quick stop 1: Stop with maximum capability	0	-	At stop
AA-09	0xAA09	Permissible stop mode during operation	0: OFF1 stop mode 1: OFF2 stop mode 2: OFF3 stop mode	1	-	At stop
AA-10	0xAA0A	Stop mode in torque control mode	0: Coast to stop forcibly 1: Switch to speed control mode and stop 2: Keep in the torque mode until the zero speed is reached and then stop	1	-	At stop
AA-11	0xAA0B	MTPA filter time	0 to 8000	20	-	Real-time
AA-12	0xAA0C	Proportional gain tuning coefficient	0.1 to 2.0	1.0	-	Real-time
AA-13	0xAA0D	Integral gain tuning coefficient	0.1 to 2.0	1.0	-	Real-time
AA-14	0xAA0E	Zero speed threshold	0.1 to 200.0	2.0	%	Real-time
AA-15	0xAA0F	Zero speed determination time	0.00 to 10.00	0.10	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-16	0xAA10	Set channel execution interval	0 to 20	4	-	At stop
AA-17	0xAA11	Trial current of flying start for synchronous motor	5.0 to 50.0	10.0	%	At stop
AA-18	0xAA12	Minimum frequency for flying start of synchronous motor	0.0 to 100.0	0.0	Hz	At stop
AA-19	0xAA13	Angle compensation for flying start of synchronous motor	0 to 360	0	-	At stop
AA-20	0xAA14	Parameter auto-tuning of synchronous motor before startup	0 to 1	0	-	Real-time
AA-21	0xAA15	Present motor angle	0 to 65535	0	-	Unchangeable
AA-22	0xAA16	Forward torque limit 1	0.0 to 400.0	150.0	%	Real-time
AA-23	0xAA17	Reverse torque limit 1	0.0 to 400.0	150.0	%	Real-time
AA-24	0xAA18	Source of positive torque limit 2	0: 400% Others: F connector	0	-	Real-time
AA-25	0xAA19	Source of negative torque limit 2	0: -400% Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-26	0xAA1A	Ramp (FRG) selection bit0	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
AA-27	0xAA1B	Ramp (FRG) selection bit1	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-30	0xAA1E	Motor protection	bit0: Motor overload judgment (reserved) bit1: Motor overheat detection (reserved) bit2: Reserved Bit 3: Current control error detection Bit 4: Motor step loss error detection Bit 5: Motor stall detection Bit 6: Demagnetization protection for synchronous motor bit7: Demagnetization protection for permanent magnet motor bit8: Reserved Bit 9: Parameter setting error bit10: Output load loss detection (reserved) bit11: Divergent runaway protection bit12: Excessive speed deviation (reserved) bit13: Speed reversal protection (reserved) bit14: Overspeed protection (reserved) bit15: Demagnetization protection for reluctance motor with permanent magnet	32769	-	Real-time
AA-31	0xAA1F	Stall fault time	0.0 to 65.0	2.0	s	Real-time
AA-32	0xAA20	Frequency upon stall fault	0.0 to 600.0	6.0	%	Real-time
AA-33	0xAA21	Step loss detection time	0.0 to 10.0	0.5	s	Real-time
AA-34	0xAA22	Step loss detection threshold	0.0 to 100.0	30.0	%	Real-time
AA-35	0xAA23	Detection time for current control fault	0.00 to 1.00	0.05	s	Real-time
AA-36	0xAA24	Detection threshold for current control fault	0.0 to 200.0	25.0	%	Real-time
AA-37	0xAA25	Synchronous motor overcurrent threshold	0.0 to 500.0	300.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-39	0xAA27	Speed deviation detection	0 to 1	1	-	Real-time
AA-45	0xAA2D	Frequency for SVC mode switchover of asynchronous motor	10 to 20	15	%	At stop
AA-46	0xAA2E	DC starting frequency of asynchronous motor in SVC mode	0.1 to 20.0	0.5	%	Real-time
AA-47	0xAA2F	Defines the asynchronous motor SVC observer gain 1.	10 to 500	100	%	Real-time
AA-48	0xAA30	Observer gain 2 of asynchronous motor in SVC mode	10 to 100	20	%	Real-time
AA-49	0xAA31	Observer mode of asynchronous motor in SVC mode	0 to 3	0	-	At stop
AA-50	0xAA32	Pre-excitation of asynchronous motor in SVC mode	0 to 1	0	-	At stop
AA-51	0xAA33	Flying start of asynchronous motor in SVC mode	0 to 1	0	-	At stop
AA-52	0xAA34	High-speed gain of asynchronous motor	0.0 to 3.0	0.5	-	At stop
AA-54	0xAA36	Synchronous motor 1 model control	bit0: Low-speed handling bit1: Low-speed handling 1 bit2: Online auto-tuning of resistance bit3: Online auto-tuning of back EMF bit4: KS	5	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-55	0xAA37	Synchronous motor model K1	10 to 3000	200	Hz	Real-time
AA-56	0xAA38	Synchronous motor model K1Max	100 to 6000	3000	%	Real-time
AA-57	0xAA39	Synchronous motor model KsMin	0.0 to 4.0	0.3	-	Real-time
AA-58	0xAA3A	Synchronous motor model Kspeed	50 to 2000	400	Hz	Real-time
AA-59	0xAA3B	Frequency filter time constant of synchronous motor	2 to 100	10	ms	Real-time
AA-60	0xAA3C	Rs online auto-tuning frequency upper limit of synchronous motor	1.0 to 20.0	3.5	%	Real-time
AA-61	0xAA3D	Synchronous motor model Kr	0 to 50	10	-	Real-time
AA-62	0xAA3E	Synchronous motor model Kr1	0 to 50	5	%	Real-time
AA-63	0xAA3F	Low-speed d-axis injection current of synchronous motor	0 to 100	20	%	Real-time
AA-64	0xAA40	Synchronous motor model LowFreqTime1	0 to 500	50	-	Real-time
AA-67	0xAA43	Online auto-tuning frequency lower limit of back EMF	10 to 100	25	%	Real-time
AA-68	0xAA44	Synchronous motor model LowFreq	0.0 to 2.0	0.3	%	Real-time
AA-69	0xAA45	Synchronous motor model LowFreqTime	0 to 100	10	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-70	0xAA46	Magnetic pole auto-tuning current percentage	30 to 200	130	%	Real-time
AA-71	0xAA47	High frequency response current percentage	0 to 100	25	%	Real-time
AA-72	0xAA48	HFI-to-SVC switchover frequency percentage	0 to 30	10	%	Real-time
AA-73	0xAA49	Observer parameter	10 to 200	100	-	Real-time
AA-74	0xAA4A	Speed filter cut-off frequency	1 to 200	10	Hz	Real-time
AA-75	0xAA4B	Carrier frequency during NS auto-tuning	2.00 to 16.00	8.00	Hz	Real-time
AA-76	0xAA4C	Automatic calculation of NS auto-tuning voltage	0 to 1	1	-	Real-time
AA-77	0xAA4D	Percentage of NS auto-tuning voltage set manually	0 to 100	10	%	Real-time
AA-78	0xAA4E	Duration of high frequency injection stage 1	50 to 500	150	ms	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-80	0xAA50	Speed loop command word	bit0: Speed loop enable 0: Disable 1: Enable bit1: Integral mode 0: Traditional integral 1: Position-type integral Bit 2: Torque feedforward 0: Disable 1: Enable bit3: Acceleration source selection 0: Acceleration set by parameter 1: Automatic calculation 2: Acceleration set by parameter Bit 5: Anti-load disturbance 0: Disable 1: Enable bit9: Speed loop output torque limit adjustment with additional torque 0: Disable 1: Enable bit10: Balanced filter 0: Disable 1: Enable	19	-	Real-time
AA-81	0xAA51	Fast integral cancel coefficient upon stalled motor	0.0 to 100.0	0.0	%	Real-time
AA-82	0xAA52	Digital setting of integral torque	-100.0 to 100.0	0.0	%	Real-time
AA-83	0xAA53	Frequency window of speed controller	0.00 to 10.00	0.00	Hz	At stop
AA-84	0xAA54	Current filter time for torque reference	0.0 to 100.0	0.0	ms	At stop
AA-85	0xAA55	Acceleration torque (reserved)	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-87	0xAA57	See the bandwidth of the model.	0.00 to 300.00	0.00	Hz	Real-time
AA-88	0xAA58	Torque feedforward coefficient	0.0 to 6553.5	100.0	%	Real-time
AA-89	0xAA59	Frequency filter time in vector control	0.0 to 100.0	0.0	ms	At stop
AA-90	0xAA5A	Filter time for feedback frequency in vector control	0.0 to 100.0	0.0	ms	At stop
AA-91	0xAA5B	Load observation bandwidth	0.00 to 300.00	0.00	Hz	Real-time
AA-92	0xAA5C	Load observation coefficient	0.0 to 1000.0	100.0	%	Real-time
AA-93	0xAA5D	Pseudo-integral coefficient	0.000 to 10.000	1.000	-	Real-time
AA-94	0xAA5E	Torque coefficient	0: Disable 1: Enable	1	-	Real-time
AA-95	0xAA5F	Low-frequency Kp switchover selection	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
AA-96	0xAA60	Center frequency of notch filter 1	0.0 to 4000.0	4000.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AA-97	0xAA61	Center frequency of notch filter 2	0.0 to 4000.0	4000.0	-	Real-time
AA-98	0xAA62	Integral setting control word	0: Invalid 1: Valid Others: B connector	0	-	Real-time
AA-99	0xAA63	Integral setting source	0: Digital setting 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
AB-00	0xAB00	Externally transferred acceleration (reserved)	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
AB-01	0xAB01	Current deviation threshold	0.3 to 2.0	0.5	-	At stop
AB-02	0xAB02	Current filter cycle setting	0 to 100	1	-	At stop
AB-03	0xAB03	Breakdown torque limit coefficient	0.0 to 400.0	100.0	%	Real-time
AB-04	0xAB04	Motoring load power limit coefficient	0.0 to 400.0	400.0	%	Real-time
AB-05	0xAB05	Generating load power limit coefficient.	0.0 to 400.0	400.0	%	Real-time
AB-06	0xAB06	Overspeed limit	0 to 1	1	-	Real-time
AB-07	0xAB07	Sine frequency setting of bandwidth test	0 to 1000	0	Hz	Real-time
AB-08	0xAB08	Sine amplitude setting of bandwidth test	0 to 100	0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-09	0xAB09	Bandwidth test enabling	0 to 4	0	-	Real-time
AB-10	0xAB0A	Torque coefficient adjustment value	0.0 to 200.0	100.0	%	Real-time
AB-11	0xAB0B	Speed loop parameter calculation mode	0: New solution 1: Compatible mode	1	-	At stop
AB-14	0xAB0E	SVC speed loop proportional gain	0.00 to 100.00	5.00	Hz	Real-time
AB-15	0xAB0F	SVC speed loop integral time	0.000 to 20.000	0.127	s	Real-time
AB-16	0xAB10	Low frequency scaling correction coefficient	0.0 to 1000.0	100.0	%	Real-time
AB-17	0xAB11	Low frequency integral correction coefficient	0.0 to 1000.0	100.0	%	Real-time
AB-18	0xAB12	Speed loop adaptive factor	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
AB-19	0xAB13	Lower limit of speed loop adaptive switchover	0.000 to 10.000	0.400	-	Real-time
AB-20	0xAB14	Upper limit of speed loop adaptive switchover	0.000 to 10.000	1.000	-	Real-time
AB-21	0xAB15	Upper limit of speed loop adaptive correction	0.0 to 1000.0	100.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-22	0xAB16	Lower limit of speed loop adaptive correction	0.0 to 1000.0	100.0	%	Real-time
AB-23	0xAB17	Magnetic flux adaptation	0 to 1	1	-	Real-time
AB-24	0xAB18	Overspeed controller correction coefficient	0.0 to 1000.0	100.0	%	Real-time
AB-25	0xAB19	Overvoltage/ Undervoltage suppression control command word in vector control	bit0: Undervoltage suppression (reserved) 0: Disable 1: Enable bit1: Overvoltage suppression 0: Disable 1: Enable bit2: Automatic calculation of overvoltage/undervoltage suppression threshold 0: Disable 1: Enable bit3: Overvoltage/undervoltage suppression integral action 0: Disable 1: Enable	0	-	Real-time
AB-26	0xAB1A	Bus capacitance ratio	50.0 to 1000.0	100.0	%	Real-time
AB-27	0xAB1B	Hysteresis frequency for exiting power dip ride-through in vector control	0.00 to 10.00	3.00	Hz	Real-time
AB-28	0xAB1C	Speed threshold for invalid power dip ride-through in vector control	0.00 to 20.00	2.00	Hz	Real-time
AB-29	0xAB1D	Dynamic tuning coefficient of overvoltage/ undervoltage suppression in vector control (reserved)	0.0 to 1000.0	100.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-30	0xAB1E	Activation voltage for undervoltage suppression in vector control (reserved)	320.0 to 540.0	430.0	V	Real-time
AB-31	0xAB1F	Activation voltage of vector overvoltage suppression	650.0 to 800.0	770.0	V	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-32	0xAB20	Flux linkage control command word	bit0: Filtering method for output voltage limit calculation 0: Symmetric filtering 1: Asymmetric filtering bit1: Asynchronous motor inverse curve calculation method 0: Decrease inversely proportional to synchronous frequency 1: Decrease inversely proportional to speed bit2: Flux linkage feedforward calculation inversely proportional to speed 0: Disable 1: Enable bit3: Reserved bit4: Reserved bit5: Field weakening adjustment 0: Disable 1: Enable bit6: Flux derivative feedforward 0: Disable 1: Enable bit7: Energy conservation control 0: Disable 1: Enable bit8: Asynchronous motor flux closed-loop 0: Disable 1: Enable bit9: Reserved bit10: Reserved bit11: Asynchronous motor pre-excitation mode 0: Time-based pre-excitation 1: Current-based pre-excitation bit12: Asynchronous motor pre-excitation current mode 0: Current reference-based pre-excitation 1: Maximum current allowed by the platform bit13: Reserved bit14: Voltage outer loop mode 0: Voltage outer loop mode 0 1: Voltage outer loop mode 1 bit15: MTPA inductance 0: Saturation 1: Unsaturation	18741	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-33	0xAB21	Voltage margin	1 to 50	3	%	Real-time
AB-34	0xAB22	Margin of output voltage upper limit of synchronous motor through automatic adjustment	1 to 20	3	%	Real-time
AB-35	0xAB23	Filter time calculation of max. output voltage	0 to 3000	10	ms	Real-time
AB-36	0xAB24	Rated flux adjustment coefficient calculated	0.1 to 2.0	1.0	-	Real-time
AB-37	0xAB25	Field weakening frequency threshold adjustment coefficient calculated	0.8 to 1.2	1.1	-	Real-time
AB-38	0xAB26	Slip filter time of field weakening frequency threshold calculation	0 to 3000	62	ms	Real-time
AB-39	0xAB27	Feedback speed filter	0 to 8000	50	ms	Real-time
AB-40	0xAB28	Flux linkage rise filter time	0 to 8000	20	ms	Real-time
AB-41	0xAB29	Field weakening control gain	1 to 200	50	ms	Real-time
AB-42	0xAB2A	Feedback voltage filter time	0 to 3000	0	ms	Real-time
AB-43	0xAB2B	Maximum demagnetization current of synchronous motor	0 to 500	300	%	Real-time
AB-44	0xAB2C	Voltage outer loop lower limit coefficient	0 to 500	50	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-45	0xAB2D	Flux linkage differential feedforward coefficient	0.0 to 1.5	1.0	-	Real-time
AB-46	0xAB2E	Flux linkage differential feedforward filter time	0 to 3000	6	ms	Real-time
AB-47	0xAB2F	Filter time upon energy-saving control torque current rise	0 to 3000	50	ms	Real-time
AB-48	0xAB30	Filter time upon energy-saving control torque current drop	0 to 3000	100	ms	Real-time
AB-49	0xAB31	Flux linkage lower limit coefficient under energy conservation control	0.00 to 1.00	0.10	-	Real-time
AB-50	0xAB32	Switchover frequency coefficient	0.0 to 10.0	1.0	-	At stop
AB-51	0xAB33	Pre-excitation current	1 to 200	100	%	Real-time
AB-52	0xAB34	Pre-excitation time	1 to 30000	1000	ms	Real-time
AB-53	0xAB35	Flux linkage closed loop bandwidth frequency	0.0 to 100.0	1.0	Hz	Real-time
AB-54	0xAB36	Feedback flux linkage filter time coefficient	0 to 200	4	-	Real-time
AB-55	0xAB37	Static output flux linkage filter time	0 to 5000	10	ms	Real-time
AB-57	0xAB39	The PI regulator proportion gain changes automatically with the load.	0: Invalid 1: Active	0	-	At stop
AB-58	0xAB3A	Current loop damping	0.2 to 10.0	0.8	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-59	0xAB3B	Current loop Kp adjustment at low speed	0.1 to 10.0	1.0	-	Real-time
AB-60	0xAB3C	Current loop Kp adjustment at high speed	0.1 to 10.0	1.0	-	Real-time
AB-61	0xAB3D	Current loop Ki adjustment at low speed	0.1 to 10.0	1.0	-	Real-time
AB-62	0xAB3E	Current loop Ki adjustment at high speed	0.1 to 10.0	2.0	-	Real-time
AB-63	0xAB3F	Used to set D-axis current loop complex vector adjustment.	0.1 to 10.0	1.0	-	Real-time
AB-64	0xAB40	Used to set Q-axis current loop complex vector adjustment.	0.1 to 10.0	1.0	-	Real-time
AB-65	0xAB41	Used to set the lower limit of complex vector hysteresis frequency, which is a percentage of rated frequency.	0 to AB-66	0	%	Real-time
AB-66	0xAB42	Used to set the upper limit of complex vector hysteresis frequency, which is a percentage of rated frequency.	AB-65~150	0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-67	0xAB43	Used to set the upper limit voltage for ImCsr2 hysteresis switchover, which is a percentage of saturation voltage.	AB-68~95	89	%	Real-time
AB-68	0xAB44	Used to set the lower limit voltage for ImCsr2 hysteresis switchover, which is a percentage of saturation voltage.	60 to AB-67	79	%	Real-time
AB-69	0xAB45	Used to set ImCsr2 hysteresis range of hysteresis switchover frequency, which is a percentage of rated frequency.	1 to 30	10	%	Real-time
AB-70	0xAB46	Used to set the lower limit of ImCsr2 hysteresis switchover frequency. The frequency hysteresis condition does not activate when this value is not reached. The setpoint is a percentage of rated frequency.	20 to 150	75	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-71	0xAB47	Used to adjust Kss of ImCsr2 current loop.	0.1 to 10.0	1.0	-	Real-time
AB-72	0xAB48	Used to set the proportional gain adjustment coefficient corresponding to the max. torque.	0.1 to 1.0	0.5	-	Real-time
AB-73	0xAB49	Used to set the torque upper limit, which is a percentage of the rated torque.	AB-74~300	200	%	Real-time
AB-74	0xAB4A	Used to set the torque lower limit, which is a percentage of the rated torque.	10 to AB-73	100	%	Real-time
AB-75	0xAB4B	Used to adjust differential feedforward.	0.0 to 1.0	0.0	-	Real-time
AB-76	0xAB4C	Used to set decoupling control starting frequency, which is a percentage of rated frequency.	20 to 150	60	%	Real-time
AB-77	0xAB4D	Used to set the filter time adjustment coefficient of decoupling control.	0.1 to 3.0	1.0	-	Real-time
AB-78	0xAB4E	Used to set decoupling control output adjustment coefficient.	0.0 to 1.0	0.7	-	Real-time
AB-79	0xAB4F	CPC feedforward	0: Disable 1: Enable	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-80	0xAB50	Current loop auxiliary command word	bit0: Complex vector angle limit 0: Disable 1: Enable bit1: Voltage angle limit selection 0: Limited internally 1: Parameter setting bit2: Default value 0 0: No limit on excitation current lower limit during dynamic process 1: Limit on excitation current lower limit during dynamic process in ImCsr2 mode bit3: Default value 0 reserved	0	-	Real-time
AB-81	0xAB51	Defines voltage angle upper limit.	90 to 180	150	°	Real-time
AB-82	0xAB52	Defines voltage angle lower limit.	0 to 90	30	°	Real-time
AB-83	0xAB53	Defines asynchronous motor D-axis integral limit.	0.500 to 1.000	0.707	-	Real-time
AB-84	0xAB54	Defines current loop carrier frequency upper limit.	5.0 to 16.0	8.0	-	Real-time
AB-85	0xAB55	Droop enable	0 to 1	0	-	At stop
AB-86	0xAB56	Soften source	0: Line current 1: Torque reference 2: Speed regulator output 3: Integral component of speed regulator	1	-	At stop
AB-87	0xAB57	Frequency droop coefficient reference	0.0 to 50.0	0.0	%	Real-time
AB-91	0xAB5B	Synchronous motor SVC model parameter 1	1 to 10000	10	-	Real-time
AB-92	0xAB5C	Synchronous motor SVC model parameter 2	1 to 10000	5	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
AB-93	0xAB5D	Synchronous motor SVC model parameter 3	1 to 100	30	-	Real-time
AB-94	0xAB5E	Synchronous motor SVC model parameter 4	-100 to +100	20	-	Real-time
AB-95	0xAB5F	Synchronous motor SVC model parameter 5	0 to 50000	30	-	Real-time
AB-96	0xAB60	Synchronous motor SVC command word	bit0 to bit1: Low-speed processing method 0: Disable 1: Method 1 2: Method 2 bit2: Energy-saving optimization 0: Disable 1: Enable bit3: Online auto-tuning of back EMF 0: Disable 1: Enable bit4 to bit5: Inductance mode 0: Fixed value 1: Saturation value 2: Mode 1 3: Mode 2	54	-	At stop
AB-97	0xAB61	Synchronous motor SVC low speed threshold 1	0.0 to 10.0	0.5	%	Real-time
AB-98	0xAB62	Defines the synchronous motor SVC low speed threshold 2.	0.0 to 10.0	0.0	%	Real-time
AB-99	0xAB63	Synchronous motor SVC low speed voltage coefficient	0 to 100	50	%	Real-time
AC-00	0xAC00	AI1 measured voltage 1	-10.000 to 10.000	2.000	V	At stop
AC-01	0xAC01	AI1 displayed voltage 1	-10.000 to 10.000	2.000	V	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
AC-02	0xAC02	AI1 measured voltage 2	-10.000 to 10.000	8.000	V	At stop
AC-03	0xAC03	AI1 displayed voltage 2	-10.000 to 10.000	8.000	V	At stop
AC-04	0xAC04	AI2 measured voltage 1	-10.000 to 10.000	2.000	V	At stop
AC-05	0xAC05	AI2 displayed voltage 1	-10.000 to 10.000	2.000	V	At stop
AC-06	0xAC06	AI2 measured voltage 2	-10.000 to 10.000	8.000	V	At stop
AC-07	0xAC07	AI2 displayed voltage 2	-10.000 to 10.000	8.000	V	At stop
AC-08	0xAC08	AI3 measured voltage 1	-10.000 to 10.000	2.000	V	At stop
AC-09	0xAC09	AI3 displayed voltage 1	-10.000 to 10.000	2.000	V	At stop
AC-10	0xAC0A	AI3 measured voltage 2	-10.000 to 10.000	8.000	V	At stop
AC-11	0xAC0B	AI3 displayed voltage 2	-10.000 to 10.000	8.000	V	At stop
AC-12	0xAC0C	AO1 target voltage 1	-10.000 to 10.000	2.000	V	At stop
AC-13	0xAC0D	AO1 measured voltage 1	-10.000 to 10.000	2.000	V	At stop
AC-14	0xAC0E	AO1 target voltage 2	-10.000 to 10.000	8.000	V	At stop
AC-15	0xAC0F	AO1 measured voltage 2	-10.000 to 10.000	8.000	V	At stop
AC-16	0xAC10	AO2 target voltage 1	-10.000 to 10.000	2.000	V	At stop
AC-17	0xAC11	AO2 measured voltage 1	-10.000 to 10.000	2.000	V	At stop
AC-18	0xAC12	AO2 target voltage 2	-10.000 to 10.000	8.000	V	At stop
AC-19	0xAC13	AO2 measured voltage 2	-10.000 to 10.000	8.000	V	At stop
AC-40	0xAC28	AI2 verification resistance 1	0.0 to 6553.5	200.0	Ω	At stop
AC-41	0xAC29	Measured voltage of AI2 verification resistance 1	0.000 to 65.535	0.985	V	At stop
AC-42	0xAC2A	AI2 verification resistance 1	0.0 to 6553.5	1100.0	Ω	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
AC-43	0xAC2B	Measured voltage of AI2 verification resistance 2	0.000 to 65.535	2.312	V	At stop
B6-00	0xB600	Start-up mode	0: Direct start 1: Flying start 2: Pre-excitation start (AC asynchronous motor) 3: SVC quick start	0	-	Real-time
B6-01	0xB601	Flying start mode	0: Starting from the stop frequency 1: Starting from the line frequency 2: Starting from the maximum frequency 3: Reserved 4: Field-oriented flying start (MD290)	4	-	Real-time
B6-02	0xB602	Flying start speed	1 to 100	20	-	Real-time
B6-03	0xB603	Start frequency	0.00 to 10.00	0.00	Hz	Real-time
B6-04	0xB604	Start frequency hold time	0.0 to 100.0	0.0	s	At stop
B6-05	0xB605	DC braking current at start	0 to 100	50	%	At stop
B6-06	0xB606	DC braking time at start	0.0 to 100.0	0.0	s	At stop
B6-07	0xB607	Stop mode	0: Decelerate to stop 1: Coast to stop 2: Stop with maximum capability	0	-	Real-time
B6-08	0xB608	Start frequency of DC braking at stop	0.00 to F0-10	0.00	Hz	Real-time
B6-09	0xB609	DC braking waiting time at stop	0.0 to 100.0	0.0	s	Real-time
B6-10	0xB60A	DC braking current at stop	0 to 100	50	%	Real-time
B6-11	0xB60B	DC braking time at stop	0.0 to 100.0	0.0	s	Real-time
B6-12	0xB60C	Frequency sweeping current amplitude closed-loop Kp in speed tracking	0 to 1000	500	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B6-13	0xB60D	Sweep current amplitude closed loop Ki in flying start	0 to 1000	800	-	Real-time
B6-14	0xB60E	Flying start current	30 to 200	80	%	At stop
B6-15	0xB60F	Current loop multiple	10 to 600	100	%	Real-time
B6-16	0xB610	Demagnetization time (applies to asynchronous motors)	0.00 to 5.00	0.50	s	Real-time
B6-17	0xB611	Over-excitation selection	0: Inactive 1: Enabled during deceleration (regenerative) 2: Enabled during deceleration (DC bus overvoltage)	0	-	Real-time
B6-18	0xB612	Overexcitation suppression additional current	0 to 200	100	%	Real-time
B6-19	0xB613	Overexcitation gain	0.01 to 2.50	1.25	-	Real-time
B6-25	0xB619	Jump frequency 1	0.00 to F0-10	0.00	Hz	Real-time
B6-26	0xB61A	Jump frequency 2	0.00 to F0-10	0.00	Hz	Real-time
B6-27	0xB61B	Jump frequency 3	0.00 to F0-10	0.00	Hz	Real-time
B6-28	0xB61C	Jump frequency 4	0.00 to F0-10	0.00	Hz	Real-time
B6-29	0xB61D	Jump frequency amplitude	0.00 to F0-10	0.00	Hz	Real-time
B6-30	0xB61E	Frequency upper limit source	0: B6-31 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication Others: F connector	0	-	At stop
B6-31	0xB61F	Frequency upper limit	B6-33~F0-10	50.00	Hz	Real-time
B6-32	0xB620	Frequency upper limit offset	0.00 to F0-10	0.00	Hz	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B6-33	0xB621	Frequency lower limit	0.00 to B6-31	0.00	Hz	Real-time
B6-34	0xB622	Speed/Torque control selection	0: Speed control 1: Torque control	0	-	Real-time
B6-35	0xB623	Motor overload protection selection	0: Disable 1: Enable	1	-	Real-time
B6-36	0xB624	Motor overload protection gain	0.20 to 10.00	1.00	-	Real-time
B6-37	0xB625	Motor overload warning coefficient	50 to 100	80	%	Real-time
B6-38	0xB626	V/f overvoltage stall suppression gain	1 to 500	30	-	Real-time
B6-39	0xB627	V/f overvoltage stall suppression protection voltage	330.0 to 800.0	770.0	V	Real-time
B6-40	0xB628	Protective functions	Ones: Protection against input phase loss 0: Disable 1: Protection enabled when both software and hardware input phase loss conditions are met 2: Protection enabled when software input phase loss conditions are met 3: Protection enabled when hardware input phase loss conditions are met Tens: contactor pickup protection 0: Disable 1: Enable Hundreds: T13 rectifier fault protection 0: Disable 1: Enable	11	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B6-41	0xB629	Output phase loss protection	Ones: Protection against output phase loss during running 0: Disable 1: Enable Tens: Protection against output phase loss before running 0: Disable 1: Enable	1	-	Real-time
B6-42	0xB62A	Power dip ride-through function	0: Invalid 1: Decelerate 2: Decelerate to stop 3: Voltage dip suppression	0	-	At stop
B6-43	0xB62B	Threshold for recovery from power dip ride-through	80 to 100	85	%	At stop
B6-44	0xB62C	Duration for judging voltage recovery from power dip ride-through	0.0 to 100.0	0.5	s	At stop
B6-45	0xB62D	Threshold for enabling power dip ride-through	60 to 100	80	%	At stop
B6-46	0xB62E	Protection against load loss	0: Invalid 1: Active	0	-	Real-time
B6-47	0xB62F	Load loss detection level	0.0 to 100.0	10.0	%	Real-time
B6-48	0xB630	Load loss detection time	0.0 to 60.0	1.0	s	Real-time
B6-49	0xB631	Overspeed detection value	0.0 to 50.0	20.0	%	Real-time
B6-50	0xB632	Overspeed detection time	0.0 to 60.0	1.0	s	Real-time
B6-51	0xB633	Detection value for excessive speed deviation	0.0 to 50.0	20.0	%	Real-time
B6-52	0xB634	Detection time for excessive speed deviation	0.0 to 60.0	5.0	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B6-53	0xB635	Power dip ride-through gain Kp	1 to 100	40	-	Real-time
B6-54	0xB636	Integral coefficient Ki of power dip ride-through	1 to 100	30	-	Real-time
B6-55	0xB637	Deceleration time of power dip ride-through	0.0 to 300.0	20.0	s	Real-time
B6-56	0xB638	Voltage dip suppression time	0.1 to 600.0	0.5	s	Real-time
B6-63	0xB63F	Active short circuit control	0: Disable 1: Enable	0	-	At stop
B6-64	0xB640	Delay time for entering active short circuit control	0.0 to 5000.0	0.0	ms	At stop
B6-65	0xB641	Holding time of active short circuit control at stop	0.1 to 3600.0	10.0	s	At stop
B6-66	0xB642	Current hysteresis loop high point coefficient in active short circuit control	0.0 to 120.0	80.0	%	At stop
B6-67	0xB643	Current hysteresis loop high/low point coefficient ratio in active short circuit control	0.0 to 99.9	90.0	%	At stop
B6-68	0xB644	Overvoltage threshold in active short circuit control	330.0 to 820.0	780.0	V	At stop
B6-69	0xB645	Voltage control point in active short circuit control	330.0 to B6-68	750.0	V	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B6-70	0xB646	Voltage control bandwidth in active short circuit control	0.00 to 100.00	5.00	Hz	At stop
B6-71	0xB647	Voltage control time constant in active short circuit control	0.001 to 10.000	0.500	s	At stop
B6-72	0xB648	DC braking current rise time	0.00 to 100.00	0.00	s	At stop
B6-73	0xB649	DC braking superposition frequency	0.00 to 100.00	0.00	Hz	Real-time
B7-00	0xB700	Number of parallel motors	1 to 200	1	-	At stop
B7-01	0xB701	Motor information command word	bit0: Mutual inductance curve enable 0: Disable 1: Enable bit1: D/Q inductance curve enable 0: Disable 1: Enable bit2: Online rotor resistance auto-tuning 0: Disable 1: Enable bit3: Online rotor resistance auto-tuning method 0: Amplitude 1: Phase bit4: Motor thermal model 0: Disable 1: Enable bit5: Motor thermal model temperature source 0: Estimated temperature 1: Sensor detected temperature bit6: Torque coefficient calculation method of asynchronous motor 0: Torque formula 1: Current distribution bit7: Torque coefficient calculation method of synchronous motor 0: Torque formula 1: Rated value match (Continued)	0x3	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B7-01	0xB701	Motor information command word	(Continued) bit8: Zero-speed friction torque calculation method 0: Linearly decreased to zero 1: Maintain minimum speed torque bit9: Enable model parameter calculation based on nameplate parameters 0: Disable 1: Enable bit10: Parameter confirmation key of nameplate parameter calculation model 0: Default 1: OK bit12: Ld curve selection of the reluctance motor 0: Dynamic auto-tuning result 1: Static auto-tuning result bit13: Synchronous motor torque accuracy calibration 0: Disable 1: Enable	0x3	-	At stop
B7-02	0xB702	Defines the number of motor pole pairs.	0 to 64	0	-	At stop
B7-03	0xB703	Power factor of the motor	0.600 to 1.000	0.860	-	At stop
B7-15	0xB70F	Stator leakage inductance	0.000 to 65.535	6.540	mH	At stop
B7-16	0xB710	Electromechanical time constant	0.01 to 655.35	1.00	s	Unchangeable
B7-17	0xB711	Inertia ratio	0.0 to 6553.5	120.0	%	At stop
B7-18	0xB712	Friction torque	0.0 to 6553.5	2.0	%	At stop
B7-19	0xB713	Defines the excitation current coefficient 1 (within rated current range) of mutual inductance curve.	5.0 to 100.0	50.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B7-20	0xB714	Defines the excitation current coefficient 2 (within rated current range) of mutual inductance curve.	5.0 to 100.0	75.0	%	At stop
B7-21	0xB715	Defines the excitation current point 3 of mutual inductance curve.	100.0 to 800.0	150.0	%	At stop
B7-22	0xB716	Defines the excitation current point 4 of mutual inductance curve.	100.0 to 800.0	210.0	%	At stop
B7-23	0xB717	Defines the flux coefficient 1 (within rated range) of mutual inductance curve.	10.0 to 100.0	50.0	%	At stop
B7-24	0xB718	Defines the flux coefficient 2 (within rated range) of mutual inductance curve.	10.0 to 100.0	85.0	%	At stop
B7-25	0xB719	Flux coefficient 3 of mutual inductance curve	100.0 to 300.0	115.0	%	At stop
B7-26	0xB71A	Flux coefficient 4 of mutual inductance curve	100.0 to 300.0	125.0	%	At stop
B7-27	0xB71B	Speed point 1 of friction curve	0 to 30000	15	rpm	At stop
B7-28	0xB71C	Speed point 2 of friction curve	0 to 30000	30	rpm	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B7-29	0xB71D	Speed point 3 of friction curve	0 to 30000	60	rpm	At stop
B7-30	0xB71E	Speed point 4 of friction curve	0 to 30000	120	rpm	At stop
B7-31	0xB71F	Speed point 5 of friction curve	0 to 30000	150	rpm	At stop
B7-32	0xB720	Speed point 6 of friction curve	0 to 30000	300	rpm	At stop
B7-33	0xB721	Speed point 7 of friction curve	0 to 30000	600	rpm	At stop
B7-34	0xB722	Speed point 8 of friction curve	0 to 30000	1200	rpm	At stop
B7-35	0xB723	Speed point 9 of friction curve	0 to 30000	1500	rpm	At stop
B7-36	0xB724	Speed point 10 of friction curve	0 to 30000	3000	rpm	At stop
B7-37	0xB725	Torque point 1 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
B7-38	0xB726	Torque point 2 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
B7-39	0xB727	Torque point 3 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
B7-40	0xB728	Torque point 4 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
B7-41	0xB729	Torque point 5 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
B7-42	0xB72A	Torque point 6 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
B7-43	0xB72B	Torque point 7 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
B7-44	0xB72C	Torque point 8 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
B7-45	0xB72D	Torque point 9 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
B7-46	0xB72E	Torque point 10 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
B7-47	0xB72F	Defines the starting point of D/Q-axis inductance curve current coefficient.	-800.0 to 800.0	-200.0	%	At stop
B7-48	0xB730	Defines the end point of D/Q-axis inductance curve current coefficient.	-800.0 to 800.0	200.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B7-49	0xB731	Defines the D-axis inductance 1 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
B7-50	0xB732	D-axis inductance 2 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
B7-51	0xB733	D-axis inductance 3 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
B7-52	0xB734	D-axis inductance 4 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
B7-53	0xB735	D-axis inductance 5 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
B7-54	0xB736	D-axis inductance 6 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
B7-55	0xB737	D-axis inductance 7 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
B7-56	0xB738	D-axis inductance 8 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
B7-57	0xB739	D-axis inductance 9 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B7-58	0xB73A	D-axis inductance 10 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
B7-59	0xB73B	D-axis inductance 11 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-60	0xB73C	D-axis inductance 12 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
B7-61	0xB73D	Q-axis inductance 1 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-62	0xB73E	Q-axis inductance 2 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-63	0xB73F	Q-axis inductance 3 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-64	0xB740	Q-axis inductance 4 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-65	0xB741	Q-axis inductance 5 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-66	0xB742	Q-axis inductance 6 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B7-67	0xB743	Q-axis inductance 7 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-68	0xB744	Q-axis inductance 8 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-69	0xB745	Q-axis inductance 9 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-70	0xB746	Q-axis inductance 10 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-71	0xB747	Q-axis inductance 11 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
B7-72	0xB748	Q-axis inductance 12 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-00	0xB800	Parameter auto-tuning before startup	bit0: Magnetic pole position auto-tuning of synchronous motor before startup 0: Disable 1: Enable bit1: Quick auto-tuning of stator resistance before startup 0: Disable 1: Enable bit2: Magnetic pole position auto-tuning based on high-frequency injection before startup 0: Disable 1: Enable 2: Adaptive bit4: IGBT shoot-through self-check before start 0: Disable 1: Enable bit5: Short-circuit to ground self-check before start (reserved) 0: Disable 1: Enable bit6: Phase loss self-check before start (reserved) 0: Disable 1: Enable bit7: Pre-positioning before synchronous motor start 0: Disable 1: Enable bit8: Auto-tuning of stator resistance before startup 0: Disable 1: Enable	1	-	At stop
B8-01	0xB801	Motor parameter auto-tuning direction	0 to 1	1	-	At stop
B8-02	0xB802	Vibration suppression gain during back EMF auto-tuning of synchronous motor	0.0 to 30.0	3.2	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-03	0xB803	Target speed during dynamic rotation auto-tuning	30.0 to 100.0	70.0	%	At stop
B8-04	0xB804	Target speed 1 of rotation inertia auto-tuning	10.0 to B8-05	40.0	%	At stop
B8-05	0xB805	Target speed 2 of rotation inertia auto-tuning	B8-04~100.0	60.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-06	0xB806	Motor parameter auto-tuning item configuration 2	bit0: Overcurrent prevention during auto-tuning of mutual inductance saturation curve 0: Disable 1: Active bit1: Auto-tuning scheme switchover 0: Scheme 1 1: Scheme 2 bit2: Auto-tuning calibration switch 0: Enable 1: Disable bit3: Second-segment auto-tuning switchover 0: Disable 1: Active bit4: Auto-tuning method 0: Fixed 1: Adjustable bit5: Reserved 0: Disable 1: Active bit6: DC injection during inductance auto-tuning 0: Injected 1: Not injected bit7: Adaptive magnetic pole position auto-tuning based on high-frequency injection 0: Determined by bit7 of AA-07 1: Forcibly adaptive bit8: Current limit for rotor resistance leakage inductance auto-tuning 0: High current 1: Low current (Continued)	5121	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-06	0xB806	Motor parameter auto-tuning item configuration 2	(Continued) bit9: Leakage inductance auto-tuning of small motor/high-speed motor 0: Scheme 1 1: Scheme 2 bit10: Frequency adaptation based on rotor resistance auto-tuning of small/high-peed motor 0: Disable 1: Active bit11: Frequency adaptation based on rotor resistance auto-tuning of all motors 0: Disable 1: Active bit12: Calculation scheme selection for small motor/high-speed motor rotor resistance auto-tuning result 0: Scheme 1 1: Scheme 2 bit13: Calculation scheme selection for rotor resistance auto-tuning result of all motors 0: Scheme 1 1: Scheme 2 bit14: Current search based on high-frequency injection 0: Disable 1: Enable	5121	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-07	0xB807	Motor parameter auto-tuning item configuration	bit0: Speed loop parameter adaptation 0: Disable 1: Enable bit1: Current loop parameter adaptation 0: Disable 1: Enable bit2: Non-linear auto-tuning of the drive 0: Disable 1: Enable bit3: Auto-tuning of phase-to-phase deviation coefficient 0: Disable 1: Enable bit4: Initial magnetic pole position auto-tuning of synchronous motor 0: Disable 1: Enable bit5: D/Q-axis inductance model auto-tuning of synchronous motor 0: Disable 1: Enable bit6: System moment of inertia auto-tuning 0: Disable 1: Enable bit7:Magnetic pole position auto-tuning based on high-frequency injection 0: Disable 1: Enable (Continued)	125	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-07	0xB807	Motor parameter auto-tuning item configuration	(Continued) bit8: DC injection auto-tuning 0: Disable 1: Enable bit9: No-load current vector auto-tuning 0: Disable 1: Enable bit10: Speed reference source for no-load current vector auto-tuning 0: User-defined 1: Internal-defined bit11: Back EMF calculation 0: Disable 1: Enable bit12: Back EMF auto-tuning calculation mode 0: Mode 0 1: Mode 1	125	-	At stop
B8-08	0xB808	OFF3 stop mode	0: Quick stop 1: Stop with maximum capability	0	-	At stop
B8-09	0xB809	Permissible stop mode during operation	0: OFF1 stop mode 1: OFF2 stop mode 2: OFF3 stop mode	1	-	At stop
B8-10	0xB80A	Stop mode in torque control mode	0: Coast to stop forcibly 1: Switch to speed control mode and stop 2: Keep in the torque mode until the zero speed is reached and then stop	1	-	At stop
B8-11	0xB80B	MTPA filter time	0 to 8000	20	-	Real-time
B8-12	0xB80C	Proportional gain tuning coefficient	0.1 to 2.0	1.0	-	Real-time
B8-13	0xB80D	Integral gain tuning coefficient	0.1 to 2.0	1.0	-	Real-time
B8-14	0xB80E	Zero speed threshold	0.1 to 200.0	2.0	%	Real-time
B8-15	0xB80F	Delay of zero speed stop	0.00 to 10.00	0.10	s	At stop
B8-16	0xB810	Set channel execution interval	0 to 20	4	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-17	0xB811	Trial current of flying start for synchronous motor	5.0 to 50.0	10.0	%	At stop
B8-18	0xB812	Minimum frequency for flying start of synchronous motor	0.0 to 100.0	0.0	Hz	At stop
B8-19	0xB813	Angle compensation for flying start of synchronous motor	0 to 360	0	-	At stop
B8-20	0xB814	Parameter auto-tuning of synchronous motor before startup	0 to 1	0	-	Real-time
B8-21	0xB815	Present motor angle	0 to 65535	0	-	Unchangeable
B8-22	0xB816	Forward torque limit 1	0.0 to 400.0	150.0	%	Real-time
B8-23	0xB817	Reverse torque limit 1	0.0 to 400.0	150.0	%	Real-time
B8-24	0xB818	Source of positive torque limit 2	0: 400% Others: F connector	0	-	Real-time
B8-25	0xB819	Source of negative torque limit 2	0: -400% Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-26	0xB81A	Ramp (FRG) selection bit0	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
B8-27	0xB81B	Ramp (FRG) selection bit1	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-30	0xB81E	Motor protection	bit0: Motor overload judgment (reserved) bit1: Motor overheat detection (reserved) bit2: Reserved Bit 3: Current control error detection Bit 4: Motor step loss error detection Bit 5: Motor stall detection Bit 6: Demagnetization protection for synchronous motor bit7: Demagnetization protection for permanent magnet motor bit8: Reserved Bit 9: Parameter setting error bit10: Output load loss detection (reserved) bit11: Divergent runaway protection bit12: Excessive speed deviation (reserved) bit13: Speed reversal protection (reserved) bit14: Overspeed protection (reserved) bit15: Demagnetization protection for reluctance motor with permanent magnet	32769	-	Real-time
B8-31	0xB81F	Stall fault time	0.0 to 65.0	2.0	s	Real-time
B8-32	0xB820	Frequency upon stall fault	0.0 to 600.0	6.0	%	Real-time
B8-33	0xB821	Step loss detection time	0.0 to 10.0	0.5	s	Real-time
B8-34	0xB822	Step loss detection threshold	0.0 to 100.0	30.0	%	Real-time
B8-35	0xB823	Detection time for current control fault	0.00 to 1.00	0.05	s	Real-time
B8-36	0xB824	Detection threshold for current control fault	0.0 to 200.0	25.0	%	Real-time
B8-37	0xB825	Synchronous motor overcurrent threshold	0.0 to 500.0	300.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-39	0xB827	Speed deviation detection	0 to 1	1	-	Real-time
B8-45	0xB82D	Frequency for SVC mode switchover of asynchronous motor	10 to 20	15	%	At stop
B8-46	0xB82E	DC starting frequency of asynchronous motor in SVC mode	0.1 to 20.0	0.5	%	Real-time
B8-47	0xB82F	Defines the asynchronous motor SVC observer gain 1.	10 to 500	100	%	Real-time
B8-48	0xB830	Observer gain 2 of asynchronous motor in SVC mode	10 to 100	20	%	Real-time
B8-49	0xB831	Observer mode of asynchronous motor in SVC mode	0 to 3	0	-	At stop
B8-50	0xB832	Pre-excitation of asynchronous motor in SVC mode	0 to 1	0	-	At stop
B8-51	0xB833	Flying start of asynchronous motor in SVC mode	0 to 1	0	-	At stop
B8-52	0xB834	High-speed gain of asynchronous motor	0.0 to 3.0	0.5	-	At stop
B8-54	0xB836	Synchronous motor 1 model control	bit0: Low-speed handling bit1: Low-speed handling 1 bit2: Online auto-tuning of resistance bit3: Online auto-tuning of back EMF bit4: KS	5	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-55	0xB837	Synchronous motor model K1	10 to 3000	200	Hz	Real-time
B8-56	0xB838	Synchronous motor model K1Max	100 to 6000	3000	%	Real-time
B8-57	0xB839	Synchronous motor model KsMin	0.0 to 4.0	0.3	-	Real-time
B8-58	0xB83A	Synchronous motor model Kspeed	50 to 2000	400	Hz	Real-time
B8-59	0xB83B	Frequency filter time constant of synchronous motor	2 to 100	10	ms	Real-time
B8-60	0xB83C	Rs online auto-tuning frequency upper limit of synchronous motor	1.0 to 20.0	3.5	%	Real-time
B8-61	0xB83D	Synchronous motor model Kr	0 to 50	10	-	Real-time
B8-62	0xB83E	Synchronous motor model Kr1	0 to 50	5	%	Real-time
B8-63	0xB83F	Low-speed d-axis injection current of synchronous motor	0 to 100	20	%	Real-time
B8-64	0xB840	Synchronous motor model LowFreqTime1	0 to 500	50	-	Real-time
B8-67	0xB843	Online auto-tuning frequency lower limit of back EMF	10 to 100	25	%	Real-time
B8-68	0xB844	Synchronous motor model LowFreq	0.0 to 2.0	0.3	%	Real-time
B8-69	0xB845	Synchronous motor model LowFreqTime	0 to 100	10	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-70	0xB846	Magnetic pole auto-tuning current percentage	30 to 200	130	%	Real-time
B8-71	0xB847	High frequency response current percentage	0 to 100	25	%	Real-time
B8-72	0xB848	HFI-to-SVC switchover frequency percentage	0 to 30	10	%	Real-time
B8-73	0xB849	Observer parameter	10 to 200	100	-	Real-time
B8-74	0xB84A	Speed filter cut-off frequency	1 to 200	10	Hz	Real-time
B8-75	0xB84B	Carrier frequency during NS auto-tuning	2.00 to 16.00	8.00	Hz	Real-time
B8-76	0xB84C	Automatic calculation of NS auto-tuning voltage	0 to 1	1	-	Real-time
B8-77	0xB84D	Percentage of NS auto-tuning voltage set manually	0 to 100	10	%	Real-time
B8-78	0xB84E	Duration of high frequency injection stage 1	50 to 500	150	ms	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-80	0xB850	Speed loop command word	bit0: Speed loop enable 0: Disable 1: Enable bit1: Integral mode 0: Traditional integral 1: Position-type integral Bit 2: Torque feedforward 0: Disable 1: Enable bit3: Acceleration source selection 0: Acceleration set by parameter 1: Automatic calculation 2: Acceleration set by parameter Bit 5: Anti-load disturbance 0: Disable 1: Enable bit9: Speed loop output torque limit adjustment with additional torque 0: Disable 1: Enable bit10: Balanced filter 0: Disable 1: Enable	19	-	Real-time
B8-81	0xB851	Fast integral cancel coefficient upon stalled motor	0.0 to 100.0	0.0	%	Real-time
B8-82	0xB852	Digital setting of integral torque	-100.0 to 100.0	0.0	%	Real-time
B8-83	0xB853	Frequency window of speed controller	0.00 to 10.00	0.00	Hz	At stop
B8-84	0xB854	Current filter time for torque reference	0.0 to 100.0	0.0	ms	At stop
B8-85	0xB855	Acceleration torque (reserved)	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-87	0xB857	See the bandwidth of the model.	0.00 to 300.00	0.00	Hz	Real-time
B8-88	0xB858	Torque feedforward coefficient	0.0 to 6553.5	100.0	%	Real-time
B8-89	0xB859	Frequency filter time in vector control	0.0 to 100.0	0.0	ms	At stop
B8-90	0xB85A	Filter time for feedback frequency in vector control	0.0 to 100.0	0.0	ms	At stop
B8-91	0xB85B	Load observation bandwidth	0.00 to 300.00	0.00	Hz	Real-time
B8-92	0xB85C	Load observation coefficient	0.0 to 1000.0	100.0	%	Real-time
B8-93	0xB85D	Pseudo-integral coefficient	0.000 to 10.000	1.000	-	Real-time
B8-94	0xB85E	Torque coefficient	0: Disable 1: Enable	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B8-95	0xB85F	Low-frequency Kp switchover selection	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector Note: When this parameter is set to a value from 3 to 18 (DI1 to DI16), low-frequency Kp switching is performed when the DI is active high.	0	-	Real-time
B8-96	0xB860	Center frequency of notch filter 1	0.0 to 4000.0	4000.0	-	Real-time
B8-97	0xB861	Center frequency of notch filter 2	0.0 to 4000.0	4000.0	-	Real-time
B8-98	0xB862	Integral setting control word	0: Invalid 1: Valid Others: B connector	0	-	Real-time
B8-99	0xB863	Integral setting source	0: Digital setting 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-00	0xB900	Externally transferred acceleration (reserved)	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
B9-01	0xB901	Current deviation threshold	0.3 to 2.0	0.5	-	At stop
B9-02	0xB902	Current filter cycle setting	0 to 100	1	-	At stop
B9-03	0xB903	Breakdown torque limit coefficient	0.0 to 400.0	100.0	%	Real-time
B9-04	0xB904	Motoring load power limit coefficient	0.0 to 400.0	400.0	%	Real-time
B9-05	0xB905	Generating load power limit coefficient.	0.0 to 400.0	400.0	%	Real-time
B9-06	0xB906	Overspeed limit	0 to 1	1	-	Real-time
B9-07	0xB907	Sine frequency setting of bandwidth test	0 to 1000	0	Hz	Real-time
B9-08	0xB908	Sine amplitude setting of bandwidth test	0 to 100	0	%	Real-time
B9-09	0xB909	Bandwidth test enabling	0 to 4	0	-	Real-time
B9-10	0xB90A	Torque coefficient adjustment value	0.0 to 200.0	100.0	%	Real-time
B9-11	0xB90B	Speed loop parameter calculation mode	0: New solution 1: Compatible mode	1	-	At stop
B9-14	0xB90E	SVC speed loop proportional gain	0.00 to 100.00	5.00	Hz	Real-time
B9-15	0xB90F	SVC speed loop integral time	0.000 to 20.000	0.127	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-16	0xB910	Low frequency scaling correction coefficient	0.0 to 1000.0	100.0	%	Real-time
B9-17	0xB911	Low frequency integral correction coefficient	0.0 to 1000.0	100.0	%	Real-time
B9-18	0xB912	Speed loop adaptive factor	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
B9-19	0xB913	Lower limit of speed loop adaptive switchover	0.000 to 10.000	0.400	-	Real-time
B9-20	0xB914	Upper limit of speed loop adaptive switchover	0.000 to 10.000	1.000	-	Real-time
B9-21	0xB915	Upper limit of speed loop adaptive correction	0.0 to 1000.0	100.0	%	Real-time
B9-22	0xB916	Lower limit of speed loop adaptive correction	0.0 to 1000.0	100.0	%	Real-time
B9-23	0xB917	Magnetic flux adaptation	0 to 1	1	-	Real-time
B9-24	0xB918	Overspeed controller correction coefficient	0.0 to 1000.0	100.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-25	0xB919	Vector overvoltage/ undervoltage suppression control command word	bit0: Undervoltage suppression 0: Disable 1: Enable bit1: Overvoltage suppression 0: Disable 1: Enable bit2: Automatic calculation of overvoltage/undervoltage suppression threshold 0: Disable 1: Enable bit3: Overvoltage/undervoltage suppression integral action 0: Disable 1: Enable	0	-	Real-time
B9-26	0xB91A	Bus capacitance ratio	50.0 to 1000.0	100.0	%	Real-time
B9-27	0xB91B	Vector undervoltage suppression exit from hysteresis frequency	0.00 to 10.00	3.00	Hz	Real-time
B9-28	0xB91C	Speed threshold for vector undervoltage suppression failure	0.00 to 20.00	2.00	Hz	Real-time
B9-29	0xB91D	Dynamic adjustment coefficient of vector overvoltage/ undervoltage suppression	0.0 to 1000.0	100.0	%	Real-time
B9-30	0xB91E	Defines the activation voltage of vector undervoltage suppression.	320.0 to 540.0	430.0	V	Real-time
B9-31	0xB91F	Activation voltage of vector overvoltage suppression	650.0 to 800.0	770.0	V	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-32	0xB920	Flux linkage control command word	bit0: Filtering method for output voltage limit calculation 0: Symmetric filtering 1: Asymmetric filtering bit1: Asynchronous motor inverse curve calculation method 0: Decrease inversely proportional to synchronous frequency 1: Decrease inversely proportional to speed bit2: Flux linkage feedforward calculation inversely proportional to speed 0: Disable 1: Enable bit3: Reserved bit4: Reserved bit5: Field weakening adjustment 0: Disable 1: Enable bit6: Flux derivative feedforward 0: Disable 1: Enable bit7: Energy conservation control 0: Disable 1: Enable bit8: Asynchronous motor flux closed-loop 0: Disable 1: Enable bit9: Reserved bit10: Reserved bit11: Asynchronous motor pre-excitation mode 0: Time-based pre-excitation 1: Current-based pre-excitation bit12: Asynchronous motor pre-excitation current mode 0: Current reference-based pre-excitation 1: Maximum current allowed by the platform bit13: Reserved bit14: Voltage outer loop mode 0: Voltage outer loop mode 0 1: Voltage outer loop mode 1	18741	-	Real-time
B9-33	0xB921	Voltage margin	1 to 50	3	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-34	0xB922	Margin of output voltage upper limit of synchronous motor through automatic adjustment	1 to 20	3	%	Real-time
B9-35	0xB923	Filter time calculation of max. output voltage	0 to 3000	10	ms	Real-time
B9-36	0xB924	Rated flux adjustment coefficient calculated	0.1 to 2.0	1.0	-	Real-time
B9-37	0xB925	Field weakening frequency threshold adjustment coefficient calculated	0.8 to 1.2	1.1	-	Real-time
B9-38	0xB926	Slip filter time of field weakening frequency threshold calculation	0 to 3000	62	ms	Real-time
B9-39	0xB927	Feedback speed filter	0 to 8000	50	ms	Real-time
B9-40	0xB928	Flux linkage rise filter time	0 to 8000	20	ms	Real-time
B9-41	0xB929	Field weakening control gain	1 to 200	50	ms	Real-time
B9-42	0xB92A	Feedback voltage filter time	0 to 3000	0	ms	Real-time
B9-43	0xB92B	Maximum demagnetization current of synchronous motor	0 to 500	300	%	Real-time
B9-44	0xB92C	Voltage outer loop lower limit coefficient	0 to 500	50	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-45	0xB92D	Flux linkage differential feedforward coefficient	0.0 to 1.5	1.0	-	Real-time
B9-46	0xB92E	Flux linkage differential feedforward filter time	0 to 3000	6	ms	Real-time
B9-47	0xB92F	Filter time upon energy-saving control torque current rise	0 to 3000	50	ms	Real-time
B9-48	0xB930	Filter time upon energy-saving control torque current drop	0 to 3000	100	ms	Real-time
B9-49	0xB931	Flux linkage lower limit coefficient under energy conservation control	0.00 to 0.50	0.10	-	Real-time
B9-50	0xB932	Switchover frequency coefficient	0.0 to 10.0	1.0	-	At stop
B9-51	0xB933	Pre-excitation current	1 to 200	100	%	Real-time
B9-52	0xB934	Pre-excitation time	1 to 30000	1000	ms	Real-time
B9-53	0xB935	Flux linkage closed loop bandwidth frequency	0.0 to 100.0	1.0	Hz	Real-time
B9-54	0xB936	Feedback flux linkage filter time coefficient	0 to 200	4	-	Real-time
B9-55	0xB937	Static output flux linkage filter time	0 to 5000	10	ms	Real-time
B9-56	0xB938	Current loop mode selection	0: ImCsr2 mode 1: Complex vector mode 2: 880 mode 3: Non-field weakening mode	1	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-57	0xB939	The PI regulator proportion gain changes automatically with the load.	0 to 1	0	-	At stop
B9-58	0xB93A	Current loop damping	0.2 to 10.0	0.8	-	Real-time
B9-59	0xB93B	Current loop Kp adjustment at low speed	0.1 to 10.0	1.0	-	Real-time
B9-60	0xB93C	Current loop Kp adjustment at high speed	0.1 to 10.0	1.0	-	Real-time
B9-61	0xB93D	Current loop Ki adjustment at low speed	0.1 to 10.0	1.0	-	Real-time
B9-62	0xB93E	Current loop Ki adjustment at high speed	0.1 to 10.0	2.0	-	Real-time
B9-63	0xB93F	Used to set D-axis current loop complex vector adjustment.	0.1 to 10.0	1.0	-	Real-time
B9-64	0xB940	Used to set Q-axis current loop complex vector adjustment.	0.1 to 10.0	1.0	-	Real-time
B9-65	0xB941	Used to set the lower limit of complex vector hysteresis frequency, which is a percentage of rated frequency.	0 to B9-66	0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-66	0xB942	Used to set the upper limit of complex vector hysteresis frequency, which is a percentage of rated frequency.	B9-65~150	0	%	Real-time
B9-67	0xB943	Used to set the upper limit voltage for ImCsr2 hysteresis switchover, which is a percentage of saturation voltage.	B9-68~95	89	%	Real-time
B9-68	0xB944	Used to set the lower limit voltage for ImCsr2 hysteresis switchover, which is a percentage of saturation voltage.	60 to B9-67	79	%	Real-time
B9-69	0xB945	Used to set ImCsr2 hysteresis range of hysteresis switchover frequency, which is a percentage of rated frequency.	1 to 30	10	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-70	0xB946	Used to set the lower limit of ImCsr2 hysteresis switchover frequency. The frequency hysteresis condition does not activate when this value is not reached. The setpoint is a percentage of rated frequency.	20 to 150	75	%	Real-time
B9-71	0xB947	Used to adjust Kss of ImCsr2 current loop.	0.1 to 10.0	1.0	-	Real-time
B9-72	0xB948	Used to set the proportional gain adjustment coefficient corresponding to the max. torque.	0.1 to 1.0	0.5	-	Real-time
B9-73	0xB949	Used to set the torque upper limit, which is a percentage of the rated torque.	B9-74~300	200	%	Real-time
B9-74	0xB94A	Used to set the torque lower limit, which is a percentage of the rated torque.	10 to B9-73	100	%	Real-time
B9-75	0xB94B	Used to adjust differential feedforward.	0.0 to 1.0	0.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-76	0xB94C	Used to set decoupling control starting frequency, which is a percentage of rated frequency.	20 to 150	60	%	Real-time
B9-77	0xB94D	Used to set the filter time adjustment coefficient of decoupling control.	0.1 to 3.0	1.0	-	Real-time
B9-78	0xB94E	Used to set decoupling control output adjustment coefficient.	0.0 to 1.0	0.7	-	Real-time
B9-79	0xB94F	CPC feedforward	0: Disable 1: Enable	0	-	Real-time
B9-80	0xB950	Current loop auxiliary command word	bit0: Complex vector angle limit 0: Disable 1: Enable bit1: Voltage angle limit selection 0: Limited internally 1: Parameter setting bit2: Default value 0 0: No limit on excitation current lower limit during dynamic process 1: Limit on excitation current lower limit during dynamic process in ImCsr2 mode bit3: Default value 0 reserved	0	-	Real-time
B9-81	0xB951	Defines voltage angle upper limit.	90 to 180	150	°	Real-time
B9-82	0xB952	Defines voltage angle lower limit.	0 to 90	30	°	Real-time
B9-83	0xB953	Defines asynchronous motor D-axis integral limit.	0.500 to 1.000	0.707	-	Real-time
B9-84	0xB954	Defines current loop carrier frequency upper limit.	5.0 to 16.0	8.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-85	0xB955	Droop enable	0 to 1	0	-	At stop
B9-86	0xB956	Soften source	0: Line current 1: Torque reference 2: Speed regulator output 3: Integral component of speed regulator	1	-	At stop
B9-87	0xB957	Frequency droop coefficient reference	0.0 to 50.0	0.0	%	Real-time
B9-91	0xB95B	Synchronous motor SVC model parameter 1	1 to 10000	10	-	Real-time
B9-92	0xB95C	Synchronous motor SVC model parameter 2	1 to 10000	5	-	Real-time
B9-93	0xB95D	Synchronous motor SVC model parameter 3	1 to 100	30	-	Real-time
B9-94	0xB95E	Synchronous motor SVC model parameter 4	-100 to +100	20	-	Real-time
B9-95	0xB95F	Synchronous motor SVC model parameter 5	0 to 50000	30	-	Real-time
B9-96	0xB960	Synchronous motor SVC command word	bit0 to bit1: Low-speed processing method 0: Disable 1: Method 1 2: Method 2 bit2: Energy-saving optimization 0: Disable 1: Enable bit3: Online auto-tuning of back EMF 0: Disable 1: Enable bit4 to bit5: Inductance mode 0: Fixed value 1: Saturation value 2: Mode 1 3: Mode 2	54	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
B9-97	0xB961	Synchronous motor SVC low speed threshold 1	0.0 to 10.0	0.5	%	Real-time
B9-98	0xB962	Defines the synchronous motor SVC low speed threshold 2.	0.0 to 10.0	0.0	%	Real-time
B9-99	0xB963	Synchronous motor SVC low speed voltage coefficient	0 to 100	50	%	Real-time
BA-00	0xBA00	Motor type selection	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Permanent magnet synchronous motor 3: Synchronous reluctance motor without permanent magnet 4: Electromagnetic coil 5: Synchronous reluctance motor with permanent magnet	0	-	At stop
BA-01	0xBA01	Rated motor power	0.1 to 1000.0	3.7	kW	At stop
BA-02	0xBA02	Rated motor voltage	1 to 2000	380	V	At stop
BA-03	0xBA03	Rated motor current	0.01 to 655.35	9.00	A	At stop
BA-04	0xBA04	Rated motor frequency	0.01 to F0-10	50.00	Hz	At stop
BA-05	0xBA05	Rated motor speed	1 to 65535	1460	rpm	At stop
BA-06	0xBA06	Number of parallel motors	1 to 200	1	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BA-07	0xBA07	Motor information command word	bit0: Mutual inductance curve enable 0: Disable 1: Enable bit1: D/Q inductance curve enable 0: Disable 1: Enable bit2: Online rotor resistance auto-tuning 0: Disable 1: Enable bit3: Online rotor resistance auto-tuning method 0: Amplitude 1: Phase bit4: Motor thermal model 0: Disable 1: Enable bit5: Motor thermal model temperature source 0: Estimated temperature 1: Sensor detected temperature bit6: Torque coefficient calculation method of asynchronous motor 0: Torque formula 1: Current distribution bit7: Torque coefficient calculation method of synchronous motor 0: Torque formula 1: Rated value match (Continued)	0x3	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BA-07	0xBA07	Motor information command word	(Continued) bit8: Zero-speed friction torque calculation method 0: Linearly decreased to zero 1: Maintain minimum speed torque bit9: Enable model parameter calculation based on nameplate parameters 0: Disable 1: Enable bit10: Parameter confirmation key of nameplate parameter calculation model 0: Default 1: OK bit12: Ld curve selection of the reluctance motor 0: Dynamic auto-tuning result 1: Static auto-tuning result bit13: Synchronous motor torque accuracy calibration 0: Disable 1: Enable	0x3	-	At stop
BA-08	0xBA08	Defines the number of motor pole pairs.	0 to 64	0	-	At stop
BA-09	0xBA09	Power factor of the motor	0.600 to 1.000	0.860	-	At stop
BA-28	0xBA1C	Rated speed of high-speed motor	0 to 65535	0	rpm	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BA-29	0xBA1D	Motor parameter auto-tuning mode	0: Disable 1: Auto-tuning of some parameters for asynchronous motor in static state 2: Auto-tuning of parameters for asynchronous motor in dynamic state 3: Auto-tuning of all parameters for asynchronous motor in static state 4: Inertia auto-tuning 5: Dead zone auto-tuning 7: Inductance saturation model auto-tuning 8: Back EMF auto-tuning 11: With-load auto-tuning of synchronous motor parameters (excluding back EMF) 12: No-load auto-tuning of all parameters for synchronous motor in dynamic state 13: Auto-tuning of parameters (excluding zero point angle) for synchronous motor in static state 14: Auto-tuning on current sampling gain between phases U and V 21: Auto-tuning of parameters for reluctance motor in static state 22: Auto-tuning of parameters for reluctance motor in dynamic state	0	-	At stop
BA-30	0xBA1E	Stator resistance of asynchronous motor	0.001 to 65.535	1.204	Ω	Real-time
BA-31	0xBA1F	Rotor resistance of asynchronous motor	0.001 to 65.535	0.908	Ω	Real-time
BA-32	0xBA20	Leakage inductance of asynchronous motor	0.01 to 655.35	5.28	mH	Real-time
BA-33	0xBA21	Mutual inductance of asynchronous motor	0.1 to 6553.5	156.8	mH	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BA-34	0xBA22	No-load current of asynchronous motor	0.01 to BA-03	4.20	A	Real-time
BA-35	0xBA23	Stator resistance of synchronous motor	0.001 to 65.535	1.204	Ω	Real-time
BA-36	0xBA24	D-axis inductance of synchronous motor	0.01 to 655.35	5.28	mH	Real-time
BA-37	0xBA25	Q-axis inductance of synchronous motor	0.01 to 655.35	5.28	mH	Real-time
BA-38	0xBA26	No-load current of asynchronous motor	0: Disable 1: Activation mode 1 2: Activation mode 2 (speed limit) 3: Reserved	0	-	At stop
BA-39	0xBA27	Back EMF of synchronous motor	0.0 to 6553.5	350.0	V	Real-time
BA-40	0xBA28	Stator leakage inductance	0.000 to 65.535	6.540	mH	At stop
BA-41	0xBA29	Electromechanical time constant	0.01 to 655.35	1.00	s	Unchangeable
BA-42	0xBA2A	Inertia ratio	0.0 to 6553.5	120.0	%	At stop
BA-43	0xBA2B	Friction torque	0.0 to 6553.5	2.0	%	At stop
BA-44	0xBA2C	Defines the excitation current coefficient 1 (within rated current range) of mutual inductance curve.	5.0 to 100.0	50.0	%	At stop
BA-45	0xBA2D	Defines the excitation current coefficient 2 (within rated current range) of mutual inductance curve.	5.0 to 100.0	75.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BA-46	0xBA2E	Defines the excitation current point 3 of mutual inductance curve.	100.0 to 800.0	150.0	%	At stop
BA-47	0xBA2F	Defines the excitation current point 4 of mutual inductance curve.	100.0 to 800.0	210.0	%	At stop
BA-48	0xBA30	Defines the flux coefficient 1 (within rated range) of mutual inductance curve.	10.0 to 100.0	50.0	%	At stop
BA-49	0xBA31	Defines the flux coefficient 2 (within rated range) of mutual inductance curve.	10.0 to 100.0	85.0	%	At stop
BA-50	0xBA32	Flux coefficient 3 of mutual inductance curve	100.0 to 300.0	115.0	%	At stop
BA-51	0xBA33	Flux coefficient 4 of mutual inductance curve	100.0 to 300.0	125.0	%	At stop
BA-52	0xBA34	Speed point 1 of friction curve	0 to 30000	15	rpm	At stop
BA-53	0xBA35	Speed point 2 of friction curve	0 to 30000	30	rpm	At stop
BA-54	0xBA36	Speed point 3 of friction curve	0 to 30000	60	rpm	At stop
BA-55	0xBA37	Speed point 4 of friction curve	0 to 30000	120	rpm	At stop
BA-56	0xBA38	Speed point 5 of friction curve	0 to 30000	150	rpm	At stop
BA-57	0xBA39	Speed point 6 of friction curve	0 to 30000	300	rpm	At stop
BA-58	0xBA3A	Speed point 7 of friction curve	0 to 30000	600	rpm	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BA-59	0xBA3B	Speed point 8 of friction curve	0 to 30000	1200	rpm	At stop
BA-60	0xBA3C	Speed point 9 of friction curve	0 to 30000	1500	rpm	At stop
BA-61	0xBA3D	Speed point 10 of friction curve	0 to 30000	3000	rpm	At stop
BA-62	0xBA3E	Torque point 1 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
BA-63	0xBA3F	Torque point 2 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
BA-64	0xBA40	Torque point 3 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
BA-65	0xBA41	Torque point 4 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
BA-66	0xBA42	Torque point 5 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
BA-67	0xBA43	Torque point 6 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
BA-68	0xBA44	Torque point 7 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
BA-69	0xBA45	Torque point 8 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
BA-70	0xBA46	Torque point 9 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
BA-71	0xBA47	Torque point 10 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
BA-72	0xBA48	Defines the starting point of D/Q-axis inductance curve current coefficient.	-800.0 to 800.0	-200.0	%	At stop
BA-73	0xBA49	Defines the end point of D/Q-axis inductance curve current coefficient.	-800.0 to 800.0	200.0	%	At stop
BA-74	0xBA4A	Defines the D-axis inductance 1 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
BA-75	0xBA4B	D-axis inductance 2 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BA-76	0xBA4C	D-axis inductance 3 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
BA-77	0xBA4D	D-axis inductance 4 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
BA-78	0xBA4E	D-axis inductance 5 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
BA-79	0xBA4F	D-axis inductance 6 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
BA-80	0xBA50	D-axis inductance 7 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
BA-81	0xBA51	D-axis inductance 8 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
BA-82	0xBA52	D-axis inductance 9 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
BA-83	0xBA53	D-axis inductance 10 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
BA-84	0xBA54	D-axis inductance 11 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BA-85	0xBA55	D-axis inductance 12 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
BA-86	0xBA56	Q-axis inductance 1 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BA-87	0xBA57	Q-axis inductance 2 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BA-88	0xBA58	Q-axis inductance 3 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BA-89	0xBA59	Q-axis inductance 4 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BA-90	0xBA5A	Q-axis inductance 5 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BA-91	0xBA5B	Q-axis inductance 6 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BA-92	0xBA5C	Q-axis inductance 7 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BA-93	0xBA5D	Q-axis inductance 8 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BA-94	0xBA5E	Q-axis inductance 9 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BA-95	0xBA5F	Q-axis inductance 10 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BA-96	0xBA60	Q-axis inductance 11 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BA-97	0xBA61	Q-axis inductance 12 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
BB-00	0xBB00	V/f curve setting	0: V/f line 1: Multi-point V/f curve 2: Reserved 3: Reserved 4: Reserved 5: Reserved 6: Reserved 7: Reserved 8: Reserved 9: Reserved 10: V/f fully-decoupled mode 11: V/f semi-decoupled mode	0	-	At stop
BB-01	0xBB01	Torque boost	0.0 to 30.0	3.0	%	Real-time
BB-02	0xBB02	Cut-off frequency of torque boost	0.00 to F0-10	50.00	Hz	At stop
BB-03	0xBB03	Frequency 1 on multi-point V/f curve	0.00 to BB-05	0.00	Hz	At stop
BB-04	0xBB04	Voltage 1 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop
BB-05	0xBB05	Frequency 2 on multi-point V/f curve	BB-03~BB-07	0.00	Hz	At stop
BB-06	0xBB06	Voltage 2 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BB-07	0xBB07	Frequency point 3 on multi-point V/f curve	BB-05~BA-04	0.00	Hz	At stop
BB-08	0xBB08	Voltage point 3 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop
BB-09	0xBB09	Slip compensation gain in V/f mode	0.0 to 6553.5	0.0	-	Real-time
BB-10	0xBB0A	Over-excitation gain in V/f mode	0 to 200	64	-	Real-time
BB-11	0xBB0B	Oscillation suppression gain in V/f mode	0 to 100	40	-	Real-time
BB-12	0xBB0C	Oscillation suppression in V/f mode	0: Disable 1: Enable	1	-	Real-time
BB-13	0xBB0D	Voltage source in V/f decoupled mode	0: Digital setting (BB-14) 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication Others: F connector	0	-	Real-time
BB-14	0xBB0E	Voltage digital setting in V/f decoupled mode	0 to BA-02	0	V	Real-time
BB-15	0xBB0F	Voltage rise time in V/f decoupled mode	0.0 to 1000.0	0.0	s	Real-time
BB-16	0xBB10	Voltage decline time in V/f decoupled mode	0.0 to 1000.0	0.0	s	Real-time
BB-17	0xBB11	Stop mode in V/f decoupled mode	0: Frequency and voltage decline to 0. 1: Frequency declines to 0 after voltage declines to 0. 2: Coast to stop (newly added)	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BB-18	0xBB12	Overcurrent action current	50 to 200	150	%	At stop
BB-19	0xBB13	Overcurrent selection	0: Disable 1: Enable	1	-	At stop
BB-20	0xBB14	Overcurrent stall suppression gain	1 to 500	20	-	Real-time
BB-21	0xBB15	Action current compensation coefficient for overcurrent stall at multiplied rated frequency	50 to 200	100	%	At stop
BB-22	0xBB16	Overvoltage stall suppression action voltage in V/f mode	330.0 to 800.0	770.0	V	Real-time
BB-23	0xBB17	Overvoltage stall suppression in V/f mode	0: Disable 1: Enable	1	-	At stop
BB-24	0xBB18	Frequency gain for overvoltage stall suppression in V/f mode	1 to 500	30	-	Real-time
BB-25	0xBB19	V/f overvoltage stall suppression voltage gain	1 to 500	30	-	Real-time
BB-26	0xBB1A	Frequency rise limit for overvoltage stall suppression in V/f mode	0 to 50	5	Hz	At stop
BB-27	0xBB1B	Filter time of slip compensation	0.1 to 10.0	0.5	s	At stop
BB-28	0xBB1C	Multi-point curve selection	0: Three-point curve 1: Multi-point curve module A 2: Multi-point curve module B	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BB-29	0xBB1D	Frequency for PWM inhibition at zero speed	0.0 to 100.0	1.0	%	At stop
BB-30	0xBB1E	PWM inhibition hysteresis at zero speed	0.0 to 100.0	0.5	%	At stop
BB-31	0xBB1F	PWM inhibition at zero speed	0: Inactive 1: Enable	0	-	At stop
BB-33	0xBB21	Online torque compensation gain	80 to 150	100	-	At stop
BB-34	0xBB22	Overcurrent stall suppression Ki coefficient	10 to 1000	100	%	At stop
BB-35	0xBB23	Overcurrent stall suppression threshold (rated motor current as the base)	80 to 300	200	%	At stop
BB-36	0xBB24	Frequency for activating field weakening upon overcurrent stall suppression	100 to 500	100	%	At stop
BB-37	0xBB25	IT filter time	10 to 1000	100	ms	At stop
BB-38	0xBB26	Slip compensation mode	0: Disable 1: Without PG card slip compensation 2: With PG card slip compensation	1	-	At stop
BB-39	0xBB27	Permissible overvoltage suppression time in V/f mode	0.0 to 100.0	0.0	s	At stop
BB-40	0xBB28	Voltage upper limit in V/f decoupled mode	50.0 to 200.0	100.0	%	At stop
BB-41	0xBB29	RFG time of the frequency in V/f decoupled mode	0: RFG time is forcibly set to zero. 1: Preset RFG time	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BB-42	0xBB2A	Cut-off frequency of oscillation suppression filter in V/f mode	1.0 to 50.0	8.0	Hz	Real-time
BB-43	0xBB2B	Effective cut-off frequency of oscillation suppression in V/f mode	10 to 3000	200	Hz	Real-time
BB-44	0xBB2C	VdcMaxCtrl feedforward coefficient	0 to 500	0	%	Real-time
BB-45	0xBB2D	Synchronous motor IF selection	0: Disable 1: Low speed IF 2: High-frequency injection in SVC mode 3: Reserved	0	-	At stop
BB-46	0xBB2E	Synchronous motor IF current	0.0 to 200.0	50.0	%	Real-time
BB-47	0xBB2F	IF switchover frequency of synchronous motor	0.0 to 100.0	2.5	%	Real-time
BB-48	0xBB30	IF switchover hysteresis frequency of synchronous motor	0.0 to 100.0	2.5	%	Real-time
BB-49	0xBB31	IF current switchover time of synchronous motor	0.001 to 20.000	1.000	s	Real-time
BB-50	0xBB32	VVCTLC processing at low speed	0: Disable 1: Low speed IF 2: High-frequency injection in TLC mode	1	-	At stop
BB-51	0xBB33	PMVVC low-speed IF current	0 to 250	100	-	Real-time
BB-52	0xBB34	PMVVC low-speed IF switchover speed threshold	0.0 to 100.0	10.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BB-53	0xBB35	PMVVC oscillation suppression gain coefficient	0 to 500	100	-	Real-time
BB-54	0xBB36	PMVVC filter time constant	0 to 500	100	-	Real-time
BB-55	0xBB37	PMVVC energy-saving control mode	0: Fixed V/f line 1: Fixed to 30% of reactive current 2: MTPA control	2	-	At stop
BB-56	0xBB38	VVC current loop adaptation coefficient	0 to 1000	0	%	Real-time
BB-57	0xBB39	MTPA adaptation coefficient of VVC	0 to 1000	0	%	Real-time
BB-58	0xBB3A	TLC control word	bit0: CPC enable 0: Disable 1: Enable bit1: Speed source 0: Source 1 1: Source 2 bit2: Angle source 0: Source 1 1: Source 2 bit3: Energy-saving mode 0: Mode 1 1: Mode 2 bit4: Inductance calculation 0: Use saturation model 1: Not use saturation model bit5: Inverse curve 0: Enable 1: Disable bit6: Overvoltage suppression optimization 0: Enable 1: Disable bit7: Undervoltage suppression optimization 0: Enable 1: Disable bit8: Switch back to IF mode 0: Default 1: Non-default	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BB-59	0xBB3B	TLC phase lock loop amplification coefficient	0.1 to 5000.0	100.0	-	Real-time
BB-60	0xBB3C	TLC control enable switch	0 to 1	1	-	At stop
BB-61	0xBB3D	Field weakening coefficient for TLC control	0.0 to 5000.0	100.0	-	Real-time
BB-62	0xBB3E	d-axis proportion of TLC control	0.0 to 5000.0	100.0	-	Real-time
BB-63	0xBB3F	d-axis integral in TLC control mode	0.0 to 5000.0	100.0	-	Real-time
BB-64	0xBB40	q-axis proportion in TLC control mode	0.0 to 5000.0	100.0	-	Real-time
BB-65	0xBB41	q-axis integral in TLC control mode	0.0 to 5000.0	100.0	-	Real-time
BB-66	0xBB42	Lower limit of TLC setting	0.0 to 1000.0	0.0	%	Real-time
BB-67	0xBB43	Waiting time of TLC switchover	0 to 10000	500	ms	At stop
BB-68	0xBB44	TLC setting coefficient	0.1 to 1000.0	100.0	%	Real-time
BB-69	0xBB45	Coil control mode	0: V/f separation mode 1: IF separation mode	0	-	At stop
BB-70	0xBB46	Voltage source for coil IF separation	0: Digital setting (BB-71) 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication Others: F connector	0	-	Real-time
BB-71	0xBB47	Current reference for coil IF separation	1.00 to 120.00	20.00	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BB-72	0xBB48	Voltage rise time for coil IF separation	0.000 to 65.000	0.000	s	Real-time
BB-73	0xBB49	Current fall time for coil IF separation	0.000 to 65.000	0.000	s	Real-time
BB-74	0xBB4A	Max. current value for coil IF separation	1.00 to 120.00	100.00	%	At stop
BB-75	0xBB4B	Stop mode for coil IF separation	0: Frequency and current decline to 0 independently. 1: Frequency declines to 0 after current declines to 0. 2: Coast to stop	2	-	Real-time
BB-76	0xBB4C	PM observer stator resistance coefficient	0 to 1000	0	%	Real-time
BB-77	0xBB4D	Waiting time of PM observer auto-tuning	0 to 1000	0	s	Real-time
BB-78	0xBB4E	Coil IF separation current control coefficient	1 to 1000	50	-	Real-time
BB-79	0xBB4F	Coil IF separation sub-controller switch	0 to 1	0	-	Real-time
BB-80	0xBB50	Proportional coefficient of coil IF separation sub-controller	1 to 1000	100	%	Real-time
BB-81	0xBB51	Integral coefficient of coil IF separation sub-controller	1 to 1000	100	%	Real-time
BB-82	0xBB52	Voltage limit of coil IF separation sub-controller	1 to 100	40	%	Real-time
BB-83	0xBB53	Coil transformer change ratio	1.0 to 100.0	1.0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BB-85	0xBB55	Synchronous motor observer switchover	0: Mode 0 1: Mode 1	0	-	Real-time
BB-86	0xBB56	Switchover frequency of synchronous motor in SVC mode	0.0 to 100.0	10.0	%	Real-time
BB-87	0xBB57	Switchover hysteresis frequency of synchronous motor in SVC mode	0.0 to 100.0	5.0	%	Real-time
BB-88	0xBB58	Parameter 0 of synchronous motor in SVC mode	0 to 100	3	-	Real-time
BB-89	0xBB59	Parameter 1 lower limit of synchronous motor in SVC mode	1 to 100	1	-	Real-time
BB-90	0xBB5A	Parameter 6 of synchronous motor in SVC mode	1 to 10	10	-	Real-time
BB-91	0xBB5B	Synchronous motor SVC model parameter 1	1 to 10000	10	-	Real-time
BB-92	0xBB5C	Synchronous motor SVC model parameter 2	1 to 10000	5	-	Real-time
BB-93	0xBB5D	Synchronous motor SVC model parameter 3	1 to 100	30	-	Real-time
BB-94	0xBB5E	Synchronous motor SVC model parameter 4	-100 to +100	20	-	Real-time
BB-95	0xBB5F	Synchronous motor SVC model parameter 5	0 to 50000	30	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BB-96	0xBB60	Synchronous motor SVC command word	bit0 to bit1: Low-speed processing method 0: Disable 1: Method 1 2: Method 2 bit2: Energy-saving optimization 0: Disable 1: Enable bit3: Online auto-tuning of back EMF 0: Disable 1: Enable bit4 to bit5: Inductance mode 0: Fixed value 1: Saturation value 2: Mode 1 3: Mode 2	54	-	At stop
BB-97	0xBB61	Synchronous motor SVC low speed threshold 1	0.0 to 10.0	0.5	%	Real-time
BB-98	0xBB62	Defines the synchronous motor SVC low speed threshold 2.	0.0 to 10.0	0.0	%	Real-time
BB-99	0xBB63	Synchronous motor SVC low speed voltage coefficient	0 to 100	50	%	Real-time
BC-00	0xBC00	Start-up mode	0: Direct start 1: Flying start 2: Pre-excitation start (AC asynchronous motor) 3: SVC quick start	0	-	Real-time
BC-01	0xBC01	Flying start mode	0: Starting from the stop frequency 1: Starting from the line frequency 2: Starting from the maximum frequency 3: Reserved 4: Field-oriented flying start (MD290)	4	-	Real-time
BC-02	0xBC02	Flying start speed	1 to 100	20	-	Real-time
BC-03	0xBC03	Start frequency	0.00 to 10.00	0.00	Hz	Real-time
BC-04	0xBC04	Start frequency hold time	0.0 to 100.0	0.0	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-05	0xBC05	DC braking current at start	0 to 100	50	%	At stop
BC-06	0xBC06	DC braking time at start	0.0 to 100.0	0.0	s	At stop
BC-07	0xBC07	Stop mode	0: Decelerate to stop 1: Coast to stop 2: Stop with maximum capability	0	-	Real-time
BC-08	0xBC08	Start frequency of DC braking at stop	0.00 to F0-10	0.00	Hz	Real-time
BC-09	0xBC09	DC braking waiting time at stop	0.0 to 100.0	0.0	s	Real-time
BC-10	0xBC0A	DC braking current at stop	0 to 100	50	%	Real-time
BC-11	0xBC0B	DC braking time at stop	0.0 to 100.0	0.0	s	Real-time
BC-12	0xBC0C	Frequency sweeping current amplitude closed-loop Kp in speed tracking	0 to 1000	500	-	Real-time
BC-13	0xBC0D	Sweep current amplitude closed loop Ki in flying start	0 to 1000	800	-	Real-time
BC-14	0xBC0E	Flying start current	30 to 200	80	%	At stop
BC-15	0xBC0F	Current loop multiple	10 to 600	100	%	Real-time
BC-16	0xBC10	Demagnetization time (applies to asynchronous motors)	0.00 to 5.00	0.50	s	Real-time
BC-17	0xBC11	Over-excitation selection	0: Inactive 1: Enabled during deceleration (regenerative) 2: Enabled during deceleration (DC bus overvoltage)	0	-	Real-time
BC-18	0xBC12	Overexcitation suppression additional current	0 to 200	100	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-20	0xBC14	Parameter auto-tuning before startup	bit0: Magnetic pole position auto-tuning of synchronous motor before startup 0: Disable 1: Enable bit1: Quick auto-tuning of stator resistance before startup 0: Disable 1: Enable bit2: Magnetic pole position auto-tuning based on high-frequency injection before startup 0: Disable 1: Enable 2: Adaptive bit4: IGBT shoot-through self-check before start 0: Disable 1: Enable bit5: Short-circuit to ground self-check before start (reserved) 0: Disable 1: Enable bit6: Phase loss self-check before start (reserved) 0: Disable 1: Enable bit7: Pre-positioning before synchronous motor start 0: Disable 1: Enable bit8: Auto-tuning of stator resistance before startup 0: Disable 1: Enable	1	-	At stop
BC-21	0xBC15	Motor parameter auto-tuning direction	0 to 1	1	-	At stop
BC-22	0xBC16	Vibration suppression gain during back EMF auto-tuning of synchronous motor	0.0 to 30.0	3.2	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-23	0xBC17	Target speed during dynamic rotation auto-tuning	30.0 to 100.0	70.0	%	At stop
BC-24	0xBC18	Target speed 1 of rotation inertia auto-tuning	10.0 to BC-25	40.0	%	At stop
BC-25	0xBC19	Target speed 2 of rotation inertia auto-tuning	BC-24~100.0	60.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-26	0xBC1A	Motor parameter auto-tuning item configuration 2	bit0: Overcurrent prevention during auto-tuning of mutual inductance saturation curve 0: Disable 1: Active bit1: Auto-tuning scheme switchover 0: Scheme 1 1: Scheme 2 bit2: Auto-tuning calibration switch 0: Enable 1: Disable bit3: Second-segment auto-tuning switchover 0: Disable 1: Active bit4: Auto-tuning method 0: Fixed 1: Adjustable bit5: Reserved 0: Disable 1: Active bit6: DC injection during inductance auto-tuning 0: Injected 1: Not injected bit7: Adaptive magnetic pole position auto-tuning based on high-frequency injection 0: Determined by bit7 of AA-07 1: Forcibly adaptive bit8: Current limit for rotor resistance leakage inductance auto-tuning 0: High current 1: Low current (Continued)	5121	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-26	0xBC1A	Motor parameter auto-tuning item configuration 2	(Continued) bit9: Leakage inductance auto-tuning of small motor/high-speed motor 0: Scheme 1 1: Scheme 2 bit10: Frequency adaptation based on rotor resistance auto-tuning of small/high-peed motor 0: Disable 1: Active bit11: Frequency adaptation based on rotor resistance auto-tuning of all motors 0: Disable 1: Active bit12: Calculation scheme selection for small motor/high-speed motor rotor resistance auto-tuning result 0: Scheme 1 1: Scheme 2 bit13: Calculation scheme selection for rotor resistance auto-tuning result of all motors 0: Scheme 1 1: Scheme 2 bit14: Current search based on high-frequency injection 0: Disable 1: Enable	5121	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-27	0xBC1B	Motor parameter auto-tuning item configuration	bit0: Speed loop parameter adaptation 0: Disable 1: Enable bit1: Current loop parameter adaptation 0: Disable 1: Enable bit2: Non-linear auto-tuning of the drive 0: Disable 1: Enable bit3: Auto-tuning of phase-to-phase deviation coefficient 0: Disable 1: Enable bit4: Initial magnetic pole position auto-tuning of synchronous motor 0: Disable 1: Enable bit5: D/Q-axis inductance model auto-tuning of synchronous motor 0: Disable 1: Enable bit6: System moment of inertia auto-tuning 0: Disable 1: Enable bit7:Magnetic pole position auto-tuning based on high-frequency injection 0: Disable 1: Enable (Continued)	125	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-27	0xBC1B	Motor parameter auto-tuning item configuration	(Continued) bit8: DC injection auto-tuning 0: Disable 1: Enable bit9: No-load current vector auto-tuning 0: Disable 1: Enable bit10: Speed reference source for no-load current vector auto-tuning 0: User-defined 1: Internal-defined bit11: Back EMF calculation 0: Disable 1: Enable bit12: Back EMF auto-tuning calculation mode 0: Mode 0 1: Mode 1	125	-	At stop
BC-28	0xBC1C	OFF3 stop mode	0: Quick stop 1: Stop with maximum capability	0	-	At stop
BC-29	0xBC1D	Permissible stop mode during operation	0: OFF1 stop mode 1: OFF2 stop mode 2: OFF3 stop mode	1	-	At stop
BC-30	0xBC1E	Stop mode in torque control mode	0: Coast to stop forcibly 1: Switch to speed control mode and stop 2: Keep in the torque mode until the zero speed is reached and then stop	1	-	At stop
BC-31	0xBC1F	MTPA filter time	0 to 8000	20	-	Real-time
BC-32	0xBC20	Proportional gain tuning coefficient	0.1 to 2.0	1.0	-	Real-time
BC-33	0xBC21	Integral gain tuning coefficient	0.1 to 2.0	1.0	-	Real-time
BC-34	0xBC22	Zero speed threshold	0.1 to 200.0	2.0	%	Real-time
BC-35	0xBC23	Delay of zero speed stop	0.00 to 10.00	0.10	s	At stop
BC-37	0xBC25	Trial current of flying start for synchronous motor	5.0 to 50.0	10.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-38	0xBC26	Minimum frequency for flying start of synchronous motor	0.0 to 100.0	0.0	Hz	At stop
BC-39	0xBC27	Angle compensation for flying start of synchronous motor	0 to 360	0	-	At stop
BC-40	0xBC28	Parameter auto-tuning of synchronous motor before startup	0 to 1	0	-	Real-time
BC-41	0xBC29	Present motor angle	0 to 65535	0	-	Unchangeable
BC-42	0xBC2A	Forward torque limit 1	0.0 to 400.0	150.0	%	Real-time
BC-43	0xBC2B	Reverse torque limit 1	0.0 to 400.0	150.0	%	Real-time
BC-44	0xBC2C	Source of positive torque limit 2	0: 400% Others: F connector	0	-	Real-time
BC-45	0xBC2D	Source of negative torque limit 2	0: -400% Others: F connector	0	-	Real-time
BC-46	0xBC2E	Ramp (FRG) selection bit0	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-47	0xBC2F	Ramp (FRG) selection bit1	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
BC-50	0xBC32	Motor overload protection selection	0: Disable 1: Enable	1	-	Real-time
BC-51	0xBC33	Motor overload protection gain	0.20 to 10.00	1.00	-	Real-time
BC-52	0xBC34	Motor overload warning coefficient	50 to 100	80	%	Real-time
BC-53	0xBC35	V/f overvoltage stall suppression gain	1 to 500	30	-	Real-time
BC-54	0xBC36	V/f overvoltage stall suppression protection voltage	330.0 to 800.0	770.0	V	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-55	0xBC37	Protective functions	Ones: Protection against input phase loss 0: Disable 1: Protection enabled when both software and hardware input phase loss conditions are met 2: Protection enabled when software input phase loss conditions are met 3: Protection enabled when hardware input phase loss conditions are met Tens: contactor pickup protection 0: Disable 1: Enable Hundreds: T13 rectifier fault protection 0: Disable 1: Enable	11	-	Real-time
BC-56	0xBC38	Output phase loss protection	Ones: Protection against output phase loss during running 0: Disable 1: Enable Tens: Protection against output phase loss before running 0: Disable 1: Enable	1	-	Real-time
BC-57	0xBC39	Power dip ride-through function	0: Invalid 1: Decelerate 2: Decelerate to stop 3: Voltage dip suppression	0	-	At stop
BC-58	0xBC3A	Threshold for recovery from power dip ride-through	80 to 100	85	%	At stop
BC-59	0xBC3B	Duration for judging voltage recovery from power dip ride-through	0.0 to 100.0	0.5	s	At stop
BC-60	0xBC3C	Threshold for enabling power dip ride-through	60 to 100	80	%	At stop
BC-61	0xBC3D	Protection against load loss	0: Invalid 1: Active	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-62	0xBC3E	Load loss detection level	0.0 to 100.0	10.0	%	Real-time
BC-63	0xBC3F	Load loss detection time	0.0 to 60.0	1.0	s	Real-time
BC-64	0xBC40	Overspeed detection value	0.0 to 50.0	20.0	%	Real-time
BC-65	0xBC41	Overspeed detection time	0.0 to 60.0	1.0	s	Real-time
BC-66	0xBC42	Detection value for excessive speed deviation	0.0 to 50.0	20.0	%	Real-time
BC-67	0xBC43	Detection time for excessive speed deviation	0.0 to 60.0	5.0	s	Real-time
BC-68	0xBC44	Power dip ride-through gain Kp	1 to 100	40	-	Real-time
BC-69	0xBC45	Integral coefficient Ki of power dip ride-through	1 to 100	30	-	Real-time
BC-70	0xBC46	Deceleration time of power dip ride-through	0.0 to 300.0	20.0	s	Real-time
BC-71	0xBC47	Voltage dip suppression time	0.1 to 600.0	0.5	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-72	0xBC48	Motor protection	bit0: Motor overload judgment (reserved) bit1: Motor overheat detection (reserved) bit2: Reserved Bit 3: Current control error detection Bit 4: Motor step loss error detection Bit 5: Motor stall detection Bit 6: Demagnetization protection for synchronous motor bit7: Demagnetization protection for permanent magnet motor bit8: Reserved Bit 9: Parameter setting error bit10: Output load loss detection (reserved) bit11: Divergent runaway protection bit12: Excessive speed deviation (reserved) bit13: Speed reversal protection (reserved) bit14: Overspeed protection (reserved) bit15: Demagnetization protection for reluctance motor with permanent magnet	32769	-	Real-time
BC-73	0xBC49	Stall fault time	0.0 to 65.0	2.0	s	Real-time
BC-74	0xBC4A	Frequency upon stall fault	0.0 to 600.0	6.0	%	Real-time
BC-75	0xBC4B	Step loss detection time	0.0 to 10.0	0.5	s	Real-time
BC-76	0xBC4C	Step loss detection threshold	0.0 to 100.0	30.0	%	Real-time
BC-77	0xBC4D	Detection time for current control fault	0.00 to 1.00	0.05	s	Real-time
BC-78	0xBC4E	Detection threshold for current control fault	0.0 to 200.0	25.0	%	Real-time
BC-79	0xBC4F	Synchronous motor overcurrent threshold	0.0 to 500.0	300.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BC-81	0xBC51	Speed deviation detection	0 to 1	1	-	Real-time
BC-82	0xBC52	Jump frequency 1	0.00 to F0-10	0.00	Hz	Real-time
BC-83	0xBC53	Jump frequency 2	0.00 to F0-10	0.00	Hz	Real-time
BC-84	0xBC54	Jump frequency 3	0.00 to F0-10	0.00	Hz	Real-time
BC-85	0xBC55	Jump frequency 4	0.00 to F0-10	0.00	Hz	Real-time
BC-86	0xBC56	Jump frequency amplitude	0.00 to F0-10	0.00	Hz	Real-time
BC-87	0xBC57	Frequency upper limit source	0: BC-88 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication Others: F connector	0	-	At stop
BC-88	0xBC58	Frequency upper limit	BC-90~F0-10	50.00	Hz	Real-time
BC-89	0xBC59	Frequency upper limit offset	0.00 to F0-10	0.00	Hz	Real-time
BC-90	0xBC5A	Frequency lower limit	0.00 to BC-88	0.00	Hz	Real-time
BC-91	0xBC5B	Speed/Torque control selection	0: Speed control 1: Torque control	0	-	Real-time
BC-98	0xBC62	DC braking current rise time	0.00 to 100.00	0.00	s	At stop
BC-99	0xBC63	DC braking superposition frequency	0.00 to 100.00	0.00	Hz	Real-time
BD-05	0xBD05	Frequency for SVC mode switchover of asynchronous motor	10 to 20	15	%	At stop
BD-06	0xBD06	DC starting frequency of asynchronous motor in SVC mode	0.1 to 20.0	0.5	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BD-07	0xBD07	Defines the asynchronous motor SVC observer gain 1.	10 to 500	100	%	Real-time
BD-08	0xBD08	Observer gain 2 of asynchronous motor in SVC mode	10 to 100	20	%	Real-time
BD-09	0xBD09	Observer mode of asynchronous motor in SVC mode	0 to 3	0	-	At stop
BD-10	0xBD0A	Pre-excitation of asynchronous motor in SVC mode	0 to 1	0	-	At stop
BD-11	0xBD0B	Flying start of asynchronous motor in SVC mode	0 to 1	0	-	At stop
BD-12	0xBD0C	High-speed gain of asynchronous motor	0.0 to 3.0	0.5	-	At stop
BD-14	0xBD0E	Synchronous motor 1 model control	bit0: Low-speed handling bit1: Low-speed handling 1 bit2: Online auto-tuning of resistance bit3: Online auto-tuning of back EMF bit4: KS	5	-	Real-time
BD-15	0xBD0F	Synchronous motor model K1	10 to 3000	200	Hz	Real-time
BD-16	0xBD10	Synchronous motor model K1Max	100 to 6000	3000	%	Real-time
BD-17	0xBD11	Synchronous motor model KsMin	0.0 to 4.0	0.3	-	Real-time
BD-18	0xBD12	Synchronous motor model Kspeed	50 to 2000	400	Hz	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BD-19	0xBD13	Frequency filter time constant of synchronous motor	2 to 100	10	ms	Real-time
BD-20	0xBD14	Rs online auto-tuning frequency upper limit of synchronous motor	1.0 to 20.0	3.5	%	Real-time
BD-21	0xBD15	Synchronous motor model Kr	0 to 50	10	-	Real-time
BD-22	0xBD16	Synchronous motor model Kr1	0 to 50	5	%	Real-time
BD-23	0xBD17	Low-speed d-axis injection current of synchronous motor	0 to 100	20	%	Real-time
BD-24	0xBD18	Synchronous motor model LowFreqTime1	0 to 500	50	-	Real-time
BD-27	0xBD1B	Online auto-tuning frequency lower limit of back EMF	10 to 100	25	%	Real-time
BD-28	0xBD1C	Synchronous motor model LowFreq	0.0 to 2.0	0.3	%	Real-time
BD-29	0xBD1D	Synchronous motor model LowFreqTime	0 to 100	10	-	Real-time
BD-30	0xBD1E	Magnetic pole auto-tuning current percentage	30 to 200	130	%	Real-time
BD-31	0xBD1F	High frequency response current percentage	0 to 100	25	%	Real-time
BD-32	0xBD20	HFI-to-SVC switchover frequency percentage	0 to 30	10	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BD-33	0xBD21	Observer parameter	10 to 200	100	-	Real-time
BD-34	0xBD22	Speed filter cut-off frequency	1 to 200	10	Hz	Real-time
BD-35	0xBD23	Carrier frequency during NS auto-tuning	2.00 to 16.00	8.00	Hz	Real-time
BD-36	0xBD24	Automatic calculation of NS auto-tuning voltage	0: Assigned manually 1: Automatic calculation	1	-	Real-time
BD-37	0xBD25	Percentage of NS auto-tuning voltage set manually	0 to 100	10	%	Real-time
BD-38	0xBD26	Duration of high frequency injection stage 1	50 to 500	150	ms	Real-time
BD-40	0xBD28	Speed loop proportional gain 1	1 to 300	30	-	Real-time
BD-41	0xBD29	Speed loop integral time 1	0.01 to 10.00	0.50	s	Real-time
BD-42	0xBD2A	Switchover frequency 1	0.00 to BD-45	5.00	Hz	Real-time
BD-43	0xBD2B	Speed loop proportional gain 2	1 to 300	20	-	Real-time
BD-44	0xBD2C	Speed loop integral time 2	0.01 to 10.00	1.00	s	Real-time
BD-45	0xBD2D	Switchover frequency 2	BD-42~F0-10	10.00	Hz	Real-time
BD-46	0xBD2E	Vector control slip gain	50 to 200	100	%	Real-time
BD-47	0xBD2F	Speed feedback filter time in SVC mode	0.000 to 0.100	0.015	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BD-49	0xBD31	Torque upper limit source in speed control mode (motoring)	0: BD-50 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) Others: F connector	0	-	Real-time
BD-50	0xBD32	Digital setting of torque upper limit in speed control mode	0.0 to 600.0	150.0	%	Real-time
BD-51	0xBD33	Torque upper limit source in speed control mode (generating)	0: BD-50 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) 8: BD-52 Others: F connector	0	-	Real-time
BD-52	0xBD34	Digital setting of torque upper limit in speed control mode (generating)	0.0 to 600.0	150.0	%	Real-time
BD-53	0xBD35	Current loop mode of synchronous motor	0: No field weakening 1: Automatic adjustment 2: Calculation + automatic adjustment 3: Normal mode of synchronous motor 4: Normal mode of asynchronous motor	1	-	At stop
BD-54	0xBD36	Field weakening gain	0.1 to 200.0	20.0	-	Real-time
BD-57	0xBD39	Generating power limit	0: Invalid 1: Active in the whole process 2: Active during operation at constant speed 3: Active during deceleration	0	-	Real-time
BD-58	0xBD3A	Generating power upper limit	0.0 to 200.0	20.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BD-59	0xBD3B	Motor 3 control mode	0: SVC 2: V/f	2	-	At stop
BD-60	0xBD3C	Initial position angle detection current of synchronous motor	50 to 180	80	-	At stop
BD-61	0xBD3D	Synchronous motor initial position angle detection	0: Detected every time upon operation 1: Not detected 2: Detected during initial operation upon power-on	0	-	Real-time
BD-63	0xBD3F	Saliency ratio adjustment gain of synchronous motor	0.20 to 3.00	1.00	-	Real-time
BD-64	0xBD40	Control on maximum ratio of torque to current of synchronous motor	0: Inactive 1: Active	1	-	Real-time
BD-67	0xBD43	Low speed carrier frequency	0.5 to F0-15	2.0	kHz	Real-time
BD-68	0xBD44	Position lock enable	0 to 1	0	-	Real-time
BD-69	0xBD45	Switchover frequency	0.00 to BD-42	0.30	Hz	Real-time
BD-70	0xBD46	Zero servo speed loop proportional gain	1 to 100	10	-	Real-time
BD-71	0xBD47	Position lock speed loop integral time	0.01 to 10.00	0.50	s	Real-time
BD-74	0xBD4A	Motor tuning-free mode	0: Disable 1: Motor parameter auto-tuning before initial operation after power-on 2: Motor parameter auto-tuning before operation	0	-	Real-time
BD-76	0xBD4C	Initial position compensation angle	0.0 to 359.9	0.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BD-80	0xBD50	Speed loop command word	bit0: Speed loop enable 0: Disable 1: Enable bit1: Integral mode 0: Traditional integral 1: Position-type integral Bit 2: Torque feedforward 0: Disable 1: Enable bit3: Acceleration source selection 0: Acceleration set by parameter 1: Automatic calculation 2: Acceleration set by parameter Bit 5: Anti-load disturbance 0: Disable 1: Enable bit9: Speed loop output torque limit adjustment with additional torque 0: Disable 1: Enable bit10: Balanced filter 0: Disable 1: Enable	19	-	Real-time
BD-81	0xBD51	Fast integral cancel coefficient upon stalled motor	0.0 to 100.0	0.0	%	Real-time
BD-82	0xBD52	Digital setting of integral torque	-100.0 to 100.0	0.0	%	Real-time
BD-83	0xBD53	Frequency window of speed controller	0.00 to 10.00	0.00	Hz	At stop
BD-84	0xBD54	Current filter time for torque reference	0.0 to 100.0	0.0	ms	At stop
BD-85	0xBD55	Acceleration torque (reserved)	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BD-87	0xBD57	See the bandwidth of the model.	0.00 to 300.00	0.00	Hz	Real-time
BD-88	0xBD58	Torque feedforward coefficient	0.0 to 6553.5	100.0	%	Real-time
BD-89	0xBD59	Frequency filter time in vector control	0.0 to 100.0	0.0	ms	At stop
BD-90	0xBD5A	Filter time for feedback frequency in vector control	0.0 to 100.0	0.0	ms	At stop
BD-91	0xBD5B	Load observation bandwidth	0.00 to 300.00	0.00	Hz	Real-time
BD-92	0xBD5C	Load observation coefficient	0.0 to 1000.0	100.0	%	Real-time
BD-93	0xBD5D	Pseudo-integral coefficient	0.000 to 10.000	1.000	-	Real-time
BD-94	0xBD5E	Torque coefficient	0: Disable 1: Enable	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BD-95	0xBD5F	Low-frequency Kp switchover selection	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector Note: When this parameter is set to a value from 3 to 18 (DI1 to DI16), low-frequency Kp switching is performed when the DI is active high.	0	-	Real-time
BD-96	0xBD60	Center frequency of notch filter 1	0.0 to 4000.0	4000.0	-	Real-time
BD-97	0xBD61	Center frequency of notch filter 2	0.0 to 4000.0	4000.0	-	Real-time
BD-98	0xBD62	Integral setting control word	0: Invalid 1: Valid Others: B connector	0	-	Real-time
BD-99	0xBD63	Integral setting source	0: Digital setting 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-00	0xBE00	Externally transferred acceleration (reserved)	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
BE-01	0xBE01	Current deviation threshold	0.3 to 2.0	0.5	-	At stop
BE-02	0xBE02	Current filter cycle setting	0 to 100	1	-	At stop
BE-03	0xBE03	Breakdown torque limit coefficient	0.0 to 400.0	100.0	%	Real-time
BE-04	0xBE04	Motoring load power limit coefficient	0.0 to 400.0	400.0	%	Real-time
BE-05	0xBE05	Generating load power limit coefficient.	0.0 to 400.0	400.0	%	Real-time
BE-06	0xBE06	Overspeed limit	0 to 1	1	-	Real-time
BE-07	0xBE07	Sine frequency setting of bandwidth test	0 to 1000	0	Hz	Real-time
BE-08	0xBE08	Sine amplitude setting of bandwidth test	0 to 100	0	%	Real-time
BE-09	0xBE09	Bandwidth test enabling	0 to 4	0	-	Real-time
BE-10	0xBE0A	Torque coefficient adjustment value	0.0 to 200.0	100.0	%	Real-time
BE-11	0xBE0B	Speed loop parameter calculation mode	0: New solution 1: Compatible mode	1	-	At stop
BE-14	0xBE0E	SVC speed loop proportional gain	0.00 to 100.00	5.00	Hz	Real-time
BE-15	0xBE0F	SVC speed loop integral time	0.000 to 20.000	0.127	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-16	0xBE10	Low frequency scaling correction coefficient	0.0 to 1000.0	100.0	%	Real-time
BE-17	0xBE11	Low frequency integral correction coefficient	0.0 to 1000.0	100.0	%	Real-time
BE-18	0xBE12	Speed loop adaptive factor	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
BE-19	0xBE13	Lower limit of speed loop adaptive switchover	0.000 to 10.000	0.400	-	Real-time
BE-20	0xBE14	Upper limit of speed loop adaptive switchover	0.000 to 10.000	1.000	-	Real-time
BE-21	0xBE15	Upper limit of speed loop adaptive correction	0.0 to 1000.0	100.0	%	Real-time
BE-22	0xBE16	Lower limit of speed loop adaptive correction	0.0 to 1000.0	100.0	%	Real-time
BE-23	0xBE17	Magnetic flux adaptation	0 to 1	1	-	Real-time
BE-24	0xBE18	Overspeed controller correction coefficient	0.0 to 1000.0	100.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-25	0xBE19	Vector overvoltage/ undervoltage suppression control command word	bit0: Undervoltage suppression 0: Disable 1: Enable bit1: Overvoltage suppression 0: Disable 1: Enable bit2: Automatic calculation of overvoltage/undervoltage suppression threshold 0: Disable 1: Enable bit3: Overvoltage/undervoltage suppression integral action 0: Disable 1: Enable	0	-	Real-time
BE-26	0xBE1A	Bus capacitance ratio	50.0 to 1000.0	100.0	%	Real-time
BE-27	0xBE1B	Vector undervoltage suppression exit from hysteresis frequency	0.00 to 10.00	3.00	Hz	Real-time
BE-28	0xBE1C	Speed threshold for vector undervoltage suppression failure	0.00 to 20.00	2.00	Hz	Real-time
BE-29	0xBE1D	Dynamic adjustment coefficient of vector overvoltage/ undervoltage suppression	0.0 to 1000.0	100.0	%	Real-time
BE-30	0xBE1E	Defines the activation voltage of vector undervoltage suppression.	320.0 to 540.0	430.0	V	Real-time
BE-31	0xBE1F	Activation voltage of vector overvoltage suppression	650.0 to 800.0	770.0	V	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-32	0xBE20	Flux linkage control command word	bit0: Filtering method for output voltage limit calculation 0: Symmetric filtering 1: Asymmetric filtering bit1: Asynchronous motor inverse curve calculation method 0: Decrease inversely proportional to synchronous frequency 1: Decrease inversely proportional to speed bit2: Flux linkage feedforward calculation inversely proportional to speed 0: Disable 1: Enable bit3: Reserved bit4: Reserved bit5: Field weakening adjustment 0: Disable 1: Enable bit6: Flux derivative feedforward 0: Disable 1: Enable bit7: Energy conservation control 0: Disable 1: Enable bit8: Asynchronous motor flux closed-loop 0: Disable 1: Enable bit9: Reserved bit10: Reserved bit11: Asynchronous motor pre-excitation mode 0: Time-based pre-excitation 1: Current-based pre-excitation bit12: Asynchronous motor pre-excitation current mode 0: Current reference-based pre-excitation 1: Maximum current allowed by the platform bit13: Reserved bit14: Voltage outer loop mode 0: Voltage outer loop mode 0 1: Voltage outer loop mode 1	18741	-	Real-time
BE-33	0xBE21	Voltage margin	1 to 50	3	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-34	0xBE22	Margin of output voltage upper limit of synchronous motor through automatic adjustment	1 to 20	3	%	Real-time
BE-35	0xBE23	Filter time calculation of max. output voltage	0 to 3000	10	ms	Real-time
BE-36	0xBE24	Rated flux adjustment coefficient calculated	0.1 to 2.0	1.0	-	Real-time
BE-37	0xBE25	Field weakening frequency threshold adjustment coefficient calculated	0.8 to 1.2	1.1	-	Real-time
BE-38	0xBE26	Slip filter time of field weakening frequency threshold calculation	0 to 3000	62	ms	Real-time
BE-39	0xBE27	Feedback speed filter	0 to 8000	50	ms	Real-time
BE-40	0xBE28	Flux linkage rise filter time	0 to 8000	20	ms	Real-time
BE-41	0xBE29	Field weakening control gain	1 to 200	50	ms	Real-time
BE-42	0xBE2A	Feedback voltage filter time	0 to 3000	0	ms	Real-time
BE-43	0xBE2B	Maximum demagnetization current of synchronous motor	0 to 500	300	%	Real-time
BE-44	0xBE2C	Voltage outer loop lower limit coefficient	0 to 500	50	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-45	0xBE2D	Flux linkage differential feedforward coefficient	0.0 to 1.5	1.0	-	Real-time
BE-46	0xBE2E	Flux linkage differential feedforward filter time	0 to 3000	6	ms	Real-time
BE-47	0xBE2F	Filter time upon energy-saving control torque current rise	0 to 3000	50	ms	Real-time
BE-48	0xBE30	Filter time upon energy-saving control torque current drop	0 to 3000	100	ms	Real-time
BE-49	0xBE31	Flux linkage lower limit coefficient under energy conservation control	0.00 to 0.50	0.10	-	Real-time
BE-50	0xBE32	Switchover frequency coefficient	0.0 to 10.0	1.0	-	At stop
BE-51	0xBE33	Pre-excitation current	1 to 200	100	%	Real-time
BE-52	0xBE34	Pre-excitation time	1 to 30000	1000	ms	Real-time
BE-53	0xBE35	Flux linkage closed loop bandwidth frequency	0.0 to 100.0	1.0	Hz	Real-time
BE-54	0xBE36	Feedback flux linkage filter time coefficient	0 to 200	4	-	Real-time
BE-55	0xBE37	Static output flux linkage filter time	0 to 5000	10	ms	Real-time
BE-56	0xBE38	Current loop mode selection	0: ImCsr2 mode 1: Complex vector mode 2: 880 mode 3: Non-field weakening mode	1	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-57	0xBE39	The PI regulator proportion gain changes automatically with the load.	0: Invalid 1: Active	0	-	At stop
BE-58	0xBE3A	Current loop damping	0.2 to 10.0	0.8	-	Real-time
BE-59	0xBE3B	Current loop Kp adjustment at low speed	0.1 to 10.0	1.0	-	Real-time
BE-60	0xBE3C	Current loop Kp adjustment at high speed	0.1 to 10.0	1.0	-	Real-time
BE-61	0xBE3D	Current loop Ki adjustment at low speed	0.1 to 10.0	1.0	-	Real-time
BE-62	0xBE3E	Current loop Ki adjustment at high speed	0.1 to 10.0	2.0	-	Real-time
BE-63	0xBE3F	Used to set D-axis current loop complex vector adjustment.	0.1 to 10.0	1.0	-	Real-time
BE-64	0xBE40	Used to set Q-axis current loop complex vector adjustment.	0.1 to 10.0	1.0	-	Real-time
BE-65	0xBE41	Used to set the lower limit of complex vector hysteresis frequency, which is a percentage of rated frequency.	0 to BE-66	0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-66	0xBE42	Used to set the upper limit of complex vector hysteresis frequency, which is a percentage of rated frequency.	BE-65~150	0	%	Real-time
BE-67	0xBE43	Used to set the upper limit voltage for ImCsr2 hysteresis switchover, which is a percentage of saturation voltage.	BE-68~95	89	%	Real-time
BE-68	0xBE44	Used to set the lower limit voltage for ImCsr2 hysteresis switchover, which is a percentage of saturation voltage.	60 to BE-67	79	%	Real-time
BE-69	0xBE45	Used to set ImCsr2 hysteresis range of hysteresis switchover frequency, which is a percentage of rated frequency.	1 to 30	10	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-70	0xBE46	Used to set the lower limit of ImCsr2 hysteresis switchover frequency. The frequency hysteresis condition does not activate when this value is not reached. The setpoint is a percentage of rated frequency.	20 to 150	75	%	Real-time
BE-71	0xBE47	Used to adjust Kss of ImCsr2 current loop.	0.1 to 10.0	1.0	-	Real-time
BE-72	0xBE48	Used to set the proportional gain adjustment coefficient corresponding to the max. torque.	0.1 to 1.0	0.5	-	Real-time
BE-73	0xBE49	Used to set the torque upper limit, which is a percentage of the rated torque.	BE-74~300	200	%	Real-time
BE-74	0xBE4A	Used to set the torque lower limit, which is a percentage of the rated torque.	10 to BE-73	100	%	Real-time
BE-75	0xBE4B	Used to adjust differential feedforward.	0.0 to 1.0	0.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-76	0xBE4C	Used to set decoupling control starting frequency, which is a percentage of rated frequency.	20 to 150	60	%	Real-time
BE-77	0xBE4D	Used to set the filter time adjustment coefficient of decoupling control.	0.1 to 3.0	1.0	-	Real-time
BE-78	0xBE4E	Used to set decoupling control output adjustment coefficient.	0.0 to 1.0	0.7	-	Real-time
BE-79	0xBE4F	CPC feedforward	0: Disable 1: Enable	0	-	Real-time
BE-80	0xBE50	Current loop auxiliary command word	bit0: Complex vector angle limit 0: Disable 1: Enable bit1: Voltage angle limit selection 0: Limited internally 1: Parameter setting bit2: Default value 0 0: No limit on excitation current lower limit during dynamic process 1: Limit on excitation current lower limit during dynamic process in ImCsr2 mode bit3: Default value 0 reserved	0	-	Real-time
BE-81	0xBE51	Defines voltage angle upper limit.	90 to 180	150	°	Real-time
BE-82	0xBE52	Defines voltage angle lower limit.	0 to 90	30	°	Real-time
BE-83	0xBE53	Defines asynchronous motor D-axis integral limit.	0.500 to 1.000	0.707	-	Real-time
BE-84	0xBE54	Defines current loop carrier frequency upper limit.	5.0 to 16.0	8.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-85	0xBE55	Droop enable	0 to 1	0	-	At stop
BE-86	0xBE56	Soften source	0: Line current 1: Torque reference 2: Speed regulator output 3: Integral component of speed regulator	1	-	At stop
BE-87	0xBE57	Frequency droop coefficient reference	0.0 to 50.0	0.0	%	Real-time
BE-91	0xBE5B	Active short circuit control	0: Disable 1: Enable	0	-	At stop
BE-92	0xBE5C	Delay time for entering active short circuit control	0.0 to 5000.0	0.0	ms	At stop
BE-93	0xBE5D	Holding time of active short circuit control at stop	0.1 to 3600.0	10.0	s	At stop
BE-94	0xBE5E	Current hysteresis loop high point coefficient in active short circuit control	0.0 to 120.0	80.0	%	At stop
BE-95	0xBE5F	Current hysteresis loop high/low point coefficient ratio in active short circuit control	0.0 to 99.9	90.0	%	At stop
BE-96	0xBE60	Overvoltage threshold in active short circuit control	330.0 to 820.0	780.0	V	At stop
BE-97	0xBE61	Voltage control point in active short circuit control	330.0 to BE-96	750.0	V	At stop
BE-98	0xBE62	Voltage control bandwidth in active short circuit control	0.00 to 100.00	5.00	Hz	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BE-99	0xBE63	Voltage control time constant in active short circuit control	0.001 to 10.000	0.500	s	At stop
BF-01	0xBF01	Dynamic parameter adaptive factor	20.0 to 200.0	100.0	%	At stop
BF-02	0xBF02	Used to set the auto-tuning voltage setting mode of saturation model.	0 to 1	1	-	Real-time
BF-03	0xBF03	Used to set the auto-tuning carrier frequency of saturation model.	0.0 to 10.0	6.0	-	Real-time
BF-04	0xBF04	Used to set the auto-tuning target rated current multiplier of saturation model.	0 to 250	200	%	Real-time
BF-05	0xBF05	Used to set the auto-tuning manual voltage setting value of saturation model.	0 to 4096	2000	-	Real-time
BF-06	0xBF06	DC bus voltage filter time	0 to 10000	0	ms	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BF-07	0xBF07	Inverter protection	bit0: Pulse-by-pulse current limit protection (reserved) 0: Disable 1: Enable bit1: Output phase loss (Reserved) 0: Disable 1: Enable bit2: Leakage current protection (reserved) 0: Disable 1: Enable bit3: PL signal input phase loss detection (reserved) 0: Disable 1: Enable bit4: Bus input phase loss detection (reserved) 0: Disable 1: Enable bit5: Disable derating at low frequency 0: Disable 1: Enable bit6: Overvoltage report at stop 0: Yes 1: No bit7: Zero drift fault detection 0: Disable 1: Enable bit8: Pre-charge fault detection (reserved) 0: Disable 1: Enable (Continued)	16512	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BF-07	0xBF07	Inverter protection	(Continued) bit9: Bus voltage acquisition analysis 0: Disable 1: Enable bit10: Software overcurrent detection 0: Disable 1: Enable bit11: Reserved 0: Disable 1: Enable bit12: Reserved 0: Disable 1: Enable bit13: Derating reference 0: Five-segment pulse generation 1: Seven-segment pulse generation bit10: Capacitor leakage detection 0: Disable 1: Enable	16512	-	Real-time
BF-09	0xBF09	Drive pre-overload threshold	0.0 to 100.0	90.0	%	Real-time
BF-12	0xBF0C	Detection time of input phase loss	1.0 to 10.0	2.0	s	Real-time
BF-13	0xBF0D	Allowable bus fluctuation range	10.0 to 500.0	65.0	V	Real-time
BF-14	0xBF0E	Pre-overtemperature to overtemperature margin of the drive	0.0 to 60.0	5.0	%	Real-time
BF-15	0xBF0F	Maximum output current	0.0 to 1000.0	1000.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
BF-16	0xBF10	PWM setting	bit0: Reserved bit1: Carrier frequency adjusted with synchronous frequency 0: Disable 1: Enable bit2 to bit7: Reserved bit8: Overmodulation mode 0: Amplitude 1: Phase bit9: CPWM carrier frequency fixed association 0: Disable 1: Enable	130	-	Real-time
BF-17	0xBF11	Hysteresis for adjusting carrier frequency with synchronous frequency	0.0 to 100.0	3.0	Hz	Real-time
BF-18	0xBF12	Cut-off frequency for dead band compensation	0.0 to 2000.0	2000.0	Hz	Real-time
BF-20	0xBF14	Start frequency for adjusting carrier frequency with synchronous frequency	0.0 to 600.0	5.0	Hz	Real-time
BF-21	0xBF15	Modulation ratio limit	A5-05~115.5	105.0	%	Real-time
BF-22	0xBF16	Drive transistor voltage drop	0.00 to 5.00	0.80	V	At stop
BF-23	0xBF17	Dead zone time curve current 1	0.0 to 150.0	1.0	%	At stop
BF-24	0xBF18	Dead zone time curve current 2	0.0 to 150.0	2.0	%	At stop
BF-25	0xBF19	Dead zone time curve current 3	0.0 to 150.0	5.0	%	At stop
BF-26	0xBF1A	Dead zone time curve current 4	0.0 to 150.0	10.0	%	At stop
BF-27	0xBF1B	Dead zone time curve current 5	0.0 to 150.0	20.0	%	At stop
BF-28	0xBF1C	Dead zone time curve current 6	0.0 to 150.0	40.0	%	At stop
BF-29	0xBF1D	Dead zone time curve current 7	0.0 to 150.0	60.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
BF-30	0xBF1E	Dead zone time curve current 8	0.0 to 150.0	80.0	%	At stop
BF-31	0xBF1F	Time 1 of dead zone time curve	0.0 to 300.0	10.0	%	At stop
BF-32	0xBF20	Dead zone time curve time 2	0.0 to 300.0	20.0	%	At stop
BF-33	0xBF21	Dead zone time curve time 3	0.0 to 300.0	50.0	%	At stop
BF-34	0xBF22	Dead zone time curve time 4	0.0 to 300.0	80.0	%	At stop
BF-35	0xBF23	Dead zone time curve time 5	0.0 to 300.0	90.0	%	At stop
BF-36	0xBF24	Dead zone time curve time 6	0.0 to 300.0	90.0	%	At stop
BF-37	0xBF25	Dead zone time curve time 7	0.0 to 300.0	90.0	%	At stop
BF-38	0xBF26	Dead zone time curve time 8	0.0 to 300.0	90.0	%	At stop
BF-39	0xBF27	Excessive leakage current detection	0: Disable 1: Active	0	-	At stop
BF-40	0xBF28	Excessive leakage current threshold gain	50.0 to 100.0	100.0	%	Real-time
BF-41	0xBF29	Common mode noise suppression width	0 to 100	0	-	Real-time
C1-00	0xC100	Word-to-bit module A input	0: 0 Others: K connector	0	-	Real-time
C1-01	0xC101	Word-to-bit module B input	0: 0 Others: K connector	0	-	Real-time
C1-02	0xC102	Word-to-bit module C input	0: 0 Others: K connector	0	-	Real-time
C1-03	0xC103	Word-to-bit module D input	0: 0 Others: K connector	0	-	Real-time
C1-04	0xC104	Word-to-bit module E input	0: 0 Others: K connector	0	-	Real-time
C1-05	0xC105	Word-to-bit module F input	0: 0 Others: K connector	0	-	Real-time
C1-06	0xC106	Word-to-bit module G input	0: 0 Others: K connector	0	-	Real-time
C1-07	0xC107	Word-to-bit module H input	0: 0 Others: K connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C1-12	0xC10C	Bit-to-word module A enable	0: Disable 1: Enable	0	-	Real-time
C1-13	0xC10D	Inversion flag for bit-to-word module A	0 to 65535	0	-	Real-time
C1-14	0xC10E	Bit 00 selection of bit-to-word module A	0: 0 1: 1 2: 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C1-15	0xC10F	bit1 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-16	0xC110	Bit 02 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-17	0xC111	Bit 03 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-18	0xC112	Bit 04 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-19	0xC113	Bit 05 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-20	0xC114	Bit 06 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-21	0xC115	Bit 07 selection of bit-to-word module A	Same as C1-14	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C1-22	0xC116	Bit 08 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-23	0xC117	Bit 09 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-24	0xC118	Bit 10 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-25	0xC119	Bit 11 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-26	0xC11A	Bit 12 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-27	0xC11B	Bit 13 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-28	0xC11C	Bit 14 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-29	0xC11D	Bit 15 selection of bit-to-word module A	Same as C1-14	0	-	Real-time
C1-30	0xC11E	Bit-to-word module B enable	0: Disable 1: Enable	0	-	Real-time
C1-31	0xC11F	Inversion flag for bit-to-word module B	0 to 65535	0	-	Real-time
C1-32	0xC120	bit0 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-33	0xC121	bit1 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-34	0xC122	bit2 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-35	0xC123	bit3 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-36	0xC124	bit4 selection of bit-to-word module B	Same as C1-14	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C1-37	0xC125	Bit 05 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-38	0xC126	Bit 06 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-39	0xC127	Bit 07 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-40	0xC128	Bit 08 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-41	0xC129	Bit 09 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-42	0xC12A	Bit 10 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-43	0xC12B	Bit 11 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-44	0xC12C	Bit 12 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-45	0xC12D	Bit 13 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-46	0xC12E	Bit 14 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-47	0xC12F	Bit 15 selection of bit-to-word module B	Same as C1-14	0	-	Real-time
C1-48	0xC130	Bit-to-word module C enable	0: Disable 1: Enable	0	-	Real-time
C1-49	0xC131	Inversion flag for bit-to-word module C	0 to 65535	0	-	Real-time
C1-50	0xC132	Bit 00 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-51	0xC133	Bit 01 selection of bit-to-word module C	Same as C1-14	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C1-52	0xC134	Bit 02 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-53	0xC135	Bit 03 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-54	0xC136	Bit 04 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-55	0xC137	Bit 05 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-56	0xC138	Bit 06 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-57	0xC139	Bit 07 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-58	0xC13A	Bit 08 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-59	0xC13B	Bit 09 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-60	0xC13C	Bit 10 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-61	0xC13D	Bit 11 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-62	0xC13E	Bit 12 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-63	0xC13F	Bit 13 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-64	0xC140	Bit 14 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-65	0xC141	Bit 15 selection of bit-to-word module C	Same as C1-14	0	-	Real-time
C1-66	0xC142	Bit-to-word module D enable	0: Disable 1: Enable	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C1-67	0xC143	Inversion flag for bit-to-word module D	0 to 65535	0	-	Real-time
C1-68	0xC144	Bit 00 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-69	0xC145	Bit 01 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-70	0xC146	Bit 02 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-71	0xC147	Bit 03 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-72	0xC148	Bit 04 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-73	0xC149	Bit 05 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-74	0xC14A	Bit 06 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-75	0xC14B	Bit 07 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-76	0xC14C	Bit 08 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-77	0xC14D	Bit 09 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-78	0xC14E	Bit 10 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-79	0xC14F	Bit 11 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-80	0xC150	Bit 12 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-81	0xC151	Bit 13 selection of bit-to-word module D	Same as C1-14	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C1-82	0xC152	Bit 14 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C1-83	0xC153	Bit 15 selection of bit-to-word module D	Same as C1-14	0	-	Real-time
C2-00	0xC200	Low word of word-to-double-word module A	0: 0 Others: K connector	0	-	Real-time
C2-01	0xC201	High word of word-to-double-word module A	0: Module disabled Others: K connector	0	-	Real-time
C2-02	0xC202	Low bit of the base value of word-to-double-word module A	0 to 65535	0	-	Real-time
C2-03	0xC203	High bit of base value of word-to-double-word module A	0 to 65535	0	-	Real-time
C2-04	0xC204	Low word of word-to-double-word module B	0: 0 Others: K connector	0	-	Real-time
C2-05	0xC205	High word of word-to-double-word module B	0: Module disabled Others: K connector	0	-	Real-time
C2-06	0xC206	Low bit of base value of word-to-double-word module B	0 to 65535	0	-	Real-time
C2-07	0xC207	High bit of base value of word-to-double-word B	0 to 65535	0	-	Real-time
C2-08	0xC208	Low word of word-to-double-word module C	0: 0 Others: K connector	0	-	Real-time
C2-09	0xC209	High word of word-to-double-word module C	0: Module disabled Others: K connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C2-10	0xC20A	Low bit of base value of word-to-double-word module C	0 to 65535	0	-	Real-time
C2-11	0xC20B	High bit of base value of word-to-double-word module C	0 to 65535	0	-	Real-time
C2-12	0xC20C	Low word of word-to-double-word module D	0: 0 Others: K connector	0	-	Real-time
C2-13	0xC20D	High word of word-to-double-word module D	0: Module disabled Others: K connector	0	-	Real-time
C2-14	0xC20E	Low bit of base value of word-to-double-word module D	0 to 65535	0	-	Real-time
C2-15	0xC20F	High bit of base value of word-to-double-word module D	0 to 65535	0	-	Real-time
C2-32	0xC220	Double-word-to-word module selection	0: Module disabled Others: K connector	0	-	Real-time
C2-33	0xC221	Low bit of the base value of double-word-to-word module A	0 to 65535	0	-	Real-time
C2-34	0xC222	High bit of base value of double-word-to-word module A	0 to 65535	0	-	Real-time
C2-35	0xC223	Double-word-to-word module B selection	0: Module disabled Others: K connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C2-36	0xC224	Low bit of base value of double-word-to-word module B	0 to 65535	0	-	Real-time
C2-37	0xC225	High bit of base value of double-word-to-word module B	0 to 65535	0	-	Real-time
C2-38	0xC226	Double-word-to-word module C selection	0: Module disabled Others: K connector	0	-	Real-time
C2-39	0xC227	Low bit of base value of double-word-to-word module C	0 to 65535	0	-	Real-time
C2-40	0xC228	High bit of base value of double-word-to-word module C	0 to 65535	0	-	Real-time
C2-41	0xC229	Double-word-to-word module D selection	0: Module disabled Others: K connector	0	-	Real-time
C2-42	0xC22A	Low bit of base value of double-word-to-word module D	0 to 65535	0	-	Real-time
C2-43	0xC22B	High bit of base value of double-word-to-word module D	0 to 65535	0	-	Real-time
C3-00	0xC300	Function of logic AND/OR module A	0: Disable 1: AND 2: OR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-01	0xC301	Input 1 of logic AND/OR module A	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-02	0xC302	Input 2 of logic AND/OR module A	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-03	0xC303	Input 3 of logic AND/OR module A	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-04	0xC304	Input 4 of logic AND/OR module A	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-05	0xC305	Function of logic AND/OR module B	0: Disable 1: AND 2: OR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-06	0xC306	Input 1 of logic AND/OR module B	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-07	0xC307	Input 2 of logic AND/OR module B	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-08	0xC308	Input 3 of logic AND/OR module B	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-09	0xC309	Input 4 of logic AND/OR module B	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-10	0xC30A	Function of logic AND/OR module C	0: Disable 1: AND 2: OR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-11	0xC30B	Input 1 of logic AND/OR module C	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-12	0xC30C	Input 2 of logic AND/OR module C	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-13	0xC30D	Input 3 of logic AND/OR module C	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-14	0xC30E	Input 4 of logic AND/OR module C	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-15	0xC30F	Function of logic AND/OR module D	0: Disable 1: AND 2: OR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-16	0xC310	Input 1 of logic AND/OR module D	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-17	0xC311	Input 2 of logic AND/OR module D	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-18	0xC312	Input 3 of logic AND/OR module D	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-19	0xC313	Input 4 of logic AND/OR module D	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-20	0xC314	Function of logic AND/OR module E	0: Disable 1: AND 2: OR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-21	0xC315	Input 1 of logic AND/OR module E	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-22	0xC316	Input 2 of logic AND/OR module E	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-23	0xC317	Input 3 of logic AND/OR module E	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-24	0xC318	Logic AND/OR module F function selection	0: Disable 1: AND 2: OR	0	-	Real-time
C3-25	0xC319	Logic AND/OR module F input 1	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-26	0xC31A	Logic AND/OR module F input 2	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-27	0xC31B	Logic AND/OR module F input 3	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-28	0xC31C	Logic AND/OR module G func. selection	0: Disable 1: AND 2: OR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-29	0xC31D	Logic AND/OR module G input 1	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-30	0xC31E	Logic AND/OR module G input 2	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-31	0xC31F	Logic AND/OR module G input 3	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-32	0xC320	Logic AND/OR module H function selection	0: Disable 1: AND 2: OR	0	-	Real-time
C3-33	0xC321	Logic AND/OR module H input 1	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-34	0xC322	Logic AND/OR module H input 2	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-35	0xC323	Logic AND/OR module H input 3	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-36	0xC324	Logic AND/OR module I function selection	0: Disable 1: AND 2: OR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-37	0xC325	Logic AND/OR module I input 1	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-38	0xC326	Logic AND/OR module I input 2	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-39	0xC327	Logic AND/OR module I input 3	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-40	0xC328	Logic AND/OR module J function selection	0: Disable 1: AND 2: OR	0	-	Real-time
C3-41	0xC329	Logic AND/OR module J input 1	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-42	0xC32A	Logic AND/OR module J input 2	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-43	0xC32B	Logic AND/OR module J input 3	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-44	0xC32C	Logic AND/OR module K function selection	0: Disable 1: AND 2: OR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-45	0xC32D	Logic AND/OR module K input 1	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-46	0xC32E	Logic AND/OR module K input 2	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-47	0xC32F	Logic AND/OR module K input 3	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-48	0xC330	Logic AND/OR module L function selection	0: Disable 1: AND 2: OR	0	-	Real-time
C3-49	0xC331	Logic AND/OR module L input 1	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-50	0xC332	Logic AND/OR module L input 2	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-51	0xC333	Logic AND/OR module L input 3	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-56	0xC338	Input of logical NOT module A	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-57	0xC339	Input of logic NOT module B	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-58	0xC33A	Input of logic NOT module C	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-59	0xC33B	Input of logic NOT module D	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-60	0xC33C	Input of logic NOT module E	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-61	0xC33D	Input of logic NOT module F	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-62	0xC33E	Input of logic NOT module G	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-63	0xC33F	Input of logic NOT module H	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-64	0xC340	Input of logical NOT module I	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-65	0xC341	Input of logical NOT module J	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-66	0xC342	Input of logical NOT module K	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-67	0xC343	Input of logical NOT module L	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-68	0xC344	Input of logical NOT module M	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-69	0xC345	Input of logical NOT module N	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-70	0xC346	Input of logical NOT module O	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-71	0xC347	Input of logical NOT module P	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-72	0xC348	Function selection for logical XOR/ XNOR module A	0: Disable 1: XOR 2: XNOR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-73	0xC349	Input 1 of logic XOR/XNOR module A	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-74	0xC34A	Input 2 of logic XOR/XNOR module A	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-75	0xC34B	Function selection for logic XOR/ XNOR module B	0: Disable 1: XOR 2: XNOR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-76	0xC34C	Input 1 of logic XOR/XNOR module B	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-77	0xC34D	Input 2 of logic XOR/XNOR module B	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-78	0xC34E	Function selection for logic XOR/ XNOR module C	0: Disable 1: XOR 2: XNOR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-79	0xC34F	Input 1 of logic XOR/XNOR module C	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-80	0xC350	Input 2 of logic XOR/XNOR module C	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-81	0xC351	Function of logic XOR/ XNOR module D	0: Disable 1: XOR 2: XNOR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-82	0xC352	Input 1 of logic XOR/XNOR module D	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-83	0xC353	Input 2 of logic XOR/XNOR module D	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-84	0xC354	Function selection for logic XOR/ XNOR module E	0: Disable 1: XOR 2: XNOR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-85	0xC355	Input 1 of logic XOR/XNOR module E	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-86	0xC356	Input 2 of logic XOR/XNOR module E	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-87	0xC357	Function selection for logic XOR/ XNOR module F	0: Disable 1: XOR 2: XNOR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-88	0xC358	Input 1 of logic XOR/XNOR module F	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-89	0xC359	Input 2 of logic XOR/XNOR module F	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-90	0xC35A	Function selection for logic XOR/ XNOR module G	0: Disable 1: XOR 2: XNOR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-91	0xC35B	Input 1 of logic XOR/XNOR module G	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-92	0xC35C	Input 2 of logic XOR/XNOR module G	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-93	0xC35D	Function selection for logic XOR/XNOR module H	0: Disable 1: XOR 2: XNOR	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C3-94	0xC35E	Input 1 of logic XOR/XNOR module H	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C3-95	0xC35F	Input 2 of logic XOR/XNOR module H	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-00	0xC400	Input of floating-point absolute module A	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-01	0xC401	Input of floating-point absolute module B	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-02	0xC402	Input of floating-point absolute module C	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-03	0xC403	Input of floating-point absolute module D	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-04	0xC404	Input of floating-point absolute module E	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-05	0xC405	Input of fixed-point absolute module F	0: Disable Others: K connector	0	-	Real-time
C4-06	0xC406	Input of fixed-point absolute module G	0: Disable Others: K connector	0	-	Real-time
C4-07	0xC407	Input of fixed-point absolute module H	0: Disable Others: K connector	0	-	Real-time
C4-08	0xC408	Input 1 of floating-point ADD/SUBTRACT module A	0: Module disabled 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-09	0xC409	ADD/SUBTRACT module A input 2 (ADD)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-10	0xC40A	ADD/SUBTRACT module A input 3 (ADD)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-11	0xC40B	Addition and subtraction module A input 4 (substraction)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-12	0xC40C	Floating-point ADD/SUBTRACT module B input 1	0: Module disabled 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-13	0xC40D	Input 2 of addition and subtraction module B (ADD)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-14	0xC40E	ADD/SUBTRACT module B input 3 (ADD)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-15	0xC40F	Input 4 of addition and subtraction module B (SUBTRACT)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-16	0xC410	Floating-point ADD/SUBTRACT module C input 1	0: Module disabled 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-17	0xC411	Input 2 of addition and subtraction module C (ADD)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-18	0xC412	Input 3 of addition and subtraction module C (ADD)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-19	0xC413	Input 4 of addition and subtraction module C (SUBTRACT)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-20	0xC414	Floating-point ADD/SUBTRACT module D input 1	0: Module disabled 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-21	0xC415	Input 2 of addition and subtraction module D (ADD)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-22	0xC416	Input 3 of addition and subtraction module D (ADD)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-23	0xC417	Input 4 of addition and subtraction module D (SUBTRACT)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-24	0xC418	Floating-point ADD/SUBTRACT module E input 1	0: Module disabled 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-25	0xC419	Input 2 of addition and subtraction module E (ADD)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-26	0xC41A	Input 3 of addition and subtraction module E (ADD)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-27	0xC41B	Input 4 of addition and subtraction module E (SUBTRACT)	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-28	0xC41C	Fixed-point ADD/SUBTRACT module F input 1	0: Module disabled Others: K connector	0	-	Real-time
C4-29	0xC41D	Input 2 of addition and subtraction module F (ADD)	0: 0 Others: K connector	0	-	Real-time
C4-30	0xC41E	Input 3 of addition and subtraction module F (ADD)	0: 0 Others: K connector	0	-	Real-time
C4-31	0xC41F	Input 4 of addition and subtraction module F (SUBTRACT)	0: 0 Others: K connector	0	-	Real-time
C4-32	0xC420	Input 1 of fixed-point ADD/SUBTRACT module G	0: Module disabled Others: K connector	0	-	Real-time
C4-33	0xC421	Input 2 of addition and subtraction module G (ADD)	0: 0 Others: K connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-34	0xC422	Input 3 of addition and subtraction module G (ADD)	0: 0 Others: K connector	0	-	Real-time
C4-35	0xC423	Input 4 of addition and subtraction module G (SUBTRACT)	0: 0 Others: K connector	0	-	Real-time
C4-36	0xC424	Input 1 of fixed-point ADD/SUBTRACT module H	0: Module disabled Others: K connector	0	-	Real-time
C4-37	0xC425	Input 2 of addition and subtraction module H (ADD)	0: 0 Others: K connector	0	-	Real-time
C4-38	0xC426	Input 3 of addition and subtraction module H (ADD)	0: 0 Others: K connector	0	-	Real-time
C4-39	0xC427	Input 4 of addition and subtraction module H (SUBTRACT)	0: 0 Others: K connector	0	-	Real-time
C4-40	0xC428	Floating-point MULTIPLY/ DIVIDE module A input 1	0: Module disabled 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-41	0xC429	Input 2 of multiplication and division module A (MULTIPLY)	0: 1 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-42	0xC42A	Input 3 of multiplication and division module A (DIVIDE)	0: 1 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output Others: F connector	0	-	Real-time
C4-43	0xC42B	Floating-point MULTIPLY/ DIVIDE module B input 1	0: Module disabled 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-44	0xC42C	Input 2 of multiplication and division module B (MULTIPLY)	0: 1 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-45	0xC42D	Input 3 of multiplication and division module B (DIVIDE)	0: 1 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-46	0xC42E	Floating-point MULTIPLY/ DIVIDE module C input 1	0: Module disabled 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-47	0xC42F	Input 2 of multiplication and division module C (MULTIPLY)	0: 1 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-48	0xC430	Input 3 of multiplication and division module C (DIVIDE)	0: 1 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-49	0xC431	Floating-point MULTIPLY/ DIVIDE module D input 1	0: Module disabled 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-50	0xC432	Input 2 of multiplication and division module D (MULTIPLY)	0: 1 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-51	0xC433	Input 3 of multiplication and division module D (DIVIDE)	0: 1 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-52	0xC434	Floating-point MULTIPLY/ DIVIDE module E input 1	0: Module disabled 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-53	0xC435	Input 2 of multiplication and division module E (MULTIPLY)	0: 1 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-54	0xC436	Input 3 of multiplication and division module E (DIVIDE)	0: 1 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-55	0xC437	Fixed-point MULTIPLY/ DIVIDE module F input 1	0: Module disabled Others: K connector	0	-	Real-time
C4-56	0xC438	Input 2 of multiplication and division module F (MULTIPLY)	0: 1 Others: K connector	0	-	Real-time
C4-57	0xC439	Input 3 of multiplication and division module F (DIVIDE)	0: 1 Others: K connector	0	-	Real-time
C4-58	0xC43A	Fixed-point MULTIPLY/ DIVIDE module G input 1	0: Module disabled Others: K connector	0	-	Real-time
C4-59	0xC43B	Input 2 of multiplication and division module G (MULTIPLY)	0: 1 Others: K connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-60	0xC43C	Input 3 of multiplication and division module G (DIVIDE)	0: 1 Others: K connector	0	-	Real-time
C4-61	0xC43D	Fixed-point MULTIPLY/ DIVIDE module H input 1	0: Module disabled Others: K connector	0	-	Real-time
C4-62	0xC43E	Input 2 of multiplication and division module H (MULTIPLY)	0: 1 Others: K connector	0	-	Real-time
C4-63	0xC43F	Input 3 of multiplication and division module H (DIVIDE)	0: 1 Others: K connector	0	-	Real-time
C4-64	0xC440	Function selection for floating-point comparison module A	0: Module disabled 1: Input 1 > Input 2 2: Input 1 < Input 2 3: Input 1 = Input 2	0	-	Real-time
C4-65	0xC441	Input 1 of floating-point comparison module A	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-66	0xC442	Input 2 of floating-point comparison module A	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-67	0xC443	Hysteresis input of floating-point comparison module A	0.00 to 655.35	0.00	%	Real-time
C4-68	0xC444	Function selection for floating-point comparison module B	0: Module disabled 1: Input 1 > Input 2 2: Input 1 < Input 2 3: Input 1 = Input 2	0	-	Real-time
C4-69	0xC445	Input 1 of floating-point comparison module B	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-70	0xC446	Input 2 of floating-point comparison module B	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-71	0xC447	Hysteresis input of floating-point comparison module B	0.00 to 655.35	0.00	%	Real-time
C4-72	0xC448	Function selection for floating-point comparison module C	0: Module disabled 1: Input 1 > Input 2 2: Input 1 < Input 2 3: Input 1 = Input 2	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-73	0xC449	Input 1 of floating-point comparison module C	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-74	0xC44A	Input 2 of floating-point comparison module C	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-75	0xC44B	Hysteresis input of floating-point comparison module C	0.00 to 655.35	0.00	%	Real-time
C4-76	0xC44C	Function selection for floating-point comparison module D	0: Module disabled 1: Input 1 > Input 2 2: Input 1 < Input 2 3: Input 1 = Input 2	0	-	Real-time
C4-77	0xC44D	Input 1 of floating-point comparison module D	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-78	0xC44E	Input 2 of floating-point comparison module D	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C4-79	0xC44F	Hysteresis input of floating-point comparison module D	0.00 to 655.35	0.00	%	Real-time
C4-80	0xC450	Function selection for fixed-point comparison module E	0: Module disabled 1: Input 1 > Input 2 2: Input 1 < Input 2 3: Input 1 = Input 2	0	-	Real-time
C4-81	0xC451	Input 1 of fixed-point comparison module E	0: 0 Others: K connector	0	-	Real-time
C4-82	0xC452	Input 2 of fixed-point comparison module E	0: 0 Others: K connector	0	-	Real-time
C4-83	0xC453	Hysteresis input of fixed-point comparison module E	0.00 to 655.35	0.00	%	Real-time
C4-84	0xC454	Function selection for fixed-point comparison module F	0: Module disabled 1: Input 1 > Input 2 2: Input 1 < Input 2 3: Input 1 = Input 2	0	-	Real-time
C4-85	0xC455	Fixed-point comparison module F input 1	0: 0 Others: K connector	0	-	Real-time
C4-86	0xC456	Fixed-point comparison module F input 2	0: 0 Others: K connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C4-87	0xC457	Hysteresis input of fixed-point comparison module F	0.00 to 655.35	0.00	%	Real-time
C4-88	0xC458	Function selection for fixed-point comparison module G	0: Module disabled 1: Input 1 > Input 2 2: Input 1 < Input 2 3: Input 1 = Input 2	0	-	Real-time
C4-89	0xC459	Fixed-point comparison module G input 1	0: 0 Others: K connector	0	-	Real-time
C4-90	0xC45A	Fixed-point comparison module G input 2	0: 0 Others: K connector	0	-	Real-time
C4-91	0xC45B	Hysteresis input of fixed-point comparison module G	0.00 to 655.35	0.00	%	Real-time
C4-92	0xC45C	Function selection for fixed-point comparison module H	0: Module disabled 1: Input 1 > Input 2 2: Input 1 < Input 2 3: Input 1 = Input 2	0	-	Real-time
C4-93	0xC45D	Fixed-point comparison module H input 1	0: 0 Others: K connector	0	-	Real-time
C4-94	0xC45E	Fixed-point comparison module H input 2	0: 0 Others: K connector	0	-	Real-time
C4-95	0xC45F	Hysteresis input of fixed-point comparison module H	0.00 to 655.35	0.00	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-00	0xC500	Input selection for binary multiplexer module A	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-01	0xC501	Input 1 of binary multiplexer module A	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-02	0xC502	Input 2 of binary selector module A	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI21 Others: B connector	0	-	Real-time
C5-03	0xC503	Input selection for binary switch module B	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-04	0xC504	Input 1 of binary selector module B	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-05	0xC505	Input 2 of binary multiplexer module B	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI21 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-06	0xC506	Input selection for binary switch module C	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-07	0xC507	Input 1 of binary switch module C	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-08	0xC508	Input 2 of binary switch module C	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI21 Others: B connector	0	-	Real-time
C5-09	0xC509	Input selection for binary switch module D	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-10	0xC50A	Input 1 of binary switch module D	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-11	0xC50B	Input 2 of binary switch module D	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI21 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-12	0xC50C	Input selection for binary switch module E	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-13	0xC50D	Input 1 of binary switch module E	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-14	0xC50E	Input 2 of binary switch module E	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI21 Others: B connector	0	-	Real-time
C5-15	0xC50F	Input selection for binary switch module F	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-16	0xC510	Input 1 of binary switch module F	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-17	0xC511	Input 2 of binary switch module F	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI21 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-18	0xC512	Input selection for binary switch module G	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-19	0xC513	Input 1 of binary switch module G	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-20	0xC514	Input 2 of binary switch module G	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI21 Others: B connector	0	-	Real-time
C5-21	0xC515	Input selection for binary switch module H	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-22	0xC516	Input 1 of binary switch module H	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-23	0xC517	Input 2 of binary switch module H	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI21 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-24	0xC518	Input selection for word multiplexer module A	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-25	0xC519	Input 1 of word multiplexer module A	0: 0 Others: K connector	0	-	Real-time
C5-26	0xC51A	Input 2 of word multiplexer module A	0: 0 Others: K connector	0	-	Real-time
C5-27	0xC51B	Input selection for word multiplexer module B	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-28	0xC51C	Input 1 of word multiplexer module B	0: 0 Others: K connector	0	-	Real-time
C5-29	0xC51D	Input 2 of word multiplexer module B	0: 0 Others: K connector	0	-	Real-time
C5-30	0xC51E	Input selection for word multiplexer module C	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-31	0xC51F	Input 1 of word multiplexer module C	0: 0 Others: K connector	0	-	Real-time
C5-32	0xC520	Input 2 of word multiplexer module C	0: 0 Others: K connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-33	0xC521	Input selection for word multiplexer module D	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-34	0xC522	Input 1 of word multiplexer module D	0: 0 Others: K connector	0	-	Real-time
C5-35	0xC523	Input 2 of word multiplexer module D	0: 0 Others: K connector	0	-	Real-time
C5-36	0xC524	Input selection for double-word multiplexer module A	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-37	0xC525	Input 1 of double-word multiplexer module A	0: 0 Others: K connector	0	-	Real-time
C5-38	0xC526	Input 2 of double-word multiplexer module A	0: 0 Others: K connector	0	-	Real-time
C5-39	0xC527	Input selection for double-word multiplexer module B	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-40	0xC528	Input 1 of double-word multiplexer module B	0: 0 Others: K connector	0	-	Real-time
C5-41	0xC529	Input 2 of double-word multiplexer module B	0: 0 Others: K connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-42	0xC52A	Input selection for double-word multiplexer module C	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-43	0xC52B	Input 1 of double-word multiplexer module C	0: 0 Others: K connector	0	-	Real-time
C5-44	0xC52C	Input 2 of double-word multiplexer module C	0: 0 Others: K connector	0	-	Real-time
C5-45	0xC52D	Input selection for double-word multiplexer module D	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-46	0xC52E	Input 1 of double-word multiplexer module D	0: 0 Others: K connector	0	-	Real-time
C5-47	0xC52F	Input 2 of double-word multiplexer module D	0: 0 Others: K connector	0	-	Real-time
C5-48	0xC530	Input selection for floating-point multiplexer module A	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-49	0xC531	Input 1 of floating-point multiplexer module A	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C5-50	0xC532	Input 2 of floating-point multiplexer module A	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-51	0xC533	Input selection for floating-point multiplexer module B	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-52	0xC534	Input 1 of floating-point multiplexer module B	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C5-53	0xC535	Input 2 of floating-point multiplexer module B	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-54	0xC536	Input selection for floating-point multiplexer module C	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-55	0xC537	Input 1 of floating-point multiplexer module C	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C5-56	0xC538	Input 2 of floating-point multiplexer module C	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-57	0xC539	Input selection for floating-point multiplexer module D	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-58	0xC53A	Input 1 of floating-point multiplexer module D	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C5-59	0xC53B	Input 2 of floating-point multiplexer module D	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-60	0xC53C	Input selection for floating-point multiplexer module E	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-61	0xC53D	Input 1 of floating-point multiplexer module E	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C5-62	0xC53E	Input 2 of floating-point multiplexer module E	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-63	0xC53F	Input selection for floating-point multiplexer module F	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-64	0xC540	Input 1 of floating-point multiplexer module F	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C5-65	0xC541	Input 2 of floating-point multiplexer module F	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-66	0xC542	Input selection for floating-point multiplexer module G	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-67	0xC543	Input 1 of floating-point multiplexer module G	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C5-68	0xC544	Input 2 of floating-point multiplexer module G	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C5-69	0xC545	Input selection for floating-point multiplexer module H	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C5-70	0xC546	Input 1 of floating-point multiplexer module H	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C5-71	0xC547	Input 2 of floating-point multiplexer module H	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-00	0xC600	Floating-point filter module A selection	0: Module disabled 1: Disable 2: Enable 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-01	0xC601	Input of floating-point filter module A	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-02	0xC602	Filter time of filter module A	0.002 to 65.535	0.002	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-03	0xC603	Floating-point filter module B selection	0: Module disabled 1: Disable 2: Enable 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-04	0xC604	Input of floating-point filter module B	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-05	0xC605	Filter time of filter module B	0.002 to 65.535	0.002	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-06	0xC606	Floating-point filter module C selection	0: Module disabled 1: Disable 2: Enable 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-07	0xC607	Input of floating-point filter module C	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-08	0xC608	Filter time of filter module C	0.002 to 65.535	0.002	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-09	0xC609	Floating-point filter module D selection	0: Module disabled 1: Disable 2: Enable 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-10	0xC60A	Input of floating-point filter module D	0: 0 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-11	0xC60B	Filter time of filter module D	0.002 to 65.535	0.002	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-12	0xC60C	Fixed-point filter module E selection	0: Module disabled 1: Disable 2: Enable 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-13	0xC60D	Input of fixed-point filter module E	0: 0 Others: K connector	0	-	Real-time
C6-14	0xC60E	Filter time of fixed-point filter module E	0.002 to 65.535	0.002	s	Real-time
C6-15	0xC60F	Fixed-point filter module F selection	0: Module disabled 1: Disable 2: Enable 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-16	0xC610	Input of fixed-point filter module F	0: 0 Others: K connector	0	-	Real-time
C6-17	0xC611	Filter time of fixed-point filter module F	0.002 to 65.535	0.002	s	Real-time
C6-24	0xC618	Function of level-to-pulse module A	0: Module disabled 1: Level to pulse 2: Pulse to level	0	-	Real-time
C6-25	0xC619	Input of level-pulse conversion module A	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-26	0xC61A	Pulse Width of level-pulse conversion module A	0.00 to 655.35	0.00	s	Real-time
C6-27	0xC61B	Function of level-to-pulse module B	0: Module disabled 1: Level to pulse 2: Pulse to level	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-28	0xC61C	Input of level-pulse conversion module B	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-29	0xC61D	Pulse Width of level-pulse conversion module B	0.00 to 655.35	0.00	s	Real-time
C6-30	0xC61E	Function of level-to-pulse module C	0: Module disabled 1: Level to pulse 2: Pulse to level	0	-	Real-time
C6-31	0xC61F	Input of level-pulse conversion module C	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-32	0xC620	Pulse Width of level-pulse conversion module C	0.00 to 655.35	0.00	s	Real-time
C6-33	0xC621	Function of level-to-pulse module D	0: Module disabled 1: Level to pulse 2: Pulse to level	0	-	Real-time
C6-34	0xC622	Input of level-pulse conversion module D	0: Logic 0 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-35	0xC623	Pulse Width of level-pulse conversion module D	0.00 to 655.35	0.00	s	Real-time
C6-36	0xC624	Input of floating-point limiter module A	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-37	0xC625	Upper limit of floating-point limiter module A	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-38	0xC626	Lower limit of floating-point limiter module A	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-39	0xC627	Input of floating point limiter module B	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-40	0xC628	Upper limit of floating-point limiter module B	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-41	0xC629	Lower limit of floating-point limiter module B	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-42	0xC62A	Input of floating-point limiter module C	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-43	0xC62B	Upper limit of floating-point limiter module C	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-44	0xC62C	Lower limit of floating-point limiter module C	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-45	0xC62D	Input of floating-point limiter module D	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-46	0xC62E	Upper limit of floating-point limiter module D	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-47	0xC62F	Lower limit of floating-point limiter module D	0: Disable 1: AI1 2: AI2 3: AI3 4: HDI 5: Aim 6: Multi-reference output 7: Motorized potentiometer output 8: PID Others: F connector	0	-	Real-time
C6-48	0xC630	Input of fixed-point limiter module E	0: Disable Others: K connector	0	-	Real-time
C6-49	0xC631	Upper limit of fixed-point limiter module E	0: Disable Others: K connector	0	-	Real-time
C6-50	0xC632	Lower limit of fixed-point limiter module E	0: Disable Others: K connector	0	-	Real-time
C6-51	0xC633	Input of fixed-point limiter module F	0: Disable Others: K connector	0	-	Real-time
C6-52	0xC634	Upper limit of fixed-point limiter module F	0: Disable Others: K connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-53	0xC635	Lower limit of fixed-point limiter module F	0: Disable Others: K connector	0	-	Real-time
C6-54	0xC636	Input of logic delay module A	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-55	0xC637	Switch-on delay time of logic delay module A	0 to 65535	0	-	Real-time
C6-56	0xC638	Switch-off delay time of logic delay module A	0 to 65535	0	-	Real-time
C6-57	0xC639	Delay time unit of logic delay module A	0 to 12000	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-58	0xC63A	Input of logic delay module B	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-59	0xC63B	Switch-on delay of logic delay module B	0 to 65535	0	-	Real-time
C6-60	0xC63C	Switch-off delay of logic delay module B	0 to 65535	0	-	Real-time
C6-61	0xC63D	Delay time unit of logic delay module B	0 to 12000	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-62	0xC63E	Input of logic delay module C	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-63	0xC63F	Switch-on delay of logic delay module C	0 to 65535	0	-	Real-time
C6-64	0xC640	Switch-off delay of logic delay module C	0 to 65535	0	-	Real-time
C6-65	0xC641	Delay time unit of logic delay module C	0 to 12000	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-66	0xC642	Input of logic delay module D	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-67	0xC643	Switch-on delay time of logic delay module D	0 to 65535	0	-	Real-time
C6-68	0xC644	Switch-off delay of logic delay module D	0 to 65535	0	-	Real-time
C6-69	0xC645	Delay time unit of logic delay module D	0 to 12000	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-70	0xC646	Input of logical delay module E	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-71	0xC647	Switch-on delay time of logic delay module E	0 to 65535	0	-	Real-time
C6-72	0xC648	Switch-off delay time of logic delay module E	0 to 65535	0	-	Real-time
C6-73	0xC649	Delay time unit of logic delay module E	0 to 12000	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-74	0xC64A	Input of logical delay module F	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-75	0xC64B	Switch-on delay time of logic delay module F	0 to 65535	0	-	Real-time
C6-76	0xC64C	Switch-off delay time of logic delay module F	0 to 65535	0	-	Real-time
C6-77	0xC64D	Delay time unit of logic delay module F	0 to 12000	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-78	0xC64E	Input of logical delay module G	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-79	0xC64F	Switch-on delay time of logic delay module G	0 to 65535	0	-	Real-time
C6-80	0xC650	Switch-off delay time of logic delay module G	0 to 65535	0	-	Real-time
C6-81	0xC651	Delay time unit of logic delay module G	0 to 12000	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C6-82	0xC652	Input of logic delay module H	0: Disable 1: Logic 1 2: Logic 0 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
C6-83	0xC653	Switch-on delay time of logic delay module H	0 to 65535	0	-	Real-time
C6-84	0xC654	Switch-off delay time of logic delay module H	0 to 65535	0	-	Real-time
C6-85	0xC655	Delay time unit of logic delay module H	0 to 12000	1	-	Real-time
C7-00	0xC700	Input of multi-point curve module A	0: Module disabled Others: F connector	0	-	Real-time
C7-01	0xC701	Setpoint X1 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-02	0xC702	Setpoint X2 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-03	0xC703	Setpoint X3 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-04	0xC704	Setpoint X4 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C7-05	0xC705	Setpoint X5 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-06	0xC706	Setpoint X6 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-07	0xC707	Setpoint X7 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-08	0xC708	Setpoint X8 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-09	0xC709	Setpoint X9 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-10	0xC70A	Setpoint X10 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-11	0xC70B	Setpoint Y1 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-12	0xC70C	Setpoint Y2 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-13	0xC70D	Setpoint Y3 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-14	0xC70E	Setpoint Y4 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-15	0xC70F	Setpoint Y5 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-16	0xC710	Setpoint Y6 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-17	0xC711	Setpoint Y7 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-18	0xC712	Setpoint Y8 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-19	0xC713	Setpoint Y9 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C7-20	0xC714	Setpoint Y10 of multi-point curve module A	-600.0 to 600.0	0.0	%	Real-time
C7-21	0xC715	Input of multi-point curve module B	0: Module disabled Others: F connector	0	-	Real-time
C7-22	0xC716	Setpoint X1 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-23	0xC717	Setpoint X2 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-24	0xC718	Setpoint X3 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-25	0xC719	Setpoint X4 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-26	0xC71A	Setpoint X5 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-27	0xC71B	Setpoint X6 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-28	0xC71C	Setpoint X7 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-29	0xC71D	Setpoint X8 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-30	0xC71E	Setpoint X9 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-31	0xC71F	Setpoint X10 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-32	0xC720	Setpoint Y1 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-33	0xC721	Setpoint Y2 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-34	0xC722	Setpoint Y3 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C7-35	0xC723	Setpoint Y4 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-36	0xC724	Setpoint Y5 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-37	0xC725	Setpoint Y6 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-38	0xC726	Setpoint Y7 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-39	0xC727	Setpoint Y8 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-40	0xC728	Setpoint Y9 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C7-41	0xC729	Setpoint Y10 of multi-point curve module B	-600.0 to 600.0	0.0	%	Real-time
C8-00	0xC800	Constant reference 1	-300.00 to +300.00	0.00	%	Real-time
C8-01	0xC801	Constant reference 2	-300.00 to +300.00	100.00	%	Real-time
C8-02	0xC802	Constant reference 3	-300.00 to +300.00	-100.00	%	Real-time
C8-03	0xC803	Constant reference 4	-300.00 to +300.00	200.00	%	Real-time
C8-04	0xC804	Constant reference 5	-300.00 to +300.00	-200.00	%	Real-time
C8-05	0xC805	Constant reference 6	-3000.0 to 3000.0	0.0	%	Real-time
C8-06	0xC806	Constant reference 7	-3000.0 to 3000.0	0.0	%	Real-time
C8-07	0xC807	Constant reference 8	-3000.0 to 3000.0	0.0	%	Real-time
C8-08	0xC808	Constant reference 9	-3000.0 to 3000.0	0.0	%	Real-time
C8-09	0xC809	Constant reference 10	-3000.0 to 3000.0	0.0	%	Real-time
C8-10	0xC80A	Constant reference 11	-3000.0 to 3000.0	0.0	%	Real-time
C8-11	0xC80B	Constant reference 12	-3000.0 to 3000.0	0.0	%	Real-time
C8-12	0xC80C	Constant reference 13	-3000.0 to 3000.0	0.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C8-13	0xC80D	Constant reference 14	-3000.0 to 3000.0	0.0	%	Real-time
C8-14	0xC80E	Constant reference 15	-3000.0 to 3000.0	0.0	%	Real-time
C8-15	0xC80F	Constant reference 16	-3000.0 to 3000.0	0.0	%	Real-time
C8-16	0xC810	Constant reference 17	-3000.0 to 3000.0	0.0	%	Real-time
C8-17	0xC811	Constant reference 18	-3000.0 to 3000.0	0.0	%	Real-time
C8-18	0xC812	Constant reference 19	-3000.0 to 3000.0	0.0	%	Real-time
C8-19	0xC813	Constant reference 20	-3000.0 to 3000.0	0.0	%	Real-time
C8-20	0xC814	Constant reference 21	-3000.0 to 3000.0	0.0	%	Real-time
C8-26	0xC81A	Constant reference 27	0 to 65535	0	-	Real-time
C8-27	0xC81B	Constant reference 28	0 to 65535	0	-	Real-time
C8-28	0xC81C	Constant reference 29	0 to 65535	0	-	Real-time
C8-29	0xC81D	Constant reference 30	0 to 65535	0	-	Real-time
C8-30	0xC81E	Constant reference 31	0 to 65535	0	-	Real-time
C8-31	0xC81F	Constant reference 32	0 to 65535	0	-	Real-time
C8-32	0xC820	Constant reference 33	0 to 65535	0	-	Real-time
C8-33	0xC821	Constant reference 34	0 to 65535	0	-	Real-time
C8-34	0xC822	Constant reference 35	0 to 65535	0	-	Real-time
C8-35	0xC823	Constant reference 36	0 to 65535	0	-	Real-time
C8-36	0xC824	Constant reference 37	0 to 65535	0	-	Real-time
C8-37	0xC825	Constant reference 38	0 to 65535	0	-	Real-time
C8-38	0xC826	Constant reference 39	0 to 65535	0	-	Real-time
C8-39	0xC827	Constant reference 40	0 to 65535	0	-	Real-time
C8-40	0xC828	Constant reference 41	0 to 65535	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C8-41	0xC829	Constant reference 42	0 to 65535	0	-	Real-time
C9-00	0xC900	Low word of RAM address 1 of 16-bit data	0x0 to 0xFFFF	0x0	-	Real-time
C9-01	0xC901	High word of RAM address 1 of 16-bit data	0x0 to 0xFFFF	0x0	-	Real-time
C9-02	0xC902	Low word of RAM address 2 of the 16-bit data	0x0 to 0xFFFF	0x0	-	Real-time
C9-03	0xC903	High word of RAM address 2 of 16-bit data	0x0 to 0xFFFF	0x0	-	Real-time
C9-04	0xC904	Low word of RAM address 3 of 16-bit data	0x0 to 0xFFFF	0x0	-	Real-time
C9-05	0xC905	High word of 16-bit RAM address 3	0x0 to 0xFFFF	0x0	-	Real-time
C9-06	0xC906	Low word of 16-bit data RAM address 4	0x0 to 0xFFFF	0x0	-	Real-time
C9-07	0xC907	High word of 16-bit RAM address 4	0x0 to 0xFFFF	0x0	-	Real-time
C9-08	0xC908	Low word of 16-bit data RAM address 5	0x0 to 0xFFFF	0x0	-	Real-time
C9-09	0xC909	High word of 16-bit RAM address 5	0x0 to 0xFFFF	0x0	-	Real-time
C9-10	0xC90A	32-bit data type selection 1	0 to 1	0	-	Real-time
C9-11	0xC90B	32-bit data scaling factor 1	0 to 10000	0	-	Real-time
C9-12	0xC90C	Low word of 32-bit data RAM address 1	0x0 to 0xFFFF	0x0	-	Real-time
C9-13	0xC90D	High word of 32-bit RAM address 1	0x0 to 0xFFFF	0x0	-	Real-time
C9-14	0xC90E	32-bit data type selection 2	0 to 1	0	-	Real-time
C9-15	0xC90F	32-bit data scaling factor 2	0 to 10000	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C9-16	0xC910	Low word of 32-bit data RAM address 2	0x0 to 0xFFFF	0x0	-	Real-time
C9-17	0xC911	High word of 32-bit RAM address 2	0x0 to 0xFFFF	0x0	-	Real-time
C9-18	0xC912	32-bit data type selection 3	0 to 1	0	-	Real-time
C9-19	0xC913	32-bit data scaling factor 3	0 to 10000	0	-	Real-time
C9-20	0xC914	Low word of RAM address 3 of 32-bit data	0x0 to 0xFFFF	0x0	-	Real-time
C9-21	0xC915	High word of RAM address 3 of the 32-bit data	0x0 to 0xFFFF	0x0	-	Real-time
C9-22	0xC916	32-bit data type selection 4	0 to 1	0	-	Real-time
C9-23	0xC917	32-bit data scaling factor 4	0 to 10000	0	-	Real-time
C9-24	0xC918	Low word of RAM address 4 of 32-bit data	0x0 to 0xFFFF	0x0	-	Real-time
C9-25	0xC919	High word of RAM address 4 of 32-bit data	0x0 to 0xFFFF	0x0	-	Real-time
C9-26	0xC91A	32-bit data type selection 5	0 to 1	0	-	Real-time
C9-27	0xC91B	32-bit data scaling factor 5	0 to 10000	0	-	Real-time
C9-28	0xC91C	Low word of 32-bit RAM address 5	0x0 to 0xFFFF	0x0	-	Real-time
C9-29	0xC91D	High word of RAM address 5 of 32-bit data	0x0 to 0xFFFF	0x0	-	Real-time
C9-30	0xC91E	Internal parameter monitoring parameter input 1	0 to 97	0	-	Real-time
C9-31	0xC91F	Internal parameter monitoring input 2	0 to 97	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C9-32	0xC920	Internal parameter monitoring input 3	0 to 97	0	-	Real-time
C9-33	0xC921	Internal parameter monitoring input 4	0 to 97	0	-	Real-time
C9-34	0xC922	Internal parameter monitoring input 5	0 to 97	0	-	Real-time
C9-35	0xC923	Internal parameter monitoring input 6	0 to 97	0	-	Real-time
C9-36	0xC924	Internal parameter monitoring input 7	0 to 97	0	-	Real-time
C9-37	0xC925	Internal parameter monitoring input 8	0 to 97	0	-	Real-time
C9-40	0xC928	Variable connector value input 1	0 to 65535	0	-	Real-time
C9-41	0xC929	Variable connector value input 2	0 to 65535	0	-	Real-time
C9-42	0xC92A	Variable connector value input 3	0 to 65535	0	-	Real-time
C9-43	0xC92B	Variable connector value input 4	0 to 65535	0	-	Real-time
C9-44	0xC92C	Variable connector value input 5	0 to 65535	0	-	Real-time
C9-45	0xC92D	Variable connector value input 6	0 to 65535	0	-	Real-time
C9-46	0xC92E	Variable connector value input 7	0 to 65535	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
C9-47	0xC92F	Variable connector value input 8	0 to 65535	0	-	Real-time
C9-50	0xC932	Monitoring variable 0	-32768 to 32767	0	-	Unchangeable
C9-51	0xC933	Monitoring variable 1	-32768 to 32767	0	-	Unchangeable
C9-52	0xC934	Monitoring variable 2	-32768 to 32767	0	-	Unchangeable
C9-53	0xC935	Monitoring variable 3	-32768 to 32767	0	-	Unchangeable
C9-54	0xC936	Monitoring variable 4	-32768 to 32767	0	-	Unchangeable
C9-55	0xC937	Monitoring variable 5	-32768 to 32767	0	-	Unchangeable
C9-56	0xC938	Monitoring variable 6	-32768 to 32767	0	-	Unchangeable
C9-57	0xC939	Monitoring variable 7	-32768 to 32767	0	-	Unchangeable
C9-58	0xC93A	Monitoring variable 8	-32768 to 32767	0	-	Unchangeable
C9-59	0xC93B	Monitoring variable 9	-32768 to 32767	0	-	Unchangeable
C9-70	0xC946	Commissioning variable 0	-32768 to 32767	0	-	Real-time
C9-71	0xC947	Commissioning variable 1	-32768 to 32767	0	-	Real-time
C9-72	0xC948	Commissioning variable 2	-32768 to 32767	0	-	Real-time
C9-73	0xC949	Commissioning variable 3	-32768 to 32767	0	-	Real-time
C9-74	0xC94A	Commissioning variable 4	-32768 to 32767	0	-	Real-time
C9-75	0xC94B	Commissioning variable 5	-32768 to 32767	0	-	Real-time
C9-76	0xC94C	Commissioning variable 6	-32768 to 32767	0	-	Real-time
C9-77	0xC94D	Commissioning variable 7	-32768 to 32767	0	-	Real-time
C9-78	0xC94E	Commissioning variable 8	-32768 to 32767	0	-	Real-time
C9-79	0xC94F	Commissioning variable 9	-32768 to 32767	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CA-00	0xCA00	Motor type selection	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Permanent magnet synchronous motor 3: Synchronous reluctance motor without permanent magnet 4: Electromagnetic coil 5: Synchronous reluctance motor with permanent magnet	0	-	At stop
CA-01	0xCA01	Rated motor power	0.1 to 1000.0	3.7	kW	At stop
CA-02	0xCA02	Rated motor voltage	1 to 2000	380	V	At stop
CA-03	0xCA03	Rated motor current	0.01 to 655.35	9.00	A	At stop
CA-04	0xCA04	Rated motor frequency	0.01 to F0-10	50.00	Hz	At stop
CA-05	0xCA05	Rated motor speed	1 to 65535	1460	rpm	At stop
CA-06	0xCA06	Number of parallel motors	1 to 200	1	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CA-07	0xCA07	Motor information command word	bit0: Mutual inductance curve enable 0: Disable 1: Enable bit1: D/Q inductance curve enable 0: Disable 1: Enable bit2: Online rotor resistance auto-tuning 0: Disable 1: Enable bit3: Online rotor resistance auto-tuning method 0: Amplitude 1: Phase bit4: Motor thermal model 0: Disable 1: Enable bit5: Motor thermal model temperature source 0: Estimated temperature 1: Sensor detected temperature bit6: Torque coefficient calculation method of asynchronous motor 0: Torque formula 1: Current distribution (Continued)	0x3	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CA-07	0xCA07	Motor information command word	(Continued) bit7: Torque coefficient calculation method of synchronous motor 0: Torque formula 1: Rated value match bit8: Zero-speed friction torque calculation method 0: Linearly decreased to zero 1: Maintain minimum speed torque bit9: Enable model parameter calculation based on nameplate parameters 0: Disable 1: Enable bit10: Parameter confirmation key of nameplate parameter calculation model 0: Default 1: OK bit12: Ld curve selection of the reluctance motor 0: Dynamic auto-tuning result 1: Static auto-tuning result bit13: Synchronous motor torque accuracy calibration 0: Disable 1: Enable	0x3	-	At stop
CA-08	0xCA08	Defines the number of motor pole pairs.	0 to 64	0	-	At stop
CA-09	0xCA09	Power factor of the motor	0.600 to 1.000	0.860	-	At stop
CA-28	0xCA1C	Rated speed of high-speed motor	0 to 65535	0	rpm	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CA-29	0xCA1D	Motor parameter auto-tuning mode	0: Disable 1: Auto-tuning of some parameters for asynchronous motor in static state 2: Auto-tuning of parameters for asynchronous motor in dynamic state 3: Auto-tuning of all parameters for asynchronous motor in static state 4: Inertia auto-tuning 5: Dead zone auto-tuning 7: Inductance saturation model auto-tuning 8: Back EMF auto-tuning 11: With-load auto-tuning of synchronous motor parameters (excluding back EMF) 12: No-load auto-tuning of all parameters for synchronous motor in dynamic state 13: Auto-tuning of parameters (excluding zero point angle) for synchronous motor in static state 14: Auto-tuning on current sampling gain between phases U and V 21: Auto-tuning of parameters for reluctance motor in static state 22: Auto-tuning of parameters for reluctance motor in dynamic state	0	-	At stop
CA-30	0xCA1E	Stator resistance of asynchronous motor	0.001 to 65.535	1.204	Ω	Real-time
CA-31	0xCA1F	Rotor resistance of asynchronous motor	0.001 to 65.535	0.908	Ω	Real-time
CA-32	0xCA20	Leakage inductance of asynchronous motor	0.01 to 655.35	5.28	mH	Real-time
CA-33	0xCA21	Mutual inductance of asynchronous motor	0.1 to 6553.5	156.8	mH	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CA-34	0xCA22	No-load current of asynchronous motor	0.01 to CA-03	4.20	A	Real-time
CA-35	0xCA23	Stator resistance of synchronous motor	0.001 to 65.535	1.204	Ω	Real-time
CA-36	0xCA24	D-axis inductance of synchronous motor	0.01 to 655.35	5.28	mH	Real-time
CA-37	0xCA25	Q-axis inductance of synchronous motor	0.01 to 655.35	5.28	mH	Real-time
CA-38	0xCA26	No-load current of asynchronous motor	0: Disable 1: Activation mode 1 2: Activation mode 2 (speed limit) 3: Reserved	0	-	At stop
CA-39	0xCA27	Back EMF of synchronous motor	0.0 to 6553.5	350.0	V	Real-time
CA-40	0xCA28	Stator leakage inductance	0.000 to 65.535	6.540	mH	At stop
CA-41	0xCA29	Electromechanical time constant	0.01 to 655.35	1.00	s	Unchangeable
CA-42	0xCA2A	Inertia ratio	0.0 to 6553.5	120.0	%	At stop
CA-43	0xCA2B	Friction torque	0.0 to 6553.5	2.0	%	At stop
CA-44	0xCA2C	Defines the excitation current coefficient 1 (within rated current range) of mutual inductance curve.	5.0 to 100.0	50.0	%	At stop
CA-45	0xCA2D	Defines the excitation current coefficient 2 (within rated current range) of mutual inductance curve.	5.0 to 100.0	75.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CA-46	0xCA2E	Defines the excitation current point 3 of mutual inductance curve.	100.0 to 800.0	150.0	%	At stop
CA-47	0xCA2F	Defines the excitation current point 4 of mutual inductance curve.	100.0 to 800.0	210.0	%	At stop
CA-48	0xCA30	Defines the flux coefficient 1 (within rated range) of mutual inductance curve.	10.0 to 100.0	50.0	%	At stop
CA-49	0xCA31	Defines the flux coefficient 2 (within rated range) of mutual inductance curve.	10.0 to 100.0	85.0	%	At stop
CA-50	0xCA32	Flux coefficient 3 of mutual inductance curve	100.0 to 300.0	115.0	%	At stop
CA-51	0xCA33	Flux coefficient 4 of mutual inductance curve	100.0 to 300.0	125.0	%	At stop
CA-52	0xCA34	Speed point 1 of friction curve	0 to 30000	15	rpm	At stop
CA-53	0xCA35	Speed point 2 of friction curve	0 to 30000	30	rpm	At stop
CA-54	0xCA36	Speed point 3 of friction curve	0 to 30000	60	rpm	At stop
CA-55	0xCA37	Speed point 4 of friction curve	0 to 30000	120	rpm	At stop
CA-56	0xCA38	Speed point 5 of friction curve	0 to 30000	150	rpm	At stop
CA-57	0xCA39	Speed point 6 of friction curve	0 to 30000	300	rpm	At stop
CA-58	0xCA3A	Speed point 7 of friction curve	0 to 30000	600	rpm	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CA-59	0xCA3B	Speed point 8 of friction curve	0 to 30000	1200	rpm	At stop
CA-60	0xCA3C	Speed point 9 of friction curve	0 to 30000	1500	rpm	At stop
CA-61	0xCA3D	Speed point 10 of friction curve	0 to 30000	3000	rpm	At stop
CA-62	0xCA3E	Torque point 1 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
CA-63	0xCA3F	Torque point 2 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
CA-64	0xCA40	Torque point 3 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
CA-65	0xCA41	Torque point 4 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
CA-66	0xCA42	Torque point 5 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
CA-67	0xCA43	Torque point 6 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
CA-68	0xCA44	Torque point 7 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
CA-69	0xCA45	Torque point 8 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
CA-70	0xCA46	Torque point 9 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
CA-71	0xCA47	Torque point 10 of friction curve	-320.00 to 320.00	0.00	N·m	At stop
CA-72	0xCA48	Defines the starting point of D/Q-axis inductance curve current coefficient.	-800.0 to 800.0	-200.0	%	At stop
CA-73	0xCA49	Defines the end point of D/Q-axis inductance curve current coefficient.	-800.0 to 800.0	200.0	%	At stop
CA-74	0xCA4A	Defines the D-axis inductance 1 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
CA-75	0xCA4B	D-axis inductance 2 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CA-76	0xCA4C	D-axis inductance 3 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
CA-77	0xCA4D	D-axis inductance 4 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
CA-78	0xCA4E	D-axis inductance 5 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
CA-79	0xCA4F	D-axis inductance 6 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
CA-80	0xCA50	D-axis inductance 7 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
CA-81	0xCA51	D-axis inductance 8 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
CA-82	0xCA52	D-axis inductance 9 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
CA-83	0xCA53	D-axis inductance 10 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
CA-84	0xCA54	D-axis inductance 11 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CA-85	0xCA55	D-axis inductance 12 of D/Q-axis inductance curve.	0.0 to 6553.5	100.0	%	At stop
CA-86	0xCA56	Q-axis inductance 1 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CA-87	0xCA57	Q-axis inductance 2 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CA-88	0xCA58	Q-axis inductance 3 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CA-89	0xCA59	Q-axis inductance 4 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CA-90	0xCA5A	Q-axis inductance 5 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CA-91	0xCA5B	Q-axis inductance 6 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CA-92	0xCA5C	Q-axis inductance 7 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CA-93	0xCA5D	Q-axis inductance 8 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CA-94	0xCA5E	Q-axis inductance 9 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CA-95	0xCA5F	Q-axis inductance 10 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CA-96	0xCA60	Q-axis inductance 11 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CA-97	0xCA61	Q-axis inductance 12 of D/Q-axis inductance curve	0.0 to 6553.5	100.0	%	At stop
CB-00	0xCB00	V/f curve setting	0: V/f line 1: Multi-point V/f curve 2: Reserved 3: Reserved 4: Reserved 5: Reserved 6: Reserved 7: Reserved 8: Reserved 9: Reserved 10: V/f fully-decoupled mode 11: V/f semi-decoupled mode	0	-	At stop
CB-01	0xCB01	Torque boost	0.0 to 30.0	3.0	%	Real-time
CB-02	0xCB02	Cut-off frequency of torque boost	0.00 to F0-10	50.00	Hz	At stop
CB-03	0xCB03	Frequency 1 on multi-point V/f curve	0.00 to CB-05	0.00	Hz	At stop
CB-04	0xCB04	Voltage 1 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop
CB-05	0xCB05	Frequency 2 on multi-point V/f curve	CB-03~CB-07	0.00	Hz	At stop
CB-06	0xCB06	Voltage 2 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CB-07	0xCB07	Frequency point 3 on multi-point V/f curve	CB-05~CA-04	0.00	Hz	At stop
CB-08	0xCB08	Voltage point 3 on multi-point V/f curve	0.0 to 100.0	0.0	%	At stop
CB-09	0xCB09	Slip compensation gain in V/f mode	0.0 to 6553.5	0.0	-	Real-time
CB-10	0xCB0A	Over-excitation gain in V/f mode	0 to 200	64	-	Real-time
CB-11	0xCB0B	Oscillation suppression gain in V/f mode	0 to 100	40	-	Real-time
CB-12	0xCB0C	Oscillation suppression in V/f mode	0: Disable 1: Enable	1	-	Real-time
CB-13	0xCB0D	Voltage source in V/f decoupled mode	0: Digital setting (CB-14) 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication Others: F connector	0	-	Real-time
CB-14	0xCB0E	Voltage digital setting in V/f decoupled mode	0 to CA-02	0	V	Real-time
CB-15	0xCB0F	Voltage rise time in V/f decoupled mode	0.0 to 1000.0	0.0	s	Real-time
CB-16	0xCB10	Voltage decline time in V/f decoupled mode	0.0 to 1000.0	0.0	s	Real-time
CB-17	0xCB11	Stop mode in V/f decoupled mode	0: Frequency and voltage decline to 0. 1: Frequency declines to 0 after voltage declines to 0. 2: Coast to stop (newly added)	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CB-18	0xCB12	Action current of overcurrent stall suppression	50 to 200	150	%	At stop
CB-19	0xCB13	Overcurrent stall suppression	0: Disable 1: Enable	1	-	At stop
CB-20	0xCB14	Overcurrent stall suppression gain	1 to 500	20	-	Real-time
CB-21	0xCB15	Action current compensation coefficient for overcurrent stall at multiplied rated frequency	50 to 200	100	%	At stop
CB-22	0xCB16	Overvoltage stall suppression action voltage in V/f mode	330.0 to 800.0	770.0	V	Real-time
CB-23	0xCB17	Overvoltage stall suppression in V/f mode	0: Disable 1: Enable	1	-	At stop
CB-24	0xCB18	Frequency gain for overvoltage stall suppression in V/f mode	1 to 500	30	-	Real-time
CB-25	0xCB19	Voltage gain for overvoltage stall suppression in V/f mode	1 to 500	30	-	Real-time
CB-26	0xCB1A	Frequency rise limit for overvoltage stall suppression in V/f mode	0 to 50	5	Hz	At stop
CB-27	0xCB1B	Filter time of slip compensation	0.1 to 10.0	0.5	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CB-28	0xCB1C	Multi-point curve selection	0: Three-point curve 1: Multi-point curve module A 2: Multi-point curve module B	0	-	At stop
CB-29	0xCB1D	Frequency for PWM inhibition at zero speed	0.0 to 100.0	1.0	%	At stop
CB-30	0xCB1E	PWM inhibition hysteresis at zero speed	0.0 to 100.0	0.5	%	At stop
CB-31	0xCB1F	PWM inhibition at zero speed	0: Inactive 1: Enable	0	-	At stop
CB-33	0xCB21	Online torque compensation gain	80 to 150	100	-	At stop
CB-34	0xCB22	IMaxKi coefficient	10 to 1000	100	%	At stop
CB-35	0xCB23	Overcurrent stall suppression threshold (rated motor current as the base)	80 to 300	200	%	At stop
CB-36	0xCB24	Frequency for activating field weakening upon overcurrent stall suppression	100 to 500	100	%	At stop
CB-37	0xCB25	IT filter time	10 to 1000	100	ms	At stop
CB-38	0xCB26	Slip compensation mode	0: Disable 1: Without PG card slip compensation 2: With PG card slip compensation	1	-	At stop
CB-39	0xCB27	VdcMaxCtrl permissible operating time	0.0 to 100.0	0.0	s	At stop
CB-40	0xCB28	Voltage upper limit in V/f decoupled mode	50.0 to 200.0	100.0	%	At stop
CB-41	0xCB29	RFG time of the frequency in V/f decoupled mode	0: RFG time is forcibly set to zero. 1: Preset RFG time	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CB-42	0xCB2A	Cut-off frequency of oscillation suppression filter in V/f mode	1.0 to 50.0	8.0	Hz	Real-time
CB-43	0xCB2B	Effective cut-off frequency of oscillation suppression in V/f mode	10 to 3000	200	Hz	Real-time
CB-44	0xCB2C	VdcMaxCtrl feedforward coefficient	0 to 500	0	%	Real-time
CB-45	0xCB2D	Synchronous motor IF selection	0: Disable 1: Low speed IF 2: High-frequency injection in SVC mode 3: Reserved	0	-	At stop
CB-46	0xCB2E	Synchronous motor IF current	0.0 to 200.0	50.0	%	Real-time
CB-47	0xCB2F	IF switchover frequency of synchronous motor	0.0 to 100.0	2.5	%	Real-time
CB-48	0xCB30	IF switchover hysteresis frequency of synchronous motor	0.0 to 100.0	2.5	%	Real-time
CB-49	0xCB31	IF current switchover time of synchronous motor	0.001 to 20.000	1.000	s	Real-time
CB-50	0xCB32	VVCTLC processing at low speed	0: Disable 1: Low speed IF 2: High-frequency injection in TLC mode	1	-	At stop
CB-51	0xCB33	PMVVC low-speed IF current	0 to 250	100	-	Real-time
CB-52	0xCB34	PMVVC low-speed IF switchover speed threshold	0.0 to 100.0	10.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CB-53	0xCB35	PMVVC oscillation suppression gain coefficient	0 to 500	100	-	Real-time
CB-54	0xCB36	PMVVC filter time constant	0 to 500	100	-	Real-time
CB-55	0xCB37	PMVVC energy-saving control mode	0: Fixed V/f line 1: Fixed to 30% of reactive current 2: MTPA control	2	-	At stop
CB-56	0xCB38	VVC current loop adaptation coefficient	0 to 1000	0	%	Real-time
CB-57	0xCB39	MTPA adaptation coefficient of VVC	0 to 1000	0	%	Real-time
CB-58	0xCB3A	TLC control word	bit0: CPC enable 0: Disable 1: Enable bit1: Speed source 0: Source 1 1: Source 2 bit2: Angle source 0: Source 1 1: Source 2 bit3: Energy-saving mode 0: Mode 1 1: Mode 2 bit4: Inductance calculation 0: Use saturation model 1: Not use saturation model bit5: Inverse curve 0: Enable 1: Disable bit6: Overvoltage suppression optimization 0: Enable 1: Disable bit7: Undervoltage suppression optimization 0: Enable 1: Disable bit8: Switch back to IF mode 0: Default 1: Non-default	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CB-59	0xCB3B	TLC phase lock loop amplification coefficient	0.1 to 5000.0	100.0	-	Real-time
CB-60	0xCB3C	TLC control enable switch	0 to 1	1	-	At stop
CB-61	0xCB3D	Field weakening coefficient for TLC control	0.0 to 5000.0	100.0	-	Real-time
CB-62	0xCB3E	d-axis proportion of TLC control	0.0 to 5000.0	100.0	-	Real-time
CB-63	0xCB3F	d-axis integral in TLC control mode	0.0 to 5000.0	100.0	-	Real-time
CB-64	0xCB40	q-axis proportion in TLC control mode	0.0 to 5000.0	100.0	-	Real-time
CB-65	0xCB41	q-axis integral in TLC control mode	0.0 to 5000.0	100.0	-	Real-time
CB-66	0xCB42	Lower limit of TLC setting	0.0 to 1000.0	0.0	%	Real-time
CB-67	0xCB43	Waiting time of TLC switchover	0 to 10000	500	ms	At stop
CB-68	0xCB44	TLC setting coefficient	0.1 to 1000.0	100.0	%	Real-time
CB-69	0xCB45	Coil control mode	0: V/f separation mode 1: IF separation mode	0	-	At stop
CB-70	0xCB46	Voltage source for coil IF separation	0: Digital setting (F3-71) 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication Others: F connector	0	-	Real-time
CB-71	0xCB47	Current reference for coil IF separation	1.00 to 120.00	20.00	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CB-72	0xCB48	Voltage rise time for coil IF separation	0.000 to 65.000	0.000	s	Real-time
CB-73	0xCB49	Current fall time for coil IF separation	0.000 to 65.000	0.000	s	Real-time
CB-74	0xCB4A	Max. current value for coil IF separation	1.00 to 120.00	100.00	%	At stop
CB-75	0xCB4B	Stop mode for coil IF separation	0: Frequency and current decline to 0 independently. 1: Frequency declines to 0 after current declines to 0. 2: Coast to stop	2	-	Real-time
CB-76	0xCB4C	PM observer stator resistance coefficient	0 to 1000	0	%	Real-time
CB-77	0xCB4D	Waiting time of PM observer auto-tuning	0 to 1000	0	s	Real-time
CB-78	0xCB4E	Coil IF separation current control coefficient	1 to 1000	50	-	Real-time
CB-79	0xCB4F	Coil IF separation sub-controller switch	0 to 1	0	-	Real-time
CB-80	0xCB50	Proportional coefficient of coil IF separation sub-controller	1 to 1000	100	%	Real-time
CB-81	0xCB51	Integral coefficient of coil IF separation sub-controller	1 to 1000	100	%	Real-time
CB-82	0xCB52	Voltage limit of coil IF separation sub-controller	1 to 100	40	%	Real-time
CB-83	0xCB53	Coil transformer change ratio	1.0 to 100.0	1.0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CB-85	0xCB55	Synchronous motor observer switchover	0: Mode 0 1: Mode 1	0	-	Real-time
CB-86	0xCB56	Switchover frequency of synchronous motor in SVC mode	0.0 to 100.0	10.0	%	Real-time
CB-87	0xCB57	Switchover hysteresis frequency of synchronous motor in SVC mode	0.0 to 100.0	5.0	%	Real-time
CB-88	0xCB58	Parameter 0 of synchronous motor in SVC mode	0 to 100	3	-	Real-time
CB-89	0xCB59	Parameter 1 lower limit of synchronous motor in SVC mode	1 to 100	1	-	Real-time
CB-90	0xCB5A	Parameter 6 of synchronous motor in SVC mode	1 to 10	10	-	Real-time
CB-91	0xCB5B	Synchronous motor SVC model parameter 1	1 to 10000	10	-	Real-time
CB-92	0xCB5C	Synchronous motor SVC model parameter 2	1 to 10000	5	-	Real-time
CB-93	0xCB5D	Synchronous motor SVC model parameter 3	1 to 100	30	-	Real-time
CB-94	0xCB5E	Synchronous motor SVC model parameter 4	-100 to +100	20	-	Real-time
CB-95	0xCB5F	Synchronous motor SVC model parameter 5	0 to 50000	30	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CB-96	0xCB60	Synchronous motor SVC command word	bit0 to bit1: Low-speed processing method 0: Disable 1: Method 1 2: Method 2 bit2: Energy-saving optimization 0: Disable 1: Enable bit3: Online auto-tuning of back EMF 0: Disable 1: Enable bit4 to bit5: Inductance mode 0: Fixed value 1: Saturation value 2: Mode 1 3: Mode 2	54	-	At stop
CB-97	0xCB61	Synchronous motor SVC low speed threshold 1	0.0 to 10.0	0.5	%	Real-time
CB-98	0xCB62	Defines the synchronous motor SVC low speed threshold 2.	0.0 to 10.0	0.0	%	Real-time
CB-99	0xCB63	Synchronous motor SVC low speed voltage coefficient	0 to 100	50	%	Real-time
CC-00	0xCC00	Start-up mode	0: Direct start 1: Flying start 2: Pre-excitation start (AC asynchronous motor) 3: SVC quick start	0	-	Real-time
CC-01	0xCC01	Flying start mode	0: Starting from the stop frequency 1: Starting from the line frequency 2: Starting from the maximum frequency 3: Reserved 4: Field-oriented flying start (MD290)	4	-	Real-time
CC-02	0xCC02	Flying start speed	1 to 100	20	-	Real-time
CC-03	0xCC03	Start frequency	0.00 to 10.00	0.00	Hz	Real-time
CC-04	0xCC04	Start frequency hold time	0.0 to 100.0	0.0	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-05	0xCC05	DC braking current at start	0 to 100	50	%	At stop
CC-06	0xCC06	DC braking time at start	0.0 to 100.0	0.0	s	At stop
CC-07	0xCC07	Stop mode	0: Decelerate to stop 1: Coast to stop 2: Stop with maximum capability	0	-	Real-time
CC-08	0xCC08	Start frequency of DC braking at stop	0.00 to F0-10	0.00	Hz	Real-time
CC-09	0xCC09	DC braking waiting time at stop	0.0 to 100.0	0.0	s	Real-time
CC-10	0xCC0A	DC braking current at stop	0 to 100	50	%	Real-time
CC-11	0xCC0B	DC braking time at stop	0.0 to 100.0	0.0	s	Real-time
CC-12	0xCC0C	Frequency sweeping current amplitude closed-loop Kp in speed tracking	0 to 1000	500	-	Real-time
CC-13	0xCC0D	Sweep current amplitude closed loop Ki in flying start	0 to 1000	800	-	Real-time
CC-14	0xCC0E	Flying start current	30 to 200	80	%	At stop
CC-15	0xCC0F	Current loop multiple	10 to 600	100	%	Real-time
CC-16	0xCC10	Demagnetization time (applies to asynchronous motors)	0.00 to 5.00	0.50	s	Real-time
CC-17	0xCC11	Over-excitation selection	0: Inactive 1: Enabled during deceleration (regenerative) 2: Enabled during deceleration (DC bus overvoltage)	0	-	Real-time
CC-18	0xCC12	Overexcitation suppression additional current	0 to 200	100	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-19	0xCC13	Overexcitation gain	0.01 to 2.50	1.25	-	Real-time
CC-20	0xCC14	Parameter auto-tuning before startup	bit0: Magnetic pole position auto-tuning of synchronous motor before startup 0: Disable 1: Enable bit1: Quick auto-tuning of stator resistance before startup 0: Disable 1: Enable bit2: Magnetic pole position auto-tuning based on high-frequency injection before startup 0: Disable 1: Enable 2: Adaptive bit4: IGBT shoot-through self-check before start 0: Disable 1: Enable bit5: Short-circuit to ground self-check before start (reserved) 0: Disable 1: Enable bit6: Phase loss self-check before start (reserved) 0: Disable 1: Enable bit7: Pre-positioning before synchronous motor start 0: Disable 1: Enable bit8: Auto-tuning of stator resistance before startup 0: Disable 1: Enable	1	-	At stop
CC-21	0xCC15	Motor parameter auto-tuning direction	0 to 1	1	-	At stop
CC-22	0xCC16	Vibration suppression gain during back EMF auto-tuning of synchronous motor	0.0 to 30.0	3.2	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-23	0xCC17	Target speed during dynamic rotation auto-tuning	30.0 to 100.0	70.0	%	At stop
CC-24	0xCC18	Target speed 1 of rotation inertia auto-tuning	10.0 to CC-25	40.0	%	At stop
CC-25	0xCC19	Target speed 2 of rotation inertia auto-tuning	CC-24~100.0	60.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-26	0xCC1A	Motor parameter auto-tuning item configuration 2	bit0: Overcurrent prevention during auto-tuning of mutual inductance saturation curve 0: Disable 1: Active bit1: Auto-tuning scheme switchover 0: Scheme 1 1: Scheme 2 bit2: Auto-tuning calibration switch 0: Enable 1: Disable bit3: Second-segment auto-tuning switchover 0: Disable 1: Active bit4: Auto-tuning method 0: Fixed 1: Adjustable bit5: Reserved 0: Disable 1: Active bit6: DC injection during inductance auto-tuning 0: Injected 1: Not injected bit7: Adaptive magnetic pole position auto-tuning based on high-frequency injection 0: Determined by bit7 of AA-07 1: Forcibly adaptive bit8: Current limit for rotor resistance leakage inductance auto-tuning 0: High current 1: Low current (Continued)	5121	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-26	0xCC1A	Motor parameter auto-tuning item configuration 2	(Continued) bit9: Leakage inductance auto-tuning of small motor/high-speed motor 0: Scheme 1 1: Scheme 2 bit10: Frequency adaptation based on rotor resistance auto-tuning of small/high-peed motor 0: Disable 1: Active bit11: Frequency adaptation based on rotor resistance auto-tuning of all motors 0: Disable 1: Active bit12: Calculation scheme selection for small motor/high-speed motor rotor resistance auto-tuning result 0: Scheme 1 1: Scheme 2 bit13: Calculation scheme selection for rotor resistance auto-tuning result of all motors 0: Scheme 1 1: Scheme 2 bit14: Current search based on high-frequency injection 0: Disable 1: Enable	5121	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-27	0xCC1B	Motor parameter auto-tuning item configuration	bit0: Speed loop parameter adaptation 0: Disable 1: Enable bit1: Current loop parameter adaptation 0: Disable 1: Enable bit2: Non-linear auto-tuning of the drive 0: Disable 1: Enable bit3: Auto-tuning of phase-to-phase deviation coefficient 0: Disable 1: Enable bit4: Initial magnetic pole position auto-tuning of synchronous motor 0: Disable 1: Enable bit5: D/Q-axis inductance model auto-tuning of synchronous motor 0: Disable 1: Enable bit6: System moment of inertia auto-tuning 0: Disable 1: Enable (Continued)	125	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-27	0xCC1B	Motor parameter auto-tuning item configuration	(Continued) bit7: Magnetic pole position auto-tuning based on high-frequency injection 0: Disable 1: Enable bit8: DC injection auto-tuning 0: Disable 1: Enable bit9: No-load current vector auto-tuning 0: Disable 1: Enable bit10: Speed reference source for no-load current vector auto-tuning 0: User-defined 1: Internal-defined bit11: Back EMF calculation 0: Disable 1: Enable bit12: Back EMF auto-tuning calculation mode 0: Mode 0 1: Mode 1	125	-	At stop
CC-28	0xCC1C	OFF3 stop mode	0: Quick stop 1: Stop with maximum capability	0	-	At stop
CC-29	0xCC1D	Permissible stop mode during operation	0: OFF1 stop mode 1: OFF2 stop mode 2: OFF3 stop mode	1	-	At stop
CC-30	0xCC1E	Stop mode in torque control mode	0: Coast to stop forcibly 1: Switch to speed control mode and stop 2: Keep in the torque mode until the zero speed is reached and then stop	1	-	At stop
CC-31	0xCC1F	MTPA filter time	0 to 8000	20	-	Real-time
CC-32	0xCC20	Proportional gain tuning coefficient	0.1 to 2.0	1.0	-	Real-time
CC-33	0xCC21	Integral gain tuning coefficient	0.1 to 2.0	1.0	-	Real-time
CC-34	0xCC22	Zero speed threshold	0.1 to 200.0	2.0	%	Real-time
CC-35	0xCC23	Delay of zero speed stop	0.00 to 10.00	0.10	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-36	0xCC24	Set channel execution interval	0 to 20	4	-	At stop
CC-37	0xCC25	Trial current of flying start for synchronous motor	5.0 to 50.0	10.0	%	At stop
CC-38	0xCC26	Minimum frequency for flying start of synchronous motor	0.0 to 100.0	0.0	Hz	At stop
CC-39	0xCC27	Angle compensation for flying start of synchronous motor	0 to 360	0	-	At stop
CC-40	0xCC28	Parameter auto-tuning of synchronous motor before startup	0 to 1	0	-	Real-time
CC-41	0xCC29	Present motor angle	0 to 65535	0	-	Unchangeable
CC-42	0xCC2A	Forward torque limit 1	0.0 to 400.0	150.0	%	Real-time
CC-43	0xCC2B	Reverse torque limit 1	0.0 to 400.0	150.0	%	Real-time
CC-44	0xCC2C	Source of positive torque limit 2	0: 400% Others: F connector	0	-	Real-time
CC-45	0xCC2D	Source of negative torque limit 2	0: -400% Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-46	0xCC2E	Ramp (FRG) selection bit0	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
CC-47	0xCC2F	Ramp (FRG) selection bit1	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
CC-50	0xCC32	Motor overload protection selection	0: Disable 1: Enable	1	-	Real-time
CC-51	0xCC33	Motor overload protection gain	0.20 to 10.00	1.00	-	Real-time
CC-52	0xCC34	Motor overload warning coefficient	50 to 100	80	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-53	0xCC35	V/f overvoltage stall suppression gain	1 to 500	30	-	Real-time
CC-54	0xCC36	V/f overvoltage stall suppression protection voltage	330.0 to 800.0	770.0	V	Real-time
CC-55	0xCC37	Protective functions	Ones: Protection against input phase loss 0: Disable 1: Protection enabled when both software and hardware input phase loss conditions are met 2: Protection enabled when software input phase loss conditions are met 3: Protection enabled when hardware input phase loss conditions are met Tens: contactor pickup protection 0: Disable 1: Enable Hundreds: T13 rectifier fault protection 0: Disable 1: Enable	11	-	Real-time
CC-56	0xCC38	Output phase loss protection	Ones: Protection against output phase loss during running 0: Disable 1: Enable Tens: Protection against output phase loss before running 0: Disable 1: Enable	1	-	Real-time
CC-57	0xCC39	Power dip ride-through function	0: Invalid 1: Decelerate 2: Decelerate to stop 3: Voltage dip suppression	0	-	At stop
CC-58	0xCC3A	Threshold for recovery from power dip ride-through	80 to 100	85	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-59	0xCC3B	Duration for judging voltage recovery from power dip ride-through	0.0 to 100.0	0.5	s	At stop
CC-60	0xCC3C	Threshold for enabling power dip ride-through	60 to 100	80	%	At stop
CC-61	0xCC3D	Protection against load loss	0: Invalid 1: Active	0	-	Real-time
CC-62	0xCC3E	Load loss detection level	0.0 to 100.0	10.0	%	Real-time
CC-63	0xCC3F	Load loss detection time	0.0 to 60.0	1.0	s	Real-time
CC-64	0xCC40	Overspeed detection value	0.0 to 50.0	20.0	%	Real-time
CC-65	0xCC41	Overspeed detection time	0.0 to 60.0	1.0	s	Real-time
CC-66	0xCC42	Detection value for excessive speed deviation	0.0 to 50.0	20.0	%	Real-time
CC-67	0xCC43	Detection time for excessive speed deviation	0.0 to 60.0	5.0	s	Real-time
CC-68	0xCC44	Power dip ride-through gain Kp	1 to 100	40	-	Real-time
CC-69	0xCC45	Integral coefficient Ki of power dip ride-through	1 to 100	30	-	Real-time
CC-70	0xCC46	Deceleration time of power dip ride-through	0.0 to 300.0	20.0	s	Real-time
CC-71	0xCC47	Voltage dip suppression time	0.1 to 600.0	0.5	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-72	0xCC48	Motor protection	bit0: Motor overload judgment (reserved) bit1: Motor overheat detection (reserved) bit2: PG fault detection (reserved) Bit 3: Current control error detection Bit 4: Motor step loss error detection Bit 5: Motor stall detection Bit 6: Demagnetization protection for synchronous motor bit7: Demagnetization protection for permanent magnet motor bit8: Reserved Bit 9: Parameter setting error bit10: Output load loss detection (reserved) bit11: Divergent runaway protection bit12: Excessive speed deviation (reserved) bit13: Speed reversal protection (reserved) bit14: Overspeed protection (reserved) bit15: Demagnetization protection for reluctance motor with permanent magnet	32769	-	Real-time
CC-73	0xCC49	Stall fault time	0.0 to 65.0	2.0	s	Real-time
CC-74	0xCC4A	Frequency upon stall fault	0.0 to 600.0	6.0	%	Real-time
CC-75	0xCC4B	Step loss detection time	0.0 to 10.0	0.5	s	Real-time
CC-76	0xCC4C	Step loss detection threshold	0.0 to 100.0	30.0	%	Real-time
CC-77	0xCC4D	Detection time for current control fault	0.00 to 1.00	0.05	s	Real-time
CC-78	0xCC4E	Detection threshold for current control fault	0.0 to 200.0	25.0	%	Real-time
CC-79	0xCC4F	Synchronous motor overcurrent threshold	0.0 to 500.0	300.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-81	0xCC51	Speed deviation detection	0 to 1	1	-	Real-time
CC-82	0xCC52	Jump frequency 1	0.00 to F0-10	0.00	Hz	Real-time
CC-83	0xCC53	Jump frequency 2	0.00 to F0-10	0.00	Hz	Real-time
CC-84	0xCC54	Jump frequency 3	0.00 to F0-10	0.00	Hz	Real-time
CC-85	0xCC55	Jump frequency 4	0.00 to F0-10	0.00	Hz	Real-time
CC-86	0xCC56	Jump frequency amplitude	0.00 to F0-10	0.00	Hz	Real-time
CC-87	0xCC57	Frequency upper limit source	0: CC-88 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication Others: F connector	0	-	At stop
CC-88	0xCC58	Frequency upper limit	CC-90~F0-10	50.00	Hz	Real-time
CC-89	0xCC59	Frequency upper limit offset	0.00 to F0-10	0.00	Hz	Real-time
CC-90	0xCC5A	Frequency lower limit	0.00 to CC-88	0.00	Hz	Real-time
CC-91	0xCC5B	Speed/Torque control selection	0: Speed control 1: Torque control	0	-	Real-time
CC-92	0xCC5C	Overspeed protection enable	0: Disable 1: Enable	1	-	At stop
CC-93	0xCC5D	Asynchronous motor SVC runaway protection enable	0: Disable 1: Enable	0	-	At stop
CC-94	0xCC5E	Asynchronous motor SVC runaway protection detection time	0.05 to 0.50	0.10	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CC-95	0xCC5F	Asynchronous motor SVC runaway protection fault threshold	10.0 to 50.0	15.0	%	Real-time
CC-96	0xCC60	Speed reversal protection	0: Disable 1: Enable	0	-	At stop
CC-97	0xCC61	Speed reversal detection time	0.00 to 5.00	0.50	s	Real-time
CC-98	0xCC62	DC braking current rise time	0.00 to 100.00	0.00	s	At stop
CC-99	0xCC63	DC braking superposition frequency	0.00 to 100.00	0.00	Hz	Real-time
CD-05	0xCD05	Frequency for SVC mode switchover of asynchronous motor	10 to 20	15	%	At stop
CD-06	0xCD06	DC starting frequency of asynchronous motor in SVC mode	0.1 to 20.0	0.5	%	Real-time
CD-07	0xCD07	Defines the asynchronous motor SVC observer gain 1.	10 to 500	100	%	Real-time
CD-08	0xCD08	Observer gain 2 of asynchronous motor in SVC mode	10 to 100	20	%	Real-time
CD-09	0xCD09	Observer mode of asynchronous motor in SVC mode	0 to 3	0	-	At stop
CD-10	0xCD0A	Pre-excitation of asynchronous motor in SVC mode	0 to 1	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CD-11	0xCD0B	Flying start of asynchronous motor in SVC mode	0 to 1	0	-	At stop
CD-12	0xCD0C	High-speed gain of asynchronous motor	0.0 to 3.0	0.5	-	At stop
CD-14	0xCD0E	Synchronous motor 1 model control	bit0: Low-speed handling bit1: Low-speed handling 1 bit2: Online auto-tuning of resistance bit3: Online auto-tuning of back EMF bit4: KS	5	-	Real-time
CD-15	0xCD0F	Synchronous motor model K1	10 to 3000	200	Hz	Real-time
CD-16	0xCD10	Synchronous motor model K1Max	100 to 6000	3000	%	Real-time
CD-17	0xCD11	Synchronous motor model KsMin	0.0 to 4.0	0.3	-	Real-time
CD-18	0xCD12	Synchronous motor model Kspeed	50 to 2000	400	Hz	Real-time
CD-19	0xCD13	Frequency filter time constant of synchronous motor	2 to 100	10	ms	Real-time
CD-20	0xCD14	Rs online auto-tuning frequency upper limit of synchronous motor	1.0 to 20.0	3.5	%	Real-time
CD-21	0xCD15	Synchronous motor model Kr	0 to 50	10	-	Real-time
CD-22	0xCD16	Synchronous motor model Kr1	0 to 50	5	%	Real-time
CD-23	0xCD17	Low-speed d-axis injection current of synchronous motor	0 to 100	20	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CD-24	0xCD18	Synchronous motor model LowFreqTime1	0 to 500	50	-	Real-time
CD-27	0xCD1B	Online auto-tuning frequency lower limit of back EMF	10 to 100	25	%	Real-time
CD-28	0xCD1C	Synchronous motor model LowFreq	0.0 to 2.0	0.3	%	Real-time
CD-29	0xCD1D	Synchronous motor model LowFreqTime	0 to 100	10	-	Real-time
CD-30	0xCD1E	Magnetic pole auto-tuning current percentage	30 to 200	130	%	Real-time
CD-31	0xCD1F	High frequency response current percentage	0 to 100	25	%	Real-time
CD-32	0xCD20	HFI-to-SVC switchover frequency percentage	0 to 30	10	%	Real-time
CD-33	0xCD21	Observer parameter	10 to 200	100	-	Real-time
CD-34	0xCD22	Speed filter cut-off frequency	1 to 200	10	Hz	Real-time
CD-35	0xCD23	Carrier frequency during NS auto-tuning	2.00 to 16.00	8.00	Hz	Real-time
CD-36	0xCD24	Automatic calculation of NS auto-tuning voltage	0: Assigned manually 1: Automatic calculation	1	-	Real-time
CD-37	0xCD25	Percentage of NS auto-tuning voltage set manually	0 to 100	10	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CD-38	0xCD26	Duration of high frequency injection stage 1	50 to 500	150	ms	Real-time
CD-40	0xCD28	Speed loop proportional gain 1	1 to 300	30	-	Real-time
CD-41	0xCD29	Speed loop integral time 1	0.01 to 10.00	0.50	s	Real-time
CD-42	0xCD2A	Switchover frequency 1	0.00 to CD-45	5.00	Hz	Real-time
CD-43	0xCD2B	Speed loop proportional gain 2	1 to 300	20	-	Real-time
CD-44	0xCD2C	Speed loop integral time 2	0.01 to 10.00	1.00	s	Real-time
CD-45	0xCD2D	Switchover frequency 2	CD-42~F0-10	10.00	Hz	Real-time
CD-46	0xCD2E	Vector control slip gain	50 to 200	100	%	Real-time
CD-47	0xCD2F	Speed feedback filter time in SVC mode	0.000 to 0.100	0.015	s	Real-time
CD-49	0xCD31	Torque upper limit source in speed control mode (motoring)	0: CD-50 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) Others: F connector	0	-	Real-time
CD-50	0xCD32	Digital setting of torque upper limit in speed control mode	0.0 to 600.0	150.0	%	Real-time
CD-51	0xCD33	Torque upper limit source in speed control mode (generating)	0: CD-50 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) 8: CD-52 Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CD-52	0xCD34	Digital setting of torque upper limit in speed control mode (generating)	0.0 to 600.0	150.0	%	Real-time
CD-53	0xCD35	Current loop mode of synchronous motor	0: No field weakening 1: Automatic adjustment 2: Calculation + automatic adjustment 3: Normal mode of synchronous motor 4: Normal mode of asynchronous motor	1	-	At stop
CD-54	0xCD36	Field weakening gain	0.1 to 200.0	20.0	-	Real-time
CD-57	0xCD39	Generating power limit	0: Invalid 1: Active in the whole process 2: Active during operation at constant speed 3: Active during deceleration	0	-	Real-time
CD-58	0xCD3A	Generating power upper limit	0.0 to 200.0	20.0	%	Real-time
CD-59	0xCD3B	Motor 4 control mode	0: SVC 2: V/f	2	-	At stop
CD-60	0xCD3C	Initial position angle detection current of synchronous motor	50 to 180	80	-	At stop
CD-61	0xCD3D	Synchronous motor initial position angle detection	0: Detected every time upon operation 1: Not detected 2: Detected during initial operation upon power-on	0	-	Real-time
CD-63	0xCD3F	Saliency ratio adjustment gain of synchronous motor	0.20 to 3.00	1.00	-	Real-time
CD-64	0xCD40	Control on maximum ratio of torque to current of synchronous motor	0: Inactive 1: Active	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CD-65	0xCD41	Signal Z correction	0: Disable 1: Active	1	-	Real-time
CD-67	0xCD43	Low speed carrier frequency	0.5 to F0-15	2.0	kHz	Real-time
CD-68	0xCD44	Position lock enable	0 to 1	0	-	Real-time
CD-69	0xCD45	Switchover frequency	0.00 to CD-42	0.30	Hz	Real-time
CD-70	0xCD46	Zero servo speed loop proportional gain	1 to 100	10	-	Real-time
CD-71	0xCD47	Position lock speed loop integral time	0.01 to 10.00	0.50	s	Real-time
CD-74	0xCD4A	Motor tuning-free mode	0: Disable 1: Motor parameter auto-tuning before initial operation after power-on 2: Motor parameter auto-tuning before operation	0	-	Real-time
CD-76	0xCD4C	Initial position compensation angle	0.0 to 359.9	0.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CD-80	0xCD50	Speed loop command word	bit0: Speed loop enable 0: Disable 1: Enable bit1: Integral mode 0: Traditional integral 1: Position-type integral bit2: Speed loop feedforward 0: Disable 1: Enable bit3: Acceleration source selection 0: RFG acceleration set by parameter 1: Automatic calculation 2: RFG acceleration set by parameter Bit 5: Anti-load disturbance 0: Disable 1: Enable bit9: Speed loop output torque limit adjustment with additional torque 0: Disable 1: Enable bit10: Balanced filter 0: Disable 1: Enable	19	-	Real-time
CD-81	0xCD51	Fast integral cancel coefficient upon stalled motor	0.0 to 100.0	0.0	%	Real-time
CD-82	0xCD52	Digital setting of integral torque	-100.0 to 100.0	0.0	%	Real-time
CD-83	0xCD53	Frequency window of speed controller	0.00 to 10.00	0.00	Hz	At stop
CD-84	0xCD54	Current filter time for torque reference	0.0 to 100.0	0.0	ms	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CD-85	0xCD55	Acceleration torque (reserved)	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
CD-87	0xCD57	See the bandwidth of the model.	0.00 to 300.00	0.00	Hz	Real-time
CD-88	0xCD58	Torque feedforward coefficient	0.0 to 6553.5	100.0	%	Real-time
CD-89	0xCD59	Frequency filter time in vector control	0.0 to 100.0	0.0	ms	At stop
CD-90	0xCD5A	Filter time for feedback frequency in vector control	0.0 to 100.0	0.0	ms	At stop
CD-91	0xCD5B	Load observation bandwidth	0.00 to 300.00	0.00	Hz	Real-time
CD-92	0xCD5C	Load observation coefficient	0.0 to 1000.0	100.0	%	Real-time
CD-93	0xCD5D	Pseudo-integral coefficient	0.000 to 10.000	1.000	-	Real-time
CD-94	0xCD5E	Torque coefficient	0: Disable 1: Enable	1	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CD-95	0xCD5F	Low-frequency Kp switchover selection	0: 0 1: 1 2: Terminal input function 3: DI1 4: DI2 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector Note: When this parameter is set to a value from 3 to 18 (DI1 to DI16), low-frequency Kp switching is performed when the DI is active high.	0	-	Real-time
CD-96	0xCD60	Center frequency of notch filter 1	0.0 to 4000.0	4000.0	-	Real-time
CD-97	0xCD61	Center frequency of notch filter 2	0.0 to 4000.0	4000.0	-	Real-time
CD-98	0xCD62	Integral setting control word	0: Invalid 1: Valid Others: B connector	0	-	Real-time
CD-99	0xCD63	Integral setting source	0: Digital setting 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-00	0xCE00	Externally transferred acceleration (reserved)	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
CE-01	0xCE01	Current deviation threshold	0.3 to 2.0	0.5	-	At stop
CE-02	0xCE02	Current filter cycle setting	0 to 100	1	-	At stop
CE-03	0xCE03	Breakdown torque limit coefficient	0.0 to 400.0	100.0	%	Real-time
CE-04	0xCE04	Motoring load power limit coefficient	0.0 to 400.0	400.0	%	Real-time
CE-05	0xCE05	Generating load power limit coefficient.	0.0 to 400.0	400.0	%	Real-time
CE-06	0xCE06	Overspeed limit	0 to 1	1	-	Real-time
CE-07	0xCE07	Sine frequency setting of bandwidth test	0 to 1000	0	Hz	Real-time
CE-08	0xCE08	Sine amplitude setting of bandwidth test	0 to 100	0	%	Real-time
CE-09	0xCE09	Bandwidth test enabling	0 to 4	0	-	Real-time
CE-10	0xCE0A	Torque coefficient adjustment value	0.0 to 200.0	100.0	%	Real-time
CE-11	0xCE0B	Speed loop parameter calculation mode	0: New solution 1: Compatible mode	1	-	At stop
CE-14	0xCE0E	SVC speed loop proportional gain	0.00 to 100.00	5.00	Hz	Real-time
CE-15	0xCE0F	SVC speed loop integral time	0.000 to 20.000	0.127	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-16	0xCE10	Low frequency scaling correction coefficient	0.0 to 1000.0	100.0	%	Real-time
CE-17	0xCE11	Low frequency integral correction coefficient	0.0 to 1000.0	100.0	%	Real-time
CE-18	0xCE12	Speed loop adaptive factor	0: Invalid 1: AI1 2: AI2 3: AI3 4: Pulse setting (DI5) 5: Communication 6: Multi-reference 7: Motorized potentiometer 8: PID Others: F connector	0	-	Real-time
CE-19	0xCE13	Lower limit of speed loop adaptive switchover	0.000 to 10.000	0.400	-	Real-time
CE-20	0xCE14	Upper limit of speed loop adaptive switchover	0.000 to 10.000	1.000	-	Real-time
CE-21	0xCE15	Upper limit of speed loop adaptive correction	0.0 to 1000.0	100.0	%	Real-time
CE-22	0xCE16	Lower limit of speed loop adaptive correction	0.0 to 1000.0	100.0	%	Real-time
CE-23	0xCE17	Magnetic flux adaptation	0 to 1	1	-	Real-time
CE-24	0xCE18	Overspeed controller correction coefficient	0.0 to 1000.0	100.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-25	0xCE19	Vector overvoltage/ undervoltage suppression control command word	bit0: Undervoltage suppression 0: Disable 1: Enable bit1: Overvoltage suppression 0: Disable 1: Enable bit2: Automatic calculation of overvoltage/undervoltage suppression threshold 0: Disable 1: Enable bit3: Overvoltage/undervoltage suppression integral action 0: Disable 1: Enable	0	-	Real-time
CE-26	0xCE1A	Bus capacitance ratio	50.0 to 1000.0	100.0	%	Real-time
CE-27	0xCE1B	Vector undervoltage suppression exit from hysteresis frequency	0.00 to 10.00	3.00	Hz	Real-time
CE-28	0xCE1C	Speed threshold for vector undervoltage suppression failure	0.00 to 20.00	2.00	Hz	Real-time
CE-29	0xCE1D	Dynamic adjustment coefficient of overvoltage/ undervoltage suppression	0.0 to 1000.0	100.0	%	Real-time
CE-30	0xCE1E	Defines the activation voltage of vector undervoltage suppression.	320.0 to 540.0	430.0	V	Real-time
CE-31	0xCE1F	Activation voltage of vector overvoltage suppression	650.0 to 800.0	770.0	V	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-32	0xCE20	Flux linkage control command word	bit0: Filtering method for output voltage limit calculation 0: Symmetric filtering 1: Asymmetric filtering bit1: Asynchronous motor inverse curve calculation method 0: Decrease inversely proportional to synchronous frequency 1: Decrease inversely proportional to speed bit2: Flux linkage feedforward calculation inversely proportional to speed 0: Disable 1: Enable bit3: Reserved bit4: Reserved bit5: Field weakening adjustment 0: Disable 1: Enable bit6: Flux derivative feedforward 0: Disable 1: Enable bit7: Energy conservation control 0: Disable 1: Enable bit8: Asynchronous motor flux closed-loop 0: Disable 1: Enable bit9: Reserved bit10: Reserved bit11: Asynchronous motor pre-excitation mode 0: Time-based pre-excitation 1: Current-based pre-excitation bit12: Asynchronous motor pre-excitation current mode 0: Current reference-based pre-excitation 1: Maximum current allowed by the platform bit13: Reserved bit14: Voltage outer loop mode 0: Voltage outer loop mode 0 1: Voltage outer loop mode 1	18741	-	Real-time
CE-33	0xCE21	Voltage margin	1 to 50	3	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-34	0xCE22	Margin of output voltage upper limit of synchronous motor through automatic adjustment	1 to 20	3	%	Real-time
CE-35	0xCE23	Filter time calculation of max. output voltage	0 to 3000	10	ms	Real-time
CE-36	0xCE24	Rated flux adjustment coefficient calculated	0.1 to 2.0	1.0	-	Real-time
CE-37	0xCE25	Field weakening frequency threshold adjustment coefficient calculated	0.8 to 1.2	1.1	-	Real-time
CE-38	0xCE26	Slip filter time of field weakening frequency threshold calculation	0 to 3000	62	ms	Real-time
CE-39	0xCE27	Feedback speed filter	0 to 8000	50	ms	Real-time
CE-40	0xCE28	Flux linkage rise filter time	0 to 8000	20	ms	Real-time
CE-41	0xCE29	Field weakening control gain	1 to 200	50	ms	Real-time
CE-42	0xCE2A	Feedback voltage filter time	0 to 3000	0	ms	Real-time
CE-43	0xCE2B	Maximum demagnetization current of synchronous motor	0 to 500	300	%	Real-time
CE-44	0xCE2C	Voltage outer loop lower limit coefficient	0 to 500	50	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-45	0xCE2D	Flux linkage differential feedforward coefficient	0.0 to 1.5	1.0	-	Real-time
CE-46	0xCE2E	Flux linkage differential feedforward filter time	0 to 3000	6	ms	Real-time
CE-47	0xCE2F	Filter time upon energy-saving control torque current rise	0 to 3000	50	ms	Real-time
CE-48	0xCE30	Filter time upon energy-saving control torque current drop	0 to 3000	100	ms	Real-time
CE-49	0xCE31	Flux linkage lower limit coefficient under energy conservation control	0.00 to 0.50	0.10	-	Real-time
CE-50	0xCE32	Switchover frequency coefficient	0.0 to 10.0	1.0	-	At stop
CE-51	0xCE33	Pre-excitation current	1 to 200	100	%	Real-time
CE-52	0xCE34	Pre-excitation time	1 to 30000	1000	ms	Real-time
CE-53	0xCE35	Flux linkage closed loop bandwidth frequency	0.0 to 100.0	1.0	Hz	Real-time
CE-54	0xCE36	Feedback flux linkage filter time coefficient	0 to 200	4	-	Real-time
CE-55	0xCE37	Static output flux linkage filter time	0 to 5000	10	ms	Real-time
CE-56	0xCE38	Current loop mode selection	0: ImCsr2 mode 1: Complex vector mode 2: 880 mode 3: Non-field weakening mode	1	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-57	0xCE39	The PI regulator proportion gain changes automatically with the load.	0: Invalid 1: Active	0	-	At stop
CE-58	0xCE3A	Current loop damping	0.2 to 10.0	0.8	-	Real-time
CE-59	0xCE3B	Current loop Kp adjustment at low speed	0.1 to 10.0	1.0	-	Real-time
CE-60	0xCE3C	Current loop Kp adjustment at high speed	0.1 to 10.0	1.0	-	Real-time
CE-61	0xCE3D	Current loop Ki adjustment at low speed	0.1 to 10.0	1.0	-	Real-time
CE-62	0xCE3E	Current loop Ki adjustment at high speed	0.1 to 10.0	2.0	-	Real-time
CE-63	0xCE3F	Used to set D-axis current loop complex vector adjustment.	0.1 to 10.0	1.0	-	Real-time
CE-64	0xCE40	Used to set Q-axis current loop complex vector adjustment.	0.1 to 10.0	1.0	-	Real-time
CE-65	0xCE41	Used to set the lower limit of complex vector hysteresis frequency, which is a percentage of rated frequency.	0 to CE-66	0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-66	0xCE42	Used to set the upper limit of complex vector hysteresis frequency, which is a percentage of rated frequency.	CE-65~150	0	%	Real-time
CE-67	0xCE43	Used to set the upper limit voltage for ImCsr2 hysteresis switchover, which is a percentage of saturation voltage.	CE-68~95	89	%	Real-time
CE-68	0xCE44	Used to set the lower limit voltage for ImCsr2 hysteresis switchover, which is a percentage of saturation voltage.	60 to CE-67	79	%	Real-time
CE-69	0xCE45	Used to set ImCsr2 hysteresis range of hysteresis switchover frequency, which is a percentage of rated frequency.	1 to 30	10	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-70	0xCE46	Used to set the lower limit of ImCsr2 hysteresis switchover frequency. The frequency hysteresis condition does not activate when this value is not reached. The setpoint is a percentage of rated frequency.	20 to 150	75	%	Real-time
CE-71	0xCE47	Used to adjust Kss of ImCsr2 current loop.	0.1 to 10.0	1.0	-	Real-time
CE-72	0xCE48	Used to set the proportional gain adjustment coefficient corresponding to the max. torque.	0.1 to 1.0	0.5	-	Real-time
CE-73	0xCE49	Used to set the torque upper limit, which is a percentage of the rated torque.	CE-74~300	200	%	Real-time
CE-74	0xCE4A	Used to set the torque lower limit, which is a percentage of the rated torque.	10 to CE-73	100	%	Real-time
CE-75	0xCE4B	Used to adjust differential feedforward.	0.0 to 1.0	0.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-76	0xCE4C	Used to set decoupling control starting frequency, which is a percentage of rated frequency.	20 to 150	60	%	Real-time
CE-77	0xCE4D	Used to set the filter time adjustment coefficient of decoupling control.	0.1 to 3.0	1.0	-	Real-time
CE-78	0xCE4E	Used to set decoupling control output adjustment coefficient.	0.0 to 1.0	0.7	-	Real-time
CE-79	0xCE4F	CPC feedforward	0: Disable 1: Enable	0	-	Real-time
CE-80	0xCE50	Current loop auxiliary command word	bit0: Complex vector angle limit 0: Disable 1: Enable bit1: Voltage angle limit selection 0: Limited internally 1: Parameter setting bit2: Default value 0 0: No limit on excitation current lower limit during dynamic process 1: Limit on excitation current lower limit during dynamic process in ImCsr2 mode bit3: Default value 0 reserved	0	-	Real-time
CE-81	0xCE51	Defines voltage angle upper limit.	90 to 180	150	°	Real-time
CE-82	0xCE52	Defines voltage angle lower limit.	0 to 90	30	°	Real-time
CE-83	0xCE53	Defines asynchronous motor D-axis integral limit.	0.500 to 1.000	0.707	-	Real-time
CE-84	0xCE54	Defines current loop carrier frequency upper limit.	5.0 to 16.0	8.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-85	0xCE55	Droop enable	0 to 1	0	-	At stop
CE-86	0xCE56	Soften source	0: Line current 1: Torque reference 2: Speed regulator output 3: Integral component of speed regulator	1	-	At stop
CE-87	0xCE57	Frequency droop coefficient reference	0.0 to 50.0	0.0	%	Real-time
CE-91	0xCE5B	Active short circuit control	0: Disable 1: Enable	0	-	At stop
CE-92	0xCE5C	Delay time for entering active short circuit control	0.0 to 5000.0	0.0	ms	At stop
CE-93	0xCE5D	Holding time of active short circuit control at stop	0.1 to 3600.0	10.0	s	At stop
CE-94	0xCE5E	Current hysteresis loop high point coefficient in active short circuit control	0.0 to 120.0	80.0	%	At stop
CE-95	0xCE5F	Current hysteresis loop high/low point coefficient ratio in active short circuit control	0.0 to 99.9	90.0	%	At stop
CE-96	0xCE60	Overvoltage threshold in active short circuit control	330.0 to 820.0	780.0	V	At stop
CE-97	0xCE61	Voltage control point in active short circuit control	330.0 to CE-96	750.0	V	At stop
CE-98	0xCE62	Voltage control bandwidth in active short circuit control	0.00 to 100.00	5.00	Hz	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
CE-99	0xCE63	Voltage control time constant in active short circuit control	0.001 to 10.000	0.500	s	At stop
D1-00	0xD100	Tension control mode	0: Invalid 1: Open-loop torque control mode 2: Closed-loop speed control mode 3: Closed-loop torque control mode 4: Constant linear speed control mode	0	-	At stop
D1-01	0xD101	Winding mode	0: Winding 1: Unwinding	0	-	Real-time
D1-02	0xD102	Reverse tightening selection upon unwinding	0.0 to 500.0	0.0	m/min	Real-time
D1-03	0xD103	Mechanical transmission ratio	0.01 to 300.00	1.00	-	Real-time
D1-04	0xD104	Linear speed input source	0: Digital setting (D1-05) 1: AI1 2: AI2 3: AI3 4: Pulse input (DI5) 5: Communication (1000H)	0	-	At stop
D1-05	0xD105	Digital setting of linear speed input	0.0 to D1-06	0.0	m/min	Real-time
D1-06	0xD106	Maximum linear speed	0.0 to 6500.0	1000.0	m/min	Real-time
D1-07	0xD107	Minimum linear speed for roll diameter calculation	0.0 to D1-06	20.0	m/min	Real-time
D1-08	0xD108	Roll diameter not calculated in jogging	0: Disable 1: Enable	0	-	At stop
D1-09	0xD109	Roll diameter calculation method	0: Calculate the roll diameter based on the linear speed 1: Calculated based on cumulative thickness 2: AI1 3: AI2 4: AI3 5: Pulse input (DI5) 6: Communication 7: D1-16	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D1-10	0xD10A	Maximum roll diameter	D1-11~6000.0	500.0	mm	Real-time
D1-11	0xD10B	Empty reel diameter	0.1 to D1-10	100.0	mm	Real-time
D1-12	0xD10C	Initial reel diameter source	0: D1-13 (Initial winding diameter 1) to D1-15 (Initial winding diameter 3) 1: AI1 2: AI2 3: AI3 4: Communication (1000H)	0	-	At stop
D1-13	0xD10D	Initial roll diameter 1	D1-11~D1-10	100.0	mm	Real-time
D1-14	0xD10E	Initial roll diameter 2	D1-11~D1-10	100.0	mm	Real-time
D1-15	0xD10F	Initial roll diameter 3	D1-11~D1-10	100.0	mm	Real-time
D1-16	0xD110	Current reel diameter	D1-11~D1-10	100.0	mm	Real-time
D1-17	0xD111	Roll diameter not reset upon stop	0: Disable 1: Enable	0	-	Real-time
D1-18	0xD112	Roll diameter filter time	0.00 to 10.00	5.00	s	Real-time
D1-19	0xD113	Roll diameter change rate	0.0 to 1000.0	0.0	-	Real-time
D1-20	0xD114	Roll diameter change direction limit	0: Disable 1: Decrease inhibited during winding, and increase inhibited during unwinding	0	-	Real-time
D1-21	0xD115	Roll diameter reset allowed during operation	0 to 1	0	-	Real-time
D1-22	0xD116	Pre-drive speed gain	-100.0 to 200.0	0.0	%	Real-time
D1-23	0xD117	Pre-charge torque limit source	0: F2-09 1: Torque in tension control mode	1	-	At stop
D1-24	0xD118	Pre-charge torque correction	-100.0 to 100.0	0.0	%	Real-time
D1-26	0xD11A	Pre-charge acceleration time	0.0 to 6000.0	20.0	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D1-27	0xD11B	Pre-charge deceleration time	0.0 to 6000.0	20.0	s	Real-time
D1-28	0xD11C	Minimum pre-drive torque limit	0.0 to 100.0	0.0	-	Real-time
D1-29	0xD11D	Pre-drive roll diameter calculation function	0 to 1	0	-	Real-time
D1-30	0xD11E	Tension frequency limit	0.0 to 100.0	50.0	%	Real-time
D1-31	0xD11F	Tension frequency limit offset	0.00 to 100.00	5.00	Hz	Real-time
D1-32	0xD120	Tension frequency limit enable	0: Disable 1: Enable	0	-	Real-time
D1-33	0xD121	Closed-loop tension torque mode selection	0: Torque is calculated by pure PID 1: Torque is calculated by main frequency + PID	0	-	At stop
D1-34	0xD122	Torque limit in tension closed-loop mode	0.0 to 200.0	100.0	%	Real-time
D1-35	0xD123	Number of pulses per revolution	1 to 60000	1	-	Real-time
D1-36	0xD124	Number of revolutions per layer	1 to 10000	1	-	Real-time
D1-37	0xD125	Material thickness setting source	0: Digital setting 1: AI1 2: AI2 3: AI3	0	-	At stop
D1-38	0xD126	Material thickness 0	0.01 to 100.00	0.01	mm	Real-time
D1-39	0xD127	Material thickness 1	0.01 to 100.00	0.01	mm	Real-time
D1-40	0xD128	Material thickness 2	0.01 to 100.00	0.01	mm	Real-time
D1-41	0xD129	Material thickness 3	0.01 to 100.00	0.01	mm	Real-time
D1-42	0xD12A	Maximum thickness	0.01 to 100.00	1.00	mm	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D1-44	0xD12C	Constant linear speed source selection	0: Digital setting (D1-45) 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Communication (1000H)	0	-	At stop
D1-45	0xD12D	Digital setting of constant linear speed input	0.0 to D1-06	0.0	m/min	Real-time
D1-46	0xD12E	Tension control speed limit offset	0.00 to F0-10	0.00	Hz	Real-time
D1-47	0xD12F	Tension control torque mode	0: Bidirectional offset 1: Unidirectional bias	1	-	At stop
D1-48	0xD130	Cable drum application mode	0: Horizontal cable drum application 1: Vertical cable drum application	0	-	At stop
D1-49	0xD131	Pulse counting mode	0: Calculated according to winding/unwinding mode 1: Calculated according to motor running direction	0	-	At stop
D1-50	0xD132	Unwinding compensation	0.0 to 100.0	0.0	%	Real-time
D1-51	0xD133	Minimum tension reference for vertical cable drum applications	0 to D2-02	500	N	Real-time
D1-52	0xD134	Maximum torque reference for vertical cable drum applications	D1-53~200.0	0.0	%	Real-time
D1-53	0xD135	Minimum torque reference for vertical cable drum applications	0.0 to D1-52	0.0	%	Real-time
D1-54	0xD136	Automatic material run-out detection	0: Disable 1: Enable	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D1-55	0xD137	Minimum linear speed of automatic material run-out detection	D1-07~D1-06	20.0	-	Real-time
D1-56	0xD138	Error range of automatic material run-out detection	0.1 to 50.0	10.0	%	Real-time
D1-57	0xD139	Judgment delay of automatic material run-out detection	0.1 to 60.0	2.0	-	Real-time
D2-00	0xD200	Tension setting source	0: D2-01 1: AI1 2: AI2 3: AI3 4: Pulse reference (DI5) 5: Communication (1000H)	0	-	At stop
D2-01	0xD201	Tension digital setting	0 to D2-02	50	N	Real-time
D2-02	0xD202	Maximum tension	0 to 65000	500	N	Real-time
D2-03	0xD203	Zero speed threshold	0.0 to 20.0	0.0	%	Real-time
D2-04	0xD204	Zero-speed tension rise	0.0 to 100.0	0.0	%	Real-time
D2-05	0xD205	Frequency acceleration time in torque control mode	0.0 to 6500.0	0.0	s	Real-time
D2-06	0xD206	Frequency deceleration time in torque control mode	0.0 to 6500.0	0.0	s	Real-time
D2-07	0xD207	Friction force compensation	0.0 to 50.0	0.0	%	Real-time
D2-08	0xD208	Mechanical inertia compensation coefficient	0 to 65535	0	$N \cdot m^2$	Real-time
D2-09	0xD209	Correction of acceleration inertia compensation	0.0 to 200.0	100.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D2-10	0xD20A	Correction of deceleration inertia compensation	0.0 to 200.0	100.0	%	Real-time
D2-11	0xD20B	Material density	0 to 65535	0	kg/m^3	Real-time
D2-12	0xD20C	Material width	0 to 65535	0	mm	Real-time
D2-13	0xD20D	Inertia compensation exit delay	0 to 1000	0	ms	Real-time
D2-14	0xD20E	Zero-speed compensation over-frequency	0.00 to 20.00	2.00	Hz	Real-time
D2-15	0xD20F	Open-loop torque reversal	0: Reverse torque inhibited 1: Reverse torque allowed	0	-	Real-time
D2-16	0xD210	Friction force compensation curve	-50.0 to 50.0	0.0	-	Real-time
D2-17	0xD211	Friction force compensation curve	0: Frequency 1: Linear speed 2: Multi-segment friction force compensation curve 1 3: Multi-friction force compensation curve 2	0	-	At stop
D2-18	0xD212	Multi-friction force compensation torque 1	0.0 to 50.0	0.0	%	Real-time
D2-19	0xD213	Multi-friction force compensation torque 2	0.0 to 50.0	0.0	%	Real-time
D2-20	0xD214	Multi-friction force compensation torque 3	0.0 to 50.0	0.0	%	Real-time
D2-21	0xD215	Multi-friction force compensation torque 4	0.0 to 50.0	0.0	%	Real-time
D2-22	0xD216	Multi-friction force compensation torque 5	0.0 to 50.0	0.0	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D2-23	0xD217	Multi-friction force compensation torque 6	0.0 to 50.0	0.0	%	Real-time
D2-24	0xD218	Multi-friction force compensation inflection point 1	0.00 to F0-10	0.00	Hz	Real-time
D2-25	0xD219	Multi-friction force compensation inflection point 2	0.00 to F0-10	0.00	Hz	Real-time
D2-26	0xD21A	Multi-friction force compensation inflection point 3	0.00 to F0-10	0.00	Hz	Real-time
D2-27	0xD21B	Multi-friction force compensation inflection point 4	0.00 to F0-10	0.00	Hz	Real-time
D2-28	0xD21C	Multi-friction force compensation inflection point 5	0.00 to F0-10	0.00	Hz	Real-time
D2-29	0xD21D	Multi-friction force compensation inflection point 6	0.00 to F0-10	0.00	Hz	Real-time
D2-30	0xD21E	Tension setup	0: Disable 1: Active	0	-	At stop
D2-31	0xD21F	Tension setup dead zone	0.0 to 100.0	2.0	%	Real-time
D2-32	0xD220	Tension setup frequency	0.00 to F0-10	0.10	Hz	Real-time
D2-33	0xD221	Terminal torque boost proportion	0.0 to 500.0	50.0	%	Real-time
D2-34	0xD222	Terminal torque boost cancellation time	0.0 to 50.0	0.0	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D2-35	0xD223	Reel diameter auto-tuning coefficient	0 to 60000	100	%	Real-time
D2-36	0xD224	Initial roll diameter auto-tuning	0: Disable 1: Active	0	-	At stop
D2-37	0xD225	Rod length	1 to 65535	300	mm	At stop
D2-38	0xD226	Rod angle	0.1 to 360.0	40.0	°	At stop
D2-39	0xD227	Swing rod angle auto-tuning for reel diameter	0.0 to 100.0	50.0	%	Real-time
D2-40	0xD228	Acceleration/ deceleration time of tension setup	0.0 to 60.0	10.0	s	Real-time
D2-41	0xD229	Filter time of torque compensation	0 to 1000	20	-	Real-time
D2-42	0xD22A	Torque compensation gain	0.0 to 6000.0	100.0	%	Real-time
D2-44	0xD22C	Proportional gain Kp1 for tension setup	0.0 to 1000.0	20.0	-	Real-time
D2-45	0xD22D	Integral time Ti1 for tension setup	0.01 to 10.00	2.00	s	Real-time
D2-46	0xD22E	Derivative time Td1 for tension setup	0.000 to 10.000	0.000	s	Real-time
D2-47	0xD22F	Linear speed zero-crossing judgment	0.0 to 1000.0	0.0	-	Real-time
D2-48	0xD230	Minimum frequency of tension setup (under maximum reel diameter)	0.00 to F0-10	0.10	Hz	Real-time
D2-49	0xD231	Torque compensation effective time	0.00 to 650.00	2.00	s	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D2-50	0xD232	Minimum torque compensation gain	0.0 to 6000.0	100.0	%	Real-time
D2-51	0xD233	Proportional gain Kp1 for emergency stop	0.0 to 1000.0	20.0	-	Real-time
D2-52	0xD234	Integral time Ti1 for emergency stop	0.01 to 10.00	2.00	s	Real-time
D2-53	0xD235	Derivative time Td1 for emergency stop	0.000 to 10.000	0.000	s	Real-time
D2-54	0xD236	PI function selection for emergency stop	0 to 1	0	-	Real-time
D3-00	0xD300	Taper curve	0: Curve taper 1: Multi-linear taper	0	-	At stop
D3-01	0xD301	Tension taper source	0: D3-02 1: AI1 2: AI2 3: AI3 4: Communication (1000H)	0	-	At stop
D3-02	0xD302	Taper digital setting	0.0 to 100.0	0.0	%	Real-time
D3-03	0xD303	Taper compensation change	0 to 10000	0	mm	Real-time
D3-05	0xD305	Setting channel of external taper AO	0: D3-06 1: AI1 2: AI2 3: AI3 4: Communication (1000H)	0	-	At stop
D3-06	0xD306	External taper setting	0.0 to 100.0	100.0	%	Real-time
D3-08	0xD308	Minimum roll diameter taper	0.0 to 100.0	100.0	%	Real-time
D3-09	0xD309	Linear taper switchover point 1	D1-11~D3-11	150.0	mm	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D3-10	0xD30A	Taper of switchover point 1	0.0 to 100.0	100.0	%	Real-time
D3-11	0xD30B	Linear taper switchover point 2	D3-09~D3-13	200.0	mm	Real-time
D3-12	0xD30C	Taper of switchover point 2	0.0 to 100.0	90.0	%	Real-time
D3-13	0xD30D	Linear taper switchover point 3	D3-11~D3-15	250.0	mm	Real-time
D3-14	0xD30E	Taper of switchover point 3	0.0 to 100.0	80.0	%	Real-time
D3-15	0xD30F	Linear taper switchover point 4	D3-13~D3-17	300.0	mm	Real-time
D3-16	0xD310	Taper of switchover point 4	0.0 to 100.0	70.0	%	Real-time
D3-17	0xD311	Linear taper switchover point 5	D3-15~D1-10	400.0	mm	Real-time
D3-18	0xD312	Taper of switchover point 5	0.0 to 100.0	50.0	%	Real-time
D3-19	0xD313	Max. roll diameter taper	0.0 to 100.0	30.0	-	Real-time
D4-00	0xD400	Power grid synchronization	0: Disable 1: Active	0	-	At stop
D4-01	0xD401	Drive contactor control signal source	0：(RO1)	0	-	Unchangeable
D4-02	0xD402	Drive contactor feedback signal source	0：(DI1)	0	-	Unchangeable
D4-03	0xD403	Grid contactor control signal source	1：(RO2)	1	-	Unchangeable
D4-04	0xD404	Grid contactor feedback signal source	1：(DI2)	1	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
D4-05	0xD405	Contactor test function switch	0: Disable 1: Active 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
D4-06	0xD406	Manual auto-tuning mode selection	0: No action 1: rid and drive contactor test 2: Drive contactor test 3: Grid contactor test	3	-	Real-time
D4-07	0xD407	Manual auto-tuning mode acknowledgment	0: Disable 1: Active	1	-	Real-time
D4-08	0xD408	Automatic test of variable frequency contactor	0: Invalid 1: Active 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D4-09	0xD409	Permission of automatic test of grid contactor	0: Invalid 1: Active 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
D4-10	0xD40A	Automatic test command of contactor	0: Disable 1: Active 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
D4-11	0xD40B	Hold time of tuning ON	1.0 to 60.0	5.0	s	Real-time
D4-12	0xD40C	Hold time of tuning OFF	1.0 to 60.0	5.0	s	Real-time
D4-13	0xD40D	Contactor delay difference threshold	1 to 200	10	ms	Real-time
D4-14	0xD40E	Variable frequency contactor ON delay	5 to 5000	10	ms	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D4-15	0xD40F	Variable frequency contactor OFF delay	5 to 5000	50	ms	Real-time
D4-16	0xD410	Grid contactor ON delay	5 to 5000	10	ms	Real-time
D4-17	0xD411	Grid contactor OFF delay	5 to 5000	50	ms	Real-time
D4-18	0xD412	Variable frequency-to-grid mode	1: [Time compensation switchover]	1	-	Unchangeable
D4-19	0xD413	Grid-to-variable frequency mode	0: Flying start switchover 1: [Time compensation switchover]	0	-	Real-time
D4-20	0xD414	Switchover mode between the variable frequency mode and grid mode	0: Level selection 1: Cyclic triggering mode 2: Independent triggering mode	0	-	Real-time
D4-21	0xD415	Operation mode switchover	0: Invalid 1: Active 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D4-22	0xD416	Operation mode level	0: Variable frequency mode 1: Power grid mode 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
D4-23	0xD417	Cyclic triggering source for switching between the variable frequency mode and grid mode	0: Invalid 1: Active 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D4-24	0xD418	Independent triggering source for switching from variable frequency mode to grid mode	0: Disable 1: Active 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
D4-25	0xD419	Independent triggering source for switching from power grid to drive	0: Disable 1: Active 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D4-26	0xD41A	Start command source	0: Disable 1: Active 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
D4-27	0xD41B	Start permission source	0: Disable 1: Active 5: DI3 6: DI4 7: DI5 8: DI6 9: DI7 10: DI8 11: DI9 12: DI10 13: DI11 14: DI12 15: DI13 16: DI14 17: DI15 18: DI16 Others: B connector	0	-	Real-time
D4-28	0xD41C	Phase synchronization regulator Kp	1.00 to 50.00	4.00	-	Real-time
D4-29	0xD41D	Phase synchronization regulator Ti	0.0 to 10.0	0.1	s	Real-time
D4-30	0xD41E	Phase synchronization regulator output limit	0.1 to 5.0	1.5	%	Real-time
D4-31	0xD41F	Grid frequency	30.0 to 70.0	50.0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D4-32	0xD420	Grid frequency error detection threshold	0.1 to 20.0	10.0	%	Real-time
D4-33	0xD421	Grid frequency error detection time	0.00 to 5.00	1.00	s	Real-time
D4-34	0xD422	Synchronous voltage judgment threshold	10.0 to 80.0	20.0	V	Real-time
D4-35	0xD423	Synchronous phase judgment threshold	0.1 to 10.0	2.0	-	Real-time
D4-36	0xD424	Synchronous time judgment threshold	0.05 to 5.00	2.00	s	Real-time
D4-37	0xD425	Variable frequency output voltage compensation mode	0: Disable voltage compensation 1: Compensation based on rated motor voltage base value 2: Compensation based on grid base value	0	-	Real-time
D4-38	0xD426	Grid switchover voltage compensation coefficient	1.000 to 1.200	1.100	-	Real-time
D4-39	0xD427	Variable frequency switchover voltage compensation factor	0.800 to 1.000	0.950	-	Real-time
D4-40	0xD428	Grid switchover phase compensation angle	-10.00 to +10.00	0.00	-	Real-time
D4-41	0xD429	Variable frequency switchover phase compensation angle	-10.00 to +10.00	0.00	-	Real-time
D4-42	0xD42A	Margin for switching to variable frequency time	0 to 100	10	ms	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D4-43	0xD42B	Margin for switching to mains frequency time	0 to 100	10	ms	Real-time
D4-44	0xD42C	RS voltage calibration factor	10.0 to 1000.0	100.0	%	Real-time
D4-45	0xD42D	ST voltage calibration factor	10.0 to 1000.0	100.0	%	Real-time
D4-46	0xD42E	RS voltage zero-drift calibration	-1000.0 to 1000.0	0.0	V	Real-time
D4-47	0xD42F	ST voltage zero-drift calibration	-1000.0 to 1000.0	0.0	V	Real-time
D4-48	0xD430	Grid phase lock loop bandwidth adjustment	10.0 to 1000.0	100.0	%	Real-time
D4-73	0xD449	Active logic of grid contactor feedback DI	Ones: DI1 0: Active high 1: Active low Tens: DI2 0: Active high 1: Active low Hundreds: Reserved Thousands: Reserved Ten thousands: Reserved	0	-	At stop
D6-00	0xD600	Speed open loop compensation coefficient	-0.50 to +0.50	0.00	-	Real-time
D6-02	0xD602	TB start	0: Invalid 1: OK	0	-	At stop
D6-03	0xD603	Maximum current of TB	0.0 to 1000.0	200.0	%	At stop
D6-04	0xD604	Maximum d-axis current of TB	0.0 to 500.0	150.0	%	At stop
D6-05	0xD605	TB coefficient	0 to 200	50	-	Real-time
D6-06	0xD606	TB test parameter 1	0.0 to 500.0	0.0	%	At stop
D6-07	0xD607	TB test parameter 2	0.0 to 1000.0	0.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D6-08	0xD608	HFI control word	bit0 and bit1: Configuration 1 0: Scheme 1 1: Scheme 2 2: Scheme 3 3: Reserved bit2 and bit3: Configuration 2 0: Scheme 1 1: Scheme 2 2: Scheme 3 3: Reserved	10	-	At stop
D6-09	0xD609	HFI coefficient 1	0 to 100	20	-	Real-time
D6-10	0xD60A	HFI coefficient 2	0 to 10000	500	-	Real-time
D6-11	0xD60B	HFI coefficient 3	0 to 10000	800	-	Real-time
D6-12	0xD60C	HFI coefficient 4	-50.0 to 50.0	0.0	-	Real-time
D6-13	0xD60D	HFI coefficient 5	0.00 to 100.00	5.00	-	Real-time
D6-14	0xD60E	HFI coefficient 6	0.00 to 100.00	2.50	-	Real-time
D6-15	0xD60F	HFI coefficient 7	0.00 to 100.00	2.50	-	Real-time
D6-16	0xD610	HFI coefficient 8	0.00 to 100.00	2.50	-	Real-time
D6-17	0xD611	Automatic calculation interval of feedforward torque acceleration	0 to 50	20	-	Real-time
D6-18	0xD612	Speed open loop of asynchronous motor	0: Disable 1: Enable	0	-	At stop
D6-19	0xD613	Speed open loop current of asynchronous motor	0 to 600	100	%	Real-time
D6-20	0xD614	Acceleration current for speed open loop of asynchronous motor	0 to 100	30	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D6-21	0xD615	Switchover frequency for speed open loop of asynchronous motor	1.0 to 10.0	2.0	%	At stop
D6-22	0xD616	Switchover hysteresis frequency for speed open loop of asynchronous motor	1.0 to 10.0	3.0	%	At stop
D6-23	0xD617	Waiting time for speed open loop of asynchronous motor	0.00 to 5.00	0.50	s	At stop
D6-24	0xD618	Minimum acceleration/ deceleration time for frequency for speed open loop of asynchronous motor	0.0 to 50.0	2.0	s	At stop
D6-25	0xD619	Current ramp time for speed open loop of asynchronous motor	0.000 to 1.000	0.030	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D6-26	0xD61A	Configuration word for speed open loop of asynchronous motor	bit0: Start with speed open loop 0: Disable 1: Active bit1: Stop with speed open loop 0: Disable 1: Active bit2: Keep speed closed loop during stall 0: Disable 1: Active bit3: Ignore waiting time for speed open loop 0: Disable 1: Active bit4: Slip compensation 0: Enable 1: Disable bit5: Low-speed slip compensation 0: Disable 1: Enable bit6: Speed fluctuation suppression 0: Enable 1: Disable bit7: Oscillation suppression 0: Enable 1: Disable bit8: Oscillation suppression mode 0: Mode 1 1: Mode 2 2: Mode 3 3: Mode 4 bit10: Convergence time selection 0: 1 1: 2 2: 3 3: 4 bit12: Stable frequency 1 selection 0: 1 1: 2 2: 3 3: 4 bit14: Stable frequency 2 selection 0: 1 1: 2	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D6-27	0xD61B	Speed fluctuation suppression coefficient for speed open loop of asynchronous motor	0 to 400	100	%	Real-time
D6-28	0xD61C	Oscillation suppression gain coefficient for speed open loop of asynchronous motor	0 to 400	100	%	Real-time
D6-29	0xD61D	Oscillation suppression filter cut-off frequency for speed open loop of asynchronous motor	0.2 to 50.0	1.0	Hz	At stop
D6-33	0xD621	Overcurrent threshold for demagnetization protection of reluctance motor	0.0 to 500.0	350.0	%	Real-time
D6-37	0xD625	Time for torque cancellation upon decelerate-to-stop	0.00 to 100.00	0.00	s	At stop
D6-38	0xD626	LPT limit coefficient	0.0 to 1000.0	90.0	%	Real-time
D7-00	0xD700	Speed open loop compensation coefficient	-0.50 to +0.50	0.00	-	Real-time
D7-02	0xD702	TB start	0: Invalid 1: OK	0	-	At stop
D7-03	0xD703	Maximum current of TB	0.0 to 1000.0	200.0	%	At stop
D7-04	0xD704	Maximum d-axis current of TB	0.0 to 500.0	150.0	%	At stop
D7-05	0xD705	TB coefficient	0 to 200	50	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D7-06	0xD706	TB test parameter 1	0.0 to 500.0	0.0	%	At stop
D7-07	0xD707	TB test parameter 2	0.0 to 1000.0	0.0	%	At stop
D7-08	0xD708	HFI control word	bit0 and bit1: Configuration 1 0: Scheme 1 1: Scheme 2 2: Scheme 3 3: Reserved bit2 and bit3: Configuration 2 0: Scheme 1 1: Scheme 2 2: Scheme 3 3: Reserved	10	-	At stop
D7-09	0xD709	HFI coefficient 1	0 to 100	20	-	Real-time
D7-10	0xD70A	HFI coefficient 2	0 to 10000	500	-	Real-time
D7-11	0xD70B	HFI coefficient 3	0 to 10000	800	-	Real-time
D7-12	0xD70C	HFI coefficient 4	-50.0 to 50.0	0.0	-	Real-time
D7-13	0xD70D	HFI coefficient 5	0.00 to 100.00	5.00	-	Real-time
D7-14	0xD70E	HFI coefficient 6	0.00 to 100.00	2.50	-	Real-time
D7-15	0xD70F	HFI coefficient 7	0.00 to 100.00	2.50	-	Real-time
D7-16	0xD710	HFI coefficient 8	0.00 to 100.00	2.50	-	Real-time
D7-17	0xD711	Automatic calculation interval of feedforward torque acceleration	0 to 50	20	-	Real-time
D7-18	0xD712	Speed open loop of asynchronous motor	0: Disable 1: Enable	0	-	At stop
D7-19	0xD713	Speed open loop current of asynchronous motor	0 to 600	100	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D7-20	0xD714	Acceleration current for speed open loop of asynchronous motor	0 to 100	30	%	Real-time
D7-21	0xD715	Switchover frequency for speed open loop of asynchronous motor	1.0 to 10.0	2.0	%	At stop
D7-22	0xD716	Switchover hysteresis frequency for speed open loop of asynchronous motor	1.0 to 10.0	3.0	%	At stop
D7-23	0xD717	Waiting time for speed open loop of asynchronous motor	0.00 to 5.00	0.50	s	At stop
D7-24	0xD718	Minimum acceleration/ deceleration time for frequency for speed open loop of asynchronous motor	0.0 to 50.0	2.0	s	At stop
D7-25	0xD719	Current ramp time for speed open loop of asynchronous motor	0.000 to 1.000	0.030	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D7-26	0xD71A	Configuration word for speed open loop of asynchronous motor	bit0: Start with speed open loop 0: Disable 1: Active bit1: Stop with speed open loop 0: Disable 1: Active bit2: Keep speed closed loop during stall 0: Disable 1: Active bit3: Ignore waiting time for speed open loop 0: Disable 1: Active bit4: Slip compensation 0: Enable 1: Disable bit5: Low-speed slip compensation 0: Disable 1: Enable bit6: Speed fluctuation suppression 0: Enable 1: Disable bit7: Oscillation suppression 0: Enable 1: Disable bit8: Oscillation suppression mode 0: Mode 1 1: Mode 2 2: Mode 3 3: Mode 4 bit10: Convergence time selection 0: 1 1: 2 2: 3 3: 4 bit12: Stable frequency 1 selection 0: 1 1: 2 2: 3 3: 4 bit14: Stable frequency 2 selection 0: 1 1: 2	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D7-27	0xD71B	Speed fluctuation suppression coefficient for speed open loop of asynchronous motor	0 to 400	100	%	Real-time
D7-28	0xD71C	Oscillation suppression gain coefficient for speed open loop of asynchronous motor	0 to 400	100	%	Real-time
D7-29	0xD71D	Oscillation suppression filter cut-off frequency for speed open loop of asynchronous motor	0.2 to 50.0	1.0	Hz	At stop
D7-33	0xD721	Overcurrent threshold for demagnetization protection of reluctance motor	0.0 to 500.0	350.0	%	Real-time
D7-34	0xD722	Motor 2 model input window (tuning-free mode)	0: Self-defined motor 33001: MV33-18L55D30CD-ATA-EC 33003: MV33-18L90D30CD-ATA-EC 33005: MV33-22M11E30CD-ATA-EC 33008: MV33-22M18E30CD-ATA-EC 33009: MV33-22M20E30CD-ATA-EC 33013: MV33-25M31E30CD-ATA-EC 33020: MV33-22M75D15CD-ATA-EC 33025: MV33-25M13E15CD-ATA-EC 33028: MV33-25M20E15CD-ATA-EC 33029: MV33-18L30D10CD-ATA-EC 33032: MV33-20L55D10CD-ATA-EC 33038: MV33-25M13E10CD-ATA-EC 33039: MV33-18L18D75BD-ATA-EC 33043: MV33-20L45D75BD-ATA-EC 33044: MV33-22M37D75BD-ATA-EC 33048: MV33-25M90D75BD-ATA-EC	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D7-35	0xD723	Motor 2 model display (tuning-free mode)	0: Self-defined motor 33001: MV33-18L55D30CD-ATA-EC 33003: MV33-18L90D30CD-ATA-EC 33005: MV33-22M11E30CD-ATA-EC 33008: MV33-22M18E30CD-ATA-EC 33009: MV33-22M20E30CD-ATA-EC 33013: MV33-25M31E30CD-ATA-EC 33020: MV33-22M75D15CD-ATA-EC 33025: MV33-25M13E15CD-ATA-EC 33028: MV33-25M20E15CD-ATA-EC 33029: MV33-18L30D10CD-ATA-EC 33032: MV33-20L55D10CD-ATA-EC 33038: MV33-25M13E10CD-ATA-EC 33039: MV33-18L18D75BD-ATA-EC 33043: MV33-20L45D75BD-ATA-EC 33044: MV33-22M37D75BD-ATA-EC 33048: MV33-25M90D75BD-ATA-EC	0	-	Unchangeable
D7-37	0xD725	Time for torque cancellation upon decelerate-to-stop	0.00 to 100.00	0.00	s	At stop
D7-38	0xD726	LPT limit coefficient	0.0 to 1000.0	90.0	%	Real-time
D8-00	0xD800	Speed open loop compensation coefficient	-0.50 to +0.50	0.00	-	Real-time
D8-02	0xD802	TB start	0: Invalid 1: OK	0	-	At stop
D8-03	0xD803	Maximum current of TB	0.0 to 1000.0	200.0	%	At stop
D8-04	0xD804	Maximum d-axis current of TB	0.0 to 500.0	150.0	%	At stop
D8-05	0xD805	TB coefficient	0 to 200	50	-	Real-time
D8-06	0xD806	TB test parameter 1	0.0 to 500.0	0.0	%	At stop
D8-07	0xD807	TB test parameter 2	0.0 to 1000.0	0.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D8-08	0xD808	HFI control word	bit0 and bit1: Configuration 1 0: Scheme 1 1: Scheme 2 2: Scheme 3 3: Reserved bit2 and bit3: Configuration 2 0: Scheme 1 1: Scheme 2 2: Scheme 3 3: Reserved	10	-	At stop
D8-09	0xD809	HFI coefficient 1	0 to 100	20	-	Real-time
D8-10	0xD80A	HFI coefficient 2	0 to 10000	500	-	Real-time
D8-11	0xD80B	HFI coefficient 3	0 to 10000	800	-	Real-time
D8-12	0xD80C	HFI coefficient 4	-50.0 to 50.0	0.0	-	Real-time
D8-13	0xD80D	HFI coefficient 5	0.00 to 100.00	5.00	-	Real-time
D8-14	0xD80E	HFI coefficient 6	0.00 to 100.00	2.50	-	Real-time
D8-15	0xD80F	HFI coefficient 7	0.00 to 100.00	2.50	-	Real-time
D8-16	0xD810	HFI coefficient 8	0.00 to 100.00	2.50	-	Real-time
D8-17	0xD811	Automatic calculation interval of feedforward torque acceleration	0 to 50	20	-	Real-time
D8-18	0xD812	Speed open loop of asynchronous motor	0: Disable 1: Enable	0	-	At stop
D8-19	0xD813	Speed open loop current of asynchronous motor	0 to 600	100	%	Real-time
D8-20	0xD814	Acceleration current for speed open loop of asynchronous motor	0 to 100	30	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D8-21	0xD815	Switchover frequency for speed open loop of asynchronous motor	1.0 to 10.0	2.0	%	At stop
D8-22	0xD816	Switchover hysteresis frequency for speed open loop of asynchronous motor	1.0 to 10.0	3.0	%	At stop
D8-23	0xD817	Waiting time for speed open loop of asynchronous motor	0.00 to 5.00	0.50	s	At stop
D8-24	0xD818	Minimum acceleration/ deceleration time for frequency for speed open loop of asynchronous motor	0.0 to 50.0	2.0	s	At stop
D8-25	0xD819	Current ramp time for speed open loop of asynchronous motor	0.000 to 1.000	0.030	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D8-26	0xD81A	Configuration word for speed open loop of asynchronous motor	bit0: Start with speed open loop 0: Disable 1: Active bit1: Stop with speed open loop 0: Disable 1: Active bit2: Keep speed closed loop during stall 0: Disable 1: Active bit3: Ignore waiting time for speed open loop 0: Disable 1: Active bit4: Slip compensation 0: Enable 1: Disable bit5: Low-speed slip compensation 0: Disable 1: Enable bit6: Speed fluctuation suppression 0: Enable 1: Disable bit7: Oscillation suppression 0: Enable 1: Disable bit8: Oscillation suppression mode 0: Mode 1 1: Mode 2 2: Mode 3 3: Mode 4 bit10: Convergence time selection 0: 1 1: 2 2: 3 3: 4 bit12: Stable frequency 1 selection 0: 1 1: 2 2: 3 3: 4 bit14: Stable frequency 2 selection 0: 1 1: 2	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D8-27	0xD81B	Speed fluctuation suppression coefficient for speed open loop of asynchronous motor	0 to 400	100	%	Real-time
D8-28	0xD81C	Oscillation suppression gain coefficient for speed open loop of asynchronous motor	0 to 400	100	%	Real-time
D8-29	0xD81D	Oscillation suppression filter cut-off frequency for speed open loop of asynchronous motor	0.2 to 50.0	1.0	Hz	At stop
D8-33	0xD821	Overcurrent threshold for demagnetization protection of reluctance motor	0.0 to 500.0	350.0	%	Real-time
D8-34	0xD822	Motor 3 model input window (tuning-free mode)	0: Self-defined motor 33001: MV33-18L55D30CD-ATA-EC 33003: MV33-18L90D30CD-ATA-EC 33005: MV33-22M11E30CD-ATA-EC 33008: MV33-22M18E30CD-ATA-EC 33009: MV33-22M20E30CD-ATA-EC 33013: MV33-25M31E30CD-ATA-EC 33020: MV33-22M75D15CD-ATA-EC 33025: MV33-25M13E15CD-ATA-EC 33028: MV33-25M20E15CD-ATA-EC 33029: MV33-18L30D10CD-ATA-EC 33032: MV33-20L55D10CD-ATA-EC 33038: MV33-25M13E10CD-ATA-EC 33039: MV33-18L18D75BD-ATA-EC 33043: MV33-20L45D75BD-ATA-EC 33044: MV33-22M37D75BD-ATA-EC 33048: MV33-25M90D75BD-ATA-EC	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D8-35	0xD823	Motor 3 model display (tuning-free mode)	0: Self-defined motor 33001: MV33-18L55D30CD-ATA-EC 33003: MV33-18L90D30CD-ATA-EC 33005: MV33-22M11E30CD-ATA-EC 33008: MV33-22M18E30CD-ATA-EC 33009: MV33-22M20E30CD-ATA-EC 33013: MV33-25M31E30CD-ATA-EC 33020: MV33-22M75D15CD-ATA-EC 33025: MV33-25M13E15CD-ATA-EC 33028: MV33-25M20E15CD-ATA-EC 33029: MV33-18L30D10CD-ATA-EC 33032: MV33-20L55D10CD-ATA-EC 33038: MV33-25M13E10CD-ATA-EC 33039: MV33-18L18D75BD-ATA-EC 33043: MV33-20L45D75BD-ATA-EC 33044: MV33-22M37D75BD-ATA-EC 33048: MV33-25M90D75BD-ATA-EC	0	-	Unchangeable
D8-37	0xD825	Time for torque cancellation upon decelerate-to-stop	0.00 to 100.00	0.00	s	At stop
D8-38	0xD826	LPT limit coefficient	0.0 to 1000.0	90.0	%	Real-time
D9-00	0xD900	Speed open loop compensation coefficient	-0.50 to +0.50	0.00	-	Real-time
D9-02	0xD902	TB start	0: Invalid 1: OK	0	-	At stop
D9-03	0xD903	Maximum current of TB	0.0 to 1000.0	200.0	%	At stop
D9-04	0xD904	Maximum d-axis current of TB	0.0 to 500.0	150.0	%	At stop
D9-05	0xD905	TB coefficient	0 to 200	50	-	Real-time
D9-06	0xD906	TB test parameter 1	0.0 to 500.0	0.0	%	At stop
D9-07	0xD907	TB test parameter 2	0.0 to 1000.0	0.0	%	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D9-08	0xD908	HFI control word	bit0 and bit1: Configuration 1 0: Scheme 1 1: Scheme 2 2: Scheme 3 3: Reserved bit2 and bit3: Configuration 2 0: Scheme 1 1: Scheme 2 2: Scheme 3 3: Reserved	10	-	At stop
D9-09	0xD909	HFI coefficient 1	0 to 100	20	-	Real-time
D9-10	0xD90A	HFI coefficient 2	0 to 10000	500	-	Real-time
D9-11	0xD90B	HFI coefficient 3	0 to 10000	800	-	Real-time
D9-12	0xD90C	HFI coefficient 4	-50.0 to 50.0	0.0	-	Real-time
D9-13	0xD90D	HFI coefficient 5	0.00 to 100.00	5.00	-	Real-time
D9-14	0xD90E	HFI coefficient 6	0.00 to 100.00	2.50	-	Real-time
D9-15	0xD90F	HFI coefficient 7	0.00 to 100.00	2.50	-	Real-time
D9-16	0xD910	HFI coefficient 8	0.00 to 100.00	2.50	-	Real-time
D9-17	0xD911	Automatic calculation interval of feedforward torque acceleration	0 to 50	20	-	Real-time
D9-18	0xD912	Speed open loop of asynchronous motor	0: Disable 1: Enable	0	-	At stop
D9-19	0xD913	Speed open loop current of asynchronous motor	0 to 600	100	%	Real-time
D9-20	0xD914	Acceleration current for speed open loop of asynchronous motor	0 to 100	30	%	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
D9-21	0xD915	Switchover frequency for speed open loop of asynchronous motor	1.0 to 10.0	2.0	%	At stop
D9-22	0xD916	Switchover hysteresis frequency for speed open loop of asynchronous motor	1.0 to 10.0	3.0	%	At stop
D9-23	0xD917	Waiting time for speed open loop of asynchronous motor	0.00 to 5.00	0.50	s	At stop
D9-24	0xD918	Minimum acceleration/ deceleration time for frequency for speed open loop of asynchronous motor	0.0 to 50.0	2.0	s	At stop
D9-25	0xD919	Current ramp time for speed open loop of asynchronous motor	0.000 to 1.000	0.030	s	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D9-26	0xD91A	Configuration word for speed open loop of asynchronous motor	bit0: Start with speed open loop 0: Disable 1: Active bit1: Stop with speed open loop 0: Disable 1: Active bit2: Keep speed closed loop during stall 0: Disable 1: Active bit3: Ignore waiting time for speed open loop 0: Disable 1: Active bit4: Slip compensation 0: Enable 1: Disable bit5: Low-speed slip compensation 0: Disable 1: Enable bit6: Speed fluctuation suppression 0: Enable 1: Disable bit7: Oscillation suppression 0: Enable 1: Disable bit8: Oscillation suppression mode 0: Mode 1 1: Mode 2 2: Mode 3 3: Mode 4 bit10: Convergence time selection 0: 1 1: 2 2: 3 3: 4 bit12: Stable frequency 1 selection 0: 1 1: 2 2: 3 3: 4 bit14: Stable frequency 2 selection 0: 1 1: 2	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D9-27	0xD91B	Speed fluctuation suppression coefficient for speed open loop of asynchronous motor	0 to 400	100	%	Real-time
D9-28	0xD91C	Oscillation suppression gain coefficient for speed open loop of asynchronous motor	0 to 400	100	%	Real-time
D9-29	0xD91D	Oscillation suppression filter cut-off frequency for speed open loop of asynchronous motor	0.2 to 50.0	1.0	Hz	At stop
D9-33	0xD921	Overcurrent threshold for demagnetization protection of reluctance motor	0.0 to 500.0	350.0	%	Real-time
D9-34	0xD922	Motor 4 model input window (tuning-free mode)	0: Self-defined motor 33001: MV33-18L55D30CD-ATA-EC 33003: MV33-18L90D30CD-ATA-EC 33005: MV33-22M11E30CD-ATA-EC 33008: MV33-22M18E30CD-ATA-EC 33009: MV33-22M20E30CD-ATA-EC 33013: MV33-25M31E30CD-ATA-EC 33020: MV33-22M75D15CD-ATA-EC 33025: MV33-25M13E15CD-ATA-EC 33028: MV33-25M20E15CD-ATA-EC 33029: MV33-18L30D10CD-ATA-EC 33032: MV33-20L55D10CD-ATA-EC 33038: MV33-25M13E10CD-ATA-EC 33039: MV33-18L18D75BD-ATA-EC 33043: MV33-20L45D75BD-ATA-EC 33044: MV33-22M37D75BD-ATA-EC 33048: MV33-25M90D75BD-ATA-EC	0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
D9-35	0xD923	Motor 4 model display (tuning-free mode)	0: Self-defined motor 33001: MV33-18L55D30CD-ATA-EC 33003: MV33-18L90D30CD-ATA-EC 33005: MV33-22M11E30CD-ATA-EC 33008: MV33-22M18E30CD-ATA-EC 33009: MV33-22M20E30CD-ATA-EC 33013: MV33-25M31E30CD-ATA-EC 33020: MV33-22M75D15CD-ATA-EC 33025: MV33-25M13E15CD-ATA-EC 33028: MV33-25M20E15CD-ATA-EC 33029: MV33-18L30D10CD-ATA-EC 33032: MV33-20L55D10CD-ATA-EC 33038: MV33-25M13E10CD-ATA-EC 33039: MV33-18L18D75BD-ATA-EC 33043: MV33-20L45D75BD-ATA-EC 33044: MV33-22M37D75BD-ATA-EC 33048: MV33-25M90D75BD-ATA-EC	0	-	Unchangeable
D9-37	0xD925	Time for torque cancellation upon decelerate-to-stop	0.00 to 100.00	0.00	s	At stop
D9-38	0xD926	LPT limit coefficient	0.0 to 1000.0	90.0	%	Real-time
H0-00	0x8000	Fault code 1 in fault log 1	0 to 65535	0	-	Unchangeable
H0-01	0x8001	Fault sub-code 1 in fault log 1	0 to 65535	0	-	Unchangeable
H0-03	0x8003	Fault code 2 in fault log 1	0 to 65535	0	-	Unchangeable
H0-04	0x8004	Fault sub-code 2 in fault log 1	0 to 65535	0	-	Unchangeable
H0-06	0x8006	Fault code 3 in fault log 1	0 to 65535	0	-	Unchangeable
H0-07	0x8007	Fault sub-code 3 in fault log 1	0 to 65535	0	-	Unchangeable
H0-09	0x8009	Fault code 4 in fault log 1	0 to 65535	0	-	Unchangeable
H0-10	0x800A	Fault sub-code 4 in fault log 1	0 to 65535	0	-	Unchangeable
H0-12	0x800C	Fault code 5 in fault log 1	0 to 65535	0	-	Unchangeable
H0-13	0x800D	Fault sub-code 5 in fault log 1	0 to 65535	0	-	Unchangeable
H0-15	0x800F	Fault code 6 in fault log 1	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
H0-16	0x8010	Fault sub-code 6 in fault log 1	0 to 65535	0	-	Unchangeable
H0-18	0x8012	Minor fault code 1 in fault log 1	0 to 65535	0	-	Unchangeable
H0-19	0x8013	Minor fault sub-code 1 in fault log 1	0 to 65535	0	-	Unchangeable
H0-21	0x8015	Minor fault code 2 in fault log 1	0 to 65535	0	-	Unchangeable
H0-22	0x8016	Minor fault sub-code 2 in fault log 1	0 to 65535	0	-	Unchangeable
H0-24	0x8018	Minor fault code 3 in fault log 1	0 to 65535	0	-	Unchangeable
H0-25	0x8019	Minor fault sub-code 3 in fault log 1	0 to 65535	0	-	Unchangeable
H0-27	0x801B	Minor fault code 4 in fault log 1	0 to 65535	0	-	Unchangeable
H0-28	0x801C	Minor fault sub-code 4 in fault log 1	0 to 65535	0	-	Unchangeable
H0-30	0x801E	Minor fault code 5 in fault log 1	0 to 65535	0	-	Unchangeable
H0-31	0x801F	Minor fault sub-code 5 in fault log 1	0 to 65535	0	-	Unchangeable
H0-33	0x8021	Minor fault code 6 in fault log 1	0 to 65535	0	-	Unchangeable
H0-34	0x8022	Minor fault sub-code 6 in fault log 1	0 to 65535	0	-	Unchangeable
H0-36	0x8024	Alarm code 1 in fault log 1	0 to 65535	0	-	Unchangeable
H0-37	0x8025	Alarm sub-code 1 in fault log 1	0 to 65535	0	-	Unchangeable
H0-39	0x8027	Alarm code 2 in fault log 1	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
H0-40	0x8028	Alarm sub-code 2 in fault log 1	0 to 65535	0	-	Unchangeable
H0-42	0x802A	Alarm code 3 in fault log 1	0 to 65535	0	-	Unchangeable
H0-43	0x802B	Alarm sub-code 3 in fault log 1	0 to 65535	0	-	Unchangeable
H0-45	0x802D	Alarm code 4 in fault log 1	0 to 65535	0	-	Unchangeable
H0-46	0x802E	Alarm sub-code 4 in fault log 1	0 to 65535	0	-	Unchangeable
H0-48	0x8030	Alarm code 5 in fault log 1	0 to 65535	0	-	Unchangeable
H0-49	0x8031	Alarm sub-code 5 in fault log 1	0 to 65535	0	-	Unchangeable
H0-51	0x8033	Alarm code 6 in fault log 1	0 to 65535	0	-	Unchangeable
H0-52	0x8034	Alarm sub-code 6 in fault log 1	0 to 65535	0	-	Unchangeable
H1-00	0x8100	1st set of fault code	0.0 to 199.9	0.0	-	At stop
H1-01	0x8101	1st set of fault level	0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault 6: Not handled	6	-	At stop
H1-02	0x8102	2nd set of fault code	0.0 to 199.9	0.0	-	At stop
H1-03	0x8103	2nd set of fault level	0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault 6: Not handled	6	-	At stop
H1-04	0x8104	3rd set of fault code	0.0 to 199.9	0.0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
H1-05	0x8105	3rd set of fault level	0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault 6: Not handled	6	-	At stop
H1-06	0x8106	4th set of fault code	0.0 to 199.9	0.0	-	At stop
H1-07	0x8107	4th set of fault level	0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault 6: Not handled	6	-	At stop
H1-08	0x8108	5th set of fault code	0.0 to 199.9	0.0	-	At stop
H1-09	0x8109	5th set of fault level	0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault 6: Not handled	6	-	At stop
H1-10	0x810A	6th set of fault code	0.0 to 199.9	0.0	-	At stop
H1-11	0x810B	6th set of fault level	0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault 6: Not handled	6	-	At stop
H1-12	0x810C	7th group of exception master code	0.0 to 199.9	0.0	-	At stop
H1-13	0x810D	7th set of fault level	0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault 6: Not handled	6	-	At stop
H1-14	0x810E	8th set of fault code	0.0 to 199.9	0.0	-	At stop

Parameter	Address	Name	Range	Default	Unit	Change Mode
H1-15	0x810F	8th set of fault level	0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault 6: Not handled	6	-	At stop
H1-16	0x8110	9th set of fault code	0.0 to 199.9	0.0	-	At stop
H1-17	0x8111	9th set of fault level	0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault 6: Not handled	6	-	At stop
H1-18	0x8112	10th set of fault code	0.0 to 199.9	0.0	-	At stop
H1-19	0x8113	10th set of fault level	0: Coast to stop 1: Stop according to the stop mode 2: Continue operation 3: Operation with limited power 4: Operating with limited current 5: Ignore fault 6: Not handled	6	-	At stop
H2-00	0x8200	Source of external fault 1 (NO)	0: Invalid 1: Active Others: B connector	0	-	Real-time
H2-01	0x8201	Source of external fault 2 (NC)	0: Invalid 1: Active Others: B connector	1	-	Real-time
H2-02	0x8202	Source of external minor fault 1	0: Reserved Others: B connector	0	-	Real-time
H2-03	0x8203	Source of external minor fault 2	0: Reserved Others: B connector	0	-	Real-time
H2-04	0x8204	Source of user-defined fault 1	0: Invalid 1: Active Others: B connector	0	-	Real-time
H2-05	0x8205	Source of user-defined fault 2	0: Invalid 1: Active Others: B connector	0	-	Real-time
H2-06	0x8206	Source of user-defined fault 3	0: Reserved Others: B connector	0	-	Real-time
H2-07	0x8207	Source of user-defined fault 4	0: Reserved Others: B connector	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
H2-08	0x8208	Source of user-defined minor fault 1	0: Reserved Others: B connector	0	-	Real-time
H2-09	0x8209	Source of user-defined minor fault 1	0: Reserved Others: B connector	0	-	Real-time
H2-10	0x820A	Source of user-defined minor fault 1	0: Reserved Others: B connector	0	-	Real-time
H2-11	0x820B	Source of user-defined minor fault 1	0: Reserved Others: B connector	0	-	Real-time
H2-12	0x820C	Automatic fault reset	0: Disable 1: Enable	1	-	Real-time
H2-15	0x820F	Automatic reset terminated upon manual reset	0: Automatic reset canceled 1: Automatic reset continued	1	-	Real-time
H2-16	0x8210	Time for recovering the number of automatic resets	0 to 6000	10	min.	Real-time
H2-17	0x8211	Cumulative number of fault resets	0 to 65535	0	-	Unchangeable
H2-18	0x8212	Action when automatic reset count limit reached	0: Restore the number of automatic fault resets 1: The number of automatic fault resets is not restored.	0	-	Real-time
H2-20	0x8214	Code of non-resettable fault 1	0 to 200	0	-	Real-time
H2-21	0x8215	Sub-code of non-resettable fault 1	0 to 9	0	-	Real-time
H2-22	0x8216	Master code of non-resettable exception code 2	0 to 200	0	-	Real-time
H2-23	0x8217	Subcode of non-resettable exception code 2	0 to 9	0	-	Real-time
H2-24	0x8218	Master code of non-resettable exception code 3	0 to 200	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
H2-25	0x8219	Subcode of non-resettable exception code 3	0 to 9	0	-	Real-time
H2-26	0x821A	Master code of non-resettable exception code 4	0 to 200	0	-	Real-time
H2-27	0x821B	Subcode of non-resettable exception code 4	0 to 9	0	-	Real-time
H2-28	0x821C	Master code of non-resettable exception code 5	0 to 200	0	-	Real-time
H2-29	0x821D	Subcode of non-resettable exception code 5	0 to 9	0	-	Real-time
H2-30	0x821E	Master code of non-resettable exception code 6	0 to 200	0	-	Real-time
H2-31	0x821F	Subcode of non-resettable exception code 6	0 to 9	0	-	Real-time
H2-32	0x8220	Master code of non-resettable exception code 7	0 to 200	0	-	Real-time
H2-33	0x8221	Subcode of non-resettable exception code 7	0 to 9	0	-	Real-time
H2-34	0x8222	Master code of non-resettable exception code 8	0 to 200	0	-	Real-time
H2-35	0x8223	Subcode of non-resettable exception code 8	0 to 9	0	-	Real-time
H2-36	0x8224	Master code of non-resettable exception code 9	0 to 200	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
H2-37	0x8225	Subcode of non-resettable exception code 9	0 to 9	0	-	Real-time
H2-38	0x8226	Master code of non-resettable exception code 10	0 to 200	0	-	Real-time
H2-39	0x8227	Subcode of non-resettable exception code 10	0 to 9	0	-	Real-time
H2-42	0x822A	Restart after automatic reset	0: Inactive 1: Restart	0	-	Real-time
H2-43	0x822B	Waiting time for restart after automatic fault reset	0.0 to 600.0	0.5	s	Real-time
H2-44	0x822C	Forced flying start for automatic restart	0: Disable 1: Forced flying start	0	-	Real-time
H2-45	0x822D	Fault codes that allow restart	0: White list 1: Black list	1	-	Real-time
H2-46	0x822E	Code of designated fault 1	0 to 200	0	-	Real-time
H2-47	0x822F	Sub-code of designated fault 1	0 to 9	0	-	Real-time
H2-48	0x8230	Code of designated fault 2	0 to 200	0	-	Real-time
H2-49	0x8231	Sub-code of designated fault 2	0 to 9	0	-	Real-time
H2-50	0x8232	Code of designated fault 3	0 to 200	0	-	Real-time
H2-51	0x8233	Sub-code of designated fault 3	0 to 9	0	-	Real-time
H2-52	0x8234	Code of designated fault 4	0 to 200	0	-	Real-time

Parameter	Address	Name	Range	Default	Unit	Change Mode
H2-53	0x8235	Sub-code of designated fault 4	0 to 9	0	-	Real-time
H2-54	0x8236	Code of designated fault 5	0 to 200	0	-	Real-time
H2-55	0x8237	Sub-code of designated fault 5	0 to 9	0	-	Real-time
H2-56	0x8238	Code of designated fault 6	0 to 200	0	-	Real-time
H2-57	0x8239	Sub-code of designated fault 6	0 to 9	0	-	Real-time
H3-00	0x8300	Fault code 1 in fault log 1	0 to 65535	0	-	Unchangeable
H3-01	0x8301	Fault sub-code 1 in fault log 1	0 to 65535	0	-	Unchangeable
H3-07	0x8307	Fault code 2 in fault log 1	0 to 65535	0	-	Unchangeable
H3-08	0x8308	Fault sub-code 2 in fault log 1	0 to 65535	0	-	Unchangeable
H3-14	0x830E	Fault code 3 in fault log 1	0 to 65535	0	-	Unchangeable
H3-15	0x830F	Fault sub-code 3 in fault log 1	0 to 65535	0	-	Unchangeable
H3-21	0x8315	Fault code 4 in fault log 1	0 to 65535	0	-	Unchangeable
H3-22	0x8316	Fault sub-code 4 in fault log 1	0 to 65535	0	-	Unchangeable
H3-28	0x831C	Fault code 5 in fault log 1	0 to 65535	0	-	Unchangeable
H3-29	0x831D	Fault sub-code 5 in fault log 1	0 to 65535	0	-	Unchangeable
H3-35	0x8323	Fault code 6 in fault log 1	0 to 65535	0	-	Unchangeable
H3-36	0x8324	Fault sub-code 6 in fault log 1	0 to 65535	0	-	Unchangeable
H3-42	0x832A	Frequency upon fault log 1	-327.68 to 327.67	0.00	Hz	Unchangeable
H3-43	0x832B	Current upon fault log 1	-327.68 to 327.67	0.00	A	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
H3-44	0x832C	Bus voltage upon fault log 1	0.0 to 6553.5	0.0	V	Unchangeable
H3-45	0x832D	Input terminal status upon fault log 1	0x0 to 0xFFFF	0x0	-	Unchangeable
H3-46	0x832E	Output terminal status upon fault log 1	0x0 to 0xFFFF	0x0	-	Unchangeable
H3-47	0x832F	AC drive status upon fault log 1	0 to 65535	0	-	Unchangeable
H3-48	0x8330	Power-on time upon fault log 1	0 to 65535	0	min.	Unchangeable
H3-49	0x8331	Operating time upon fault log 1	0.0 to 6553.5	0.0	min.	Unchangeable
H3-50	0x8332	Status word A upon fault log 1	0x0 to 0xFFFF	0x0	-	Unchangeable
H3-51	0x8333	Status word B upon fault log 1	0x0 to 0xFFFF	0x0	-	Unchangeable
H3-52	0x8334	Command word upon fault log 1	0x0 to 0xFFFF	0x0	-	Unchangeable
H4-00	0x8400	Fault code 1 in fault log 2	0 to 65535	0	-	Unchangeable
H4-01	0x8401	Fault sub-code 1 in fault log 2	0 to 65535	0	-	Unchangeable
H4-07	0x8407	Fault code 2 in fault log 2	0 to 65535	0	-	Unchangeable
H4-08	0x8408	Fault sub-code 2 in fault log 2	0 to 65535	0	-	Unchangeable
H4-14	0x840E	Fault code 3 in fault log 2	0 to 65535	0	-	Unchangeable
H4-15	0x840F	Fault sub-code 3 in fault log 2	0 to 65535	0	-	Unchangeable
H4-21	0x8415	Fault code 4 in fault log 2	0 to 65535	0	-	Unchangeable
H4-22	0x8416	Fault sub-code 4 in fault log 2	0 to 65535	0	-	Unchangeable
H4-28	0x841C	Fault code 5 in fault log 2	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
H4-29	0x841D	Fault sub-code 5 in fault log 2	0 to 65535	0	-	Unchangeable
H4-35	0x8423	Fault code 6 in fault log 2	0 to 65535	0	-	Unchangeable
H4-36	0x8424	Fault sub-code 6 in fault log 2	0 to 65535	0	-	Unchangeable
H4-42	0x842A	Frequency upon fault log 2	-327.68 to 327.67	0.00	Hz	Unchangeable
H4-43	0x842B	Current upon fault log 2	-327.68 to 327.67	0.00	A	Unchangeable
H4-44	0x842C	Bus voltage upon fault log 2	0.0 to 6553.5	0.0	V	Unchangeable
H4-45	0x842D	Input terminal status upon fault log 2	0x0 to 0xFFFF	0x0	-	Unchangeable
H4-46	0x842E	Output terminal status upon fault log 2	0x0 to 0xFFFF	0x0	-	Unchangeable
H4-47	0x842F	AC drive status upon fault log 2	0 to 65535	0	-	Unchangeable
H4-48	0x8430	Power-on time upon fault log 2	0 to 65535	0	min.	Unchangeable
H4-49	0x8431	Operating time upon fault log 2	0.0 to 6553.5	0.0	min.	Unchangeable
H4-50	0x8432	Status word A upon fault log 2	0x0 to 0xFFFF	0x0	-	Unchangeable
H4-51	0x8433	Status word B upon fault log 2	0x0 to 0xFFFF	0x0	-	Unchangeable
H4-52	0x8434	Command word upon fault log 2	0x0 to 0xFFFF	0x0	-	Unchangeable
H5-00	0x8500	Fault code 1 in fault log 3	0 to 65535	0	-	Unchangeable
H5-01	0x8501	Fault sub-code 1 in fault log 3	0 to 65535	0	-	Unchangeable
H5-07	0x8507	Fault code 2 in fault log 3	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
H5-08	0x8508	Fault sub-code 2 in fault log 3	0 to 65535	0	-	Unchangeable
H5-14	0x850E	Fault code 3 in fault log 3	0 to 65535	0	-	Unchangeable
H5-15	0x850F	Fault sub-code 3 in fault log 3	0 to 65535	0	-	Unchangeable
H5-21	0x8515	Fault code 4 in fault log 3	0 to 65535	0	-	Unchangeable
H5-22	0x8516	Fault sub-code 4 in fault log 3	0 to 65535	0	-	Unchangeable
H5-28	0x851C	Fault code 5 in fault log 3	0 to 65535	0	-	Unchangeable
H5-29	0x851D	Fault sub-code 5 in fault log 3	0 to 65535	0	-	Unchangeable
H5-35	0x8523	Fault code 6 in fault log 3	0 to 65535	0	-	Unchangeable
H5-36	0x8524	Fault sub-code 6 in fault log 3	0 to 65535	0	-	Unchangeable
H5-42	0x852A	Frequency upon fault log 3	-327.68 to 327.67	0.00	Hz	Unchangeable
H5-43	0x852B	Current upon fault log 3	-327.68 to 327.67	0.00	A	Unchangeable
H5-44	0x852C	Bus voltage upon fault log 3	0.0 to 6553.5	0.0	V	Unchangeable
H5-45	0x852D	Input terminal status upon fault log 3	0x0 to 0xFFFF	0x0	-	Unchangeable
H5-46	0x852E	Output terminal status upon fault log 3	0x0 to 0xFFFF	0x0	-	Unchangeable
H5-47	0x852F	AC drive status upon fault log 3	0 to 65535	0	-	Unchangeable
H5-48	0x8530	Power-on time upon fault log 3	0 to 65535	0	min.	Unchangeable
H5-49	0x8531	Operating time upon fault log 3	0.0 to 6553.5	0.0	min.	Unchangeable
H5-50	0x8532	Status word A upon fault log 3	0x0 to 0xFFFF	0x0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
H5-51	0x8533	Status word B upon fault log 3	0x0 to 0xFFFF	0x0	-	Unchangeable
H5-52	0x8534	Command word upon fault log 3	0x0 to 0xFFFF	0x0	-	Unchangeable
H6-00	0x8600	Fault code 1 in fault log 4	0 to 65535	0	-	Unchangeable
H6-01	0x8601	Fault sub-code 1 in fault log 4	0 to 65535	0	-	Unchangeable
H6-07	0x8607	Fault code 2 in fault log 4	0 to 65535	0	-	Unchangeable
H6-08	0x8608	Fault sub-code 2 in fault log 4	0 to 65535	0	-	Unchangeable
H6-14	0x860E	Fault code 3 in fault log 4	0 to 65535	0	-	Unchangeable
H6-15	0x860F	Fault sub-code 3 in fault log 4	0 to 65535	0	-	Unchangeable
H6-21	0x8615	Fault code 3 in fault log 4	0 to 65535	0	-	Unchangeable
H6-22	0x8616	Fault sub-code 4 in fault log 4	0 to 65535	0	-	Unchangeable
H6-28	0x861C	Fault code 5 in fault log 4	0 to 65535	0	-	Unchangeable
H6-29	0x861D	Fault sub-code 5 in fault log 4	0 to 65535	0	-	Unchangeable
H6-35	0x8623	Fault code 6 in fault log 4	0 to 65535	0	-	Unchangeable
H6-36	0x8624	Fault sub-code 6 in fault log 4	0 to 65535	0	-	Unchangeable
H6-42	0x862A	Frequency upon fault log 4	-327.68 to 327.67	0.00	Hz	Unchangeable
H6-43	0x862B	Current upon fault log 4	-327.68 to 327.67	0.00	A	Unchangeable
H6-44	0x862C	Bus voltage upon fault log 4	0.0 to 6553.5	0.0	V	Unchangeable
H6-45	0x862D	Input terminal status upon fault log 4	0x0 to 0xFFFF	0x0	-	Unchangeable
H6-46	0x862E	Output terminal status upon fault log 4	0x0 to 0xFFFF	0x0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
H6-47	0x862F	AC drive status upon fault log 4	0 to 65535	0	-	Unchangeable
H6-48	0x8630	Power-on time upon fault log 4	0 to 65535	0	min.	Unchangeable
H6-49	0x8631	Operating time upon fault log 4	0.0 to 6553.5	0.0	min.	Unchangeable
H6-50	0x8632	Status word A upon fault log 4	0x0 to 0xFFFF	0x0	-	Unchangeable
H6-51	0x8633	Status word B upon fault log 4	0x0 to 0xFFFF	0x0	-	Unchangeable
H6-52	0x8634	Command word upon fault log 4	0x0 to 0xFFFF	0x0	-	Unchangeable
H7-00	0x8700	Fault code 1 in fault log 5	0 to 65535	0	-	Unchangeable
H7-01	0x8701	Fault sub-code 1 in fault log 5	0 to 65535	0	-	Unchangeable
H7-07	0x8707	Fault code 2 in fault log 5	0 to 65535	0	-	Unchangeable
H7-08	0x8708	Fault sub-code 2 in fault log 5	0 to 65535	0	-	Unchangeable
H7-14	0x870E	Fault code 3 in fault log 4	0 to 65535	0	-	Unchangeable
H7-15	0x870F	Fault sub-code 3 in fault log 4	0 to 65535	0	-	Unchangeable
H7-21	0x8715	Fault code 4 in fault log 5	0 to 65535	0	-	Unchangeable
H7-22	0x8716	Fault sub-code 4 in fault log 5	0 to 65535	0	-	Unchangeable
H7-28	0x871C	Fault code 5 in fault log 5	0 to 65535	0	-	Unchangeable
H7-29	0x871D	Fault sub-code 5 in fault log 5	0 to 65535	0	-	Unchangeable
H7-35	0x8723	Fault code 6 in fault log 5	0 to 65535	0	-	Unchangeable
H7-36	0x8724	Fault sub-code 6 in fault log 5	0 to 65535	0	-	Unchangeable
H7-42	0x872A	Frequency upon fault log 5	-327.68 to 327.67	0.00	Hz	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
H7-43	0x872B	Current upon fault log 5	-327.68 to 327.67	0.00	A	Unchangeable
H7-44	0x872C	Bus voltage upon fault log 5	0.0 to 6553.5	0.0	V	Unchangeable
H7-45	0x872D	Input terminal status upon fault log 5	0x0 to 0xFFFF	0x0	-	Unchangeable
H7-46	0x872E	Output terminal status upon fault log 5	0x0 to 0xFFFF	0x0	-	Unchangeable
H7-47	0x872F	AC drive status upon fault log 5	0 to 65535	0	-	Unchangeable
H7-48	0x8730	Power-on time upon fault log 5	0 to 65535	0	min.	Unchangeable
H7-49	0x8731	Operating time upon fault log 5	0.0 to 6553.5	0.0	min.	Unchangeable
H7-50	0x8732	Status word A upon fault log 5	0x0 to 0xFFFF	0x0	-	Unchangeable
H7-51	0x8733	Status word B upon fault log 5	0x0 to 0xFFFF	0x0	-	Unchangeable
H7-52	0x8734	Command word upon fault log 5	0x0 to 0xFFFF	0x0	-	Unchangeable
H8-00	0x8800	Fault code 1 in fault log 6	0 to 65535	0	-	Unchangeable
H8-01	0x8801	Fault sub-code 1 in fault log 6	0 to 65535	0	-	Unchangeable
H8-07	0x8807	Fault code 2 in fault log 6	0 to 65535	0	-	Unchangeable
H8-08	0x8808	Fault sub-code 2 in fault log 6	0 to 65535	0	-	Unchangeable
H8-14	0x880E	Fault code 3 in fault log 6	0 to 65535	0	-	Unchangeable
H8-15	0x880F	Fault sub-code 3 in fault log 6	0 to 65535	0	-	Unchangeable
H8-21	0x8815	Fault code 4 in fault log 6	0 to 65535	0	-	Unchangeable
H8-22	0x8816	Fault sub-code 4 in fault log 6	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
H8-28	0x881C	Fault code 5 in fault log 6	0 to 65535	0	-	Unchangeable
H8-29	0x881D	Fault sub-code 5 in fault log 6	0 to 65535	0	-	Unchangeable
H8-35	0x8823	Fault code 6 in fault log 6	0 to 65535	0	-	Unchangeable
H8-36	0x8824	Fault sub-code 6 in fault log 6	0 to 65535	0	-	Unchangeable
H8-42	0x882A	Frequency upon fault log 6	-327.68 to 327.67	0.00	Hz	Unchangeable
H8-43	0x882B	Current upon fault log 6	-327.68 to 327.67	0.00	A	Unchangeable
H8-44	0x882C	Bus voltage upon fault log 6	0.0 to 6553.5	0.0	V	Unchangeable
H8-45	0x882D	Input terminal status upon fault log 6	0x0 to 0xFFFF	0x0	-	Unchangeable
H8-46	0x882E	Output terminal status upon fault log 6	0x0 to 0xFFFF	0x0	-	Unchangeable
H8-47	0x882F	AC drive status upon fault log 6	0 to 65535	0	-	Unchangeable
H8-48	0x8830	Power-on time upon fault log 6	0 to 65535	0	min.	Unchangeable
H8-49	0x8831	Operating time upon fault log 6	0.0 to 6553.5	0.0	min.	Unchangeable
H8-50	0x8832	Status word A upon fault log 6	0x0 to 0xFFFF	0x0	-	Unchangeable
H8-51	0x8833	Status word B upon fault log 6	0x0 to 0xFFFF	0x0	-	Unchangeable
H8-52	0x8834	Command word upon fault log 6	0x0 to 0xFFFF	0x0	-	Unchangeable
U0-00	0x7000	Operating frequency	0.00 to 655.35	0.00	Hz	Unchangeable
U0-01	0x7001	Frequency reference	0.00 to 655.35	0.00	Hz	Unchangeable
U0-02	0x7002	Bus voltage	0.0 to 6553.5	0.0	V	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
U0-03	0x7003	Output voltage	0 to 65535	0	V	Unchangeable
U0-04	0x7004	Output current	0.00 to 655.35	0.00	A	Unchangeable
U0-05	0x7005	Output power	-3276.8 to +3276.7	0.0	kW	Unchangeable
U0-06	0x7006	Output torque	-3276.8 to +3276.7	0.0	%	Unchangeable
U0-07	0x7007	DI state	0x0 to 0xFFFF	0x0	-	Unchangeable
U0-08	0x7008	DO state	0x0 to 0xFFFF	0x0	-	Unchangeable
U0-09	0x7009	AI1 voltage	-10.57 to +10.57	0.00	V	Unchangeable
U0-10	0x700A	AI2 voltage	-10.57 to +10.57	0.00	V	Unchangeable
U0-11	0x700B	AI3 voltage	-10.57 to +10.57	0.00	V	Unchangeable
U0-12	0x700C	Counting value	0 to 65535	0	-	Unchangeable
U0-13	0x700D	Length value	0 to 65535	0	-	Unchangeable
U0-14	0x700E	Load speed display	0 to 65535	0	-	Unchangeable
U0-15	0x700F	PID setting	-32768 to 32767	0	-	Unchangeable
U0-16	0x7010	PID feedback	-32768 to 32767	0	-	Unchangeable
U0-17	0x7011	PLC stage	0 to 15	0	-	Unchangeable
U0-18	0x7012	Pulse input frequency	0.00 to 655.35	0.00	kHz	Unchangeable
U0-19	0x7013	Feedback speed	-327.68 to 327.67	0.00	Hz	Unchangeable
U0-20	0x7014	Remaining operating time	0.0 to 6553.5	0.0	min.	Unchangeable
U0-21	0x7015	Non-calibrated AI1 voltage	-32.768 to 32.767	0.000	V	Unchangeable
U0-22	0x7016	AI2 voltage before correction	-32.768 to 32.767	0.000	V	Unchangeable
U0-23	0x7017	AI3 voltage before correction	-32.768 to 32.767	0.000	V	Unchangeable
U0-24	0x7018	Motor speed	0 to 65535	0	rpm	Unchangeable
U0-25	0x7019	Current power-on time	0 to 65535	0	min.	Unchangeable
U0-26	0x701A	Current runtime	0.0 to 6553.5	0.0	min.	Unchangeable
U0-27	0x701B	Pulse input frequency	0 to 65535	0	Hz	Unchangeable
U0-28	0x701C	Communication setpoint	-100.00 to +100.00	0.00	%	Unchangeable
U0-30	0x701E	Main frequency X	-599.00 to 599.00	0.00	Hz	Unchangeable
U0-31	0x701F	Auxiliary frequency Y	-599.00 to 599.00	0.00	Hz	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
U0-32	0x7020	Memory address view	0 to 65535	0	-	Unchangeable
U0-33	0x7021	Synchronous motor rotor position	0.0 to 360.0	0.0	°	Unchangeable
U0-34	0x7022	AI3 temperature mode - motor temperature value	-50 to 300	0	℃	Unchangeable
U0-35	0x7023	Target torque	-600.0 to 600.0	0.0	%	Unchangeable
U0-36	0x7024	Resolver position	0 to 360	0	-	Unchangeable
U0-37	0x7025	Power factor angle	-3276.8 to +3276.7	0.0	°	Unchangeable
U0-39	0x7027	Target voltage upon decoupled V/f	0 to F1-02	0	V	Unchangeable
U0-40	0x7028	Output voltage upon separated V/f	0 to F1-02	0	V	Unchangeable
U0-45	0x702D	Subcode	0 to 9	0	-	Unchangeable
U0-46	0x702E	Minor fault code	0.0 to 6553.5	0.0	-	Unchangeable
U0-49	0x7031	Alarm code	0.0 to 6553.5	0.0	-	Unchangeable
U0-57	0x7039	No-load current of asynchronous motor	0 to 65535	0	-	Unchangeable
U0-59	0x703B	Frequency reference	-100.00 to +100.00	0.00	%	Unchangeable
U0-60	0x703C	Operating frequency	-100.00 to +100.00	0.00	%	Unchangeable
U0-61	0x703D	Drive state	0 to 65535	0	-	Unchangeable
U0-62	0x703E	Master code of current fault	0 to 65535	0	-	Unchangeable
U0-63	0x703F	Torque sent in point-to-point communication	-327.68 to 327.67	0.00	%	Unchangeable
U0-64	0x7040	Number of slaves in master-slave control	0 to 65535	0	-	Unchangeable
U0-65	0x7041	Torque upper limit	-600.0 to 600.0	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
U0-66	0x7042	Communication expansion card type	0 to 65535	0	-	Unchangeable
U0-67	0x7043	Software version of communication expansion card	0 to 65535	0	-	Unchangeable
U0-68	0x7044	Drive state read through DP card	0 to 65535	0	-	Unchangeable
U0-69	0x7045	Frequency read through communication expansion card	-327.68 to 327.67	0.00	Hz	Unchangeable
U0-70	0x7046	Speed read through communication expansion card	-32768 to 32767	0	rpm	Unchangeable
U0-71	0x7047	Specific current display for communication card	0.0 to 6553.5	0.0	A	Unchangeable
U0-73	0x7049	Motor S/N	0 to 65535	0	-	Unchangeable
U0-76	0x704C	Low bits of accumulative power consumption	0.0 to 6553.5	0.0	kWh	Unchangeable
U0-77	0x704D	High bit of cumulative power consumption	0 to 65535	0	kWh	Unchangeable
U0-80	0x7050	This parameter indicates the EtherCAT slave name.	0 to 65535	0	-	Unchangeable
U0-81	0x7051	This parameter indicates the EtherCAT slave alias.	0 to 65535	0	-	Unchangeable
U0-83	0x7053	EtherCAT XML file version	0 to 65535	0	-	Unchangeable
U0-84	0x7054	EtherCAT synchronization loss times	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
U0-85	0x7055	Maximum error value and invalid frames of EtherCAT port 0 per unit time	0 to 65535	0	-	Unchangeable
U0-86	0x7056	Maximum number of error frames and invalid frames over EtherCAT port 1 per unit time	0 to 65535	0	-	Unchangeable
U0-87	0x7057	Maximum transfer error of EtherCAT port per unit time	0 to 65535	0	-	Unchangeable
U0-88	0x7058	Maximum EtherCAT data frame processing unit error per unit time	0 to 65535	0	-	Unchangeable
U0-89	0x7059	Maximum link loss of EtherCAT port per unit time	0 to 65535	0	-	Unchangeable
U0-90	0x705A	AI2 temperature mode-motor temperature value	-50 to 300	0	°C	Unchangeable
U0-91	0x705B	AC drive running frequency (unsigned)	0.00 to 655.35	0.00	Hz	Unchangeable
U0-92	0x705C	AI2 temperature mode - motor temperature (0.1)	-50.0 to 300.0	0.0	°C	Unchangeable
U0-93	0x705D	Mains power synchronization contactor DI signal output	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
U0-94	0x705E	Mains power synchronization contactor DI signal output	0 to 65535	0	-	Unchangeable
U0-95	0x705F	STO initialization flag	0 to 65535	0	-	Unchangeable
U0-96	0x7060	STO status word monitoring	0 to 65535	0	-	Unchangeable
U0-97	0x7061	STO model	0x0 to 0xFFFF	0x0	-	Unchangeable
U0-98	0x7062	STO AD sampling value (1.2 V)	0 to 65535	0	-	Unchangeable
U0-99	0x7063	STO AD sampling value (5 V)	0 to 65535	0	-	Unchangeable
U1-00	0x7100	Linear speed	0.0 to 6553.5	0.0	m/min	Unchangeable
U1-01	0x7101	Current reel diameter	0.0 to 6553.5	0.0	mm	Unchangeable
U1-02	0x7102	Linear speed synchronization frequency	-327.68 to 327.67	0.00	Hz	Unchangeable
U1-03	0x7103	Closed loop speed output	-327.68 to 327.67	0.00	Hz	Unchangeable
U1-04	0x7104	Tension reference (before taper)	0 to 65535	0	N	Unchangeable
U1-05	0x7105	Tension reference (after taper)	0 to 65535	0	N	Unchangeable
U1-06	0x7106	Torque reference	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-07	0x7107	Closed loop torque output	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-08	0x7108	Tension control state machine	0 to 65535	0	-	Unchangeable
U1-09	0x7109	Closed loop tension (speed/torque) PID setting display	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
U1-10	0x710A	Closed loop tension (speed/torque) PID feedback display	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-11	0x710B	Closed loop tension (speed/torque) PID proportional output	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-12	0x710C	Closed loop tension (speed/torque) PID integral output	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-13	0x710D	Closed loop tension (speed/torque) PID derivative output	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-14	0x710E	Tension process execution time	0 to 65535	0	-	Unchangeable
U1-15	0x710F	Winding mode	0 to 65535	0	-	Unchangeable
U1-16	0x7110	Tension torque setpoint	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-17	0x7111	Static friction torque	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-18	0x7112	Dynamic friction torque	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-19	0x7113	Inertia torque	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-20	0x7114	Terminal lift torque	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-21	0x7115	Torque upper limit in vertical cable drum application (calculated value)	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-22	0x7116	Torque lower limit in vertical cable drum application (calculated value)	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
U1-23	0x7117	Torque upper limit in vertical cable drum application (actual value)	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-24	0x7118	Torque lower limit in vertical cable drum application (actual value)	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-25	0x7119	Closed loop tension (speed/torque) PID output	-3276.8 to +3276.7	0.0	%	Unchangeable
U1-26	0x711A	Linear acceleration	-32768 to 32767	0	-	Unchangeable
U2-00	0x7200	Current motor parameter group selection	0 to 65535	0	-	Unchangeable
U2-05	0x7205	Current multi-reference selection	0 to 65535	0	-	Unchangeable
U2-06	0x7206	Current multi-speed effective value	0 to 65535	0	-	Unchangeable
U2-67	0x7243	Current state of brake control	0: Initialization 1: Inhibited 2: Applying 3: Applied 4: Release waiting 5: Releasing 6: Released 7: Wait for closing	0	-	Unchangeable
U2-68	0x7244	Brake module control word	0 to 65535	0	-	Unchangeable
U2-69	0x7245	Brake module status word	0 to 65535	0	-	Unchangeable
U2-70	0x7246	Status word for brake release not done	0 to 65535	0	-	Unchangeable
U2-71	0x7247	Status word for brake apply not done	0 to 65535	0	-	Unchangeable
U2-72	0x7248	Starting frequency state of brake module	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
U2-73	0x7249	Starting torque state of brake module	0 to 65535	0	-	Unchangeable
U2-78	0x724E	Effective carrier frequency	0.000 to 65.535	0.000	kHz	Unchangeable
U2-79	0x724F	Ambient temperature of driver board	-32768 to 32767	0	°C	Unchangeable
U3-12	0x730C	Master state	0 to 65535	0	-	Unchangeable
U3-13	0x730D	Master frequency	0 to 65535	0	-	Unchangeable
U3-14	0x730E	Master torque	0 to 65535	0	-	Unchangeable
U3-15	0x730F	Master phase sequence	0 to 65535	0	-	Unchangeable
U3-16	0x7310	Frequency set through communication	-320.00 to 320.00	0.00	Hz	Unchangeable
U3-17	0x7311	Control word set through communication	0 to 65535	0	-	Unchangeable
L0-10	0x900A	AI1AsDI final output state	0 to 1	0	-	Unchangeable
L0-11	0x900B	AI2AsDI final output state	0 to 1	0	-	Unchangeable
L0-12	0x900C	AI3AsDI final output state	0 to 1	0	-	Unchangeable
L0-13	0x900D	AI1AsDI inversion state	0 to 1	0	-	Unchangeable
L0-14	0x900E	AI2AsDI inversion state	0 to 1	0	-	Unchangeable
L0-15	0x900F	AI3AsDI inversion state	0 to 1	0	-	Unchangeable
L0-32	0x9020	DI1 final output state	0 to 1	0	-	Unchangeable
L0-33	0x9021	Final output state of DI2	0 to 1	0	-	Unchangeable
L0-34	0x9022	Final output state of DI3	0 to 1	0	-	Unchangeable
L0-35	0x9023	Final output state of DI4	0 to 1	0	-	Unchangeable
L0-36	0x9024	Final output state of DI5	0 to 1	0	-	Unchangeable
L0-37	0x9025	Final output state of DI6	0 to 1	0	-	Unchangeable
L0-38	0x9026	Final output state of DI7	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L0-39	0x9027	Final output state of DI8	0 to 1	0	-	Unchangeable
L0-40	0x9028	Final output state of DI9	0 to 1	0	-	Unchangeable
L0-41	0x9029	Final output state of DI10	0 to 1	0	-	Unchangeable
L0-42	0x902A	Final output state of VDI1	0 to 1	0	-	Unchangeable
L0-43	0x902B	Final output state of VDI2	0 to 1	0	-	Unchangeable
L0-44	0x902C	Final output state of VDI3	0 to 1	0	-	Unchangeable
L0-45	0x902D	Final output state of VDI4	0 to 1	0	-	Unchangeable
L0-46	0x902E	Final output state of VDI5	0 to 1	0	-	Unchangeable
L0-47	0x902F	Final output state of VDI6	0 to 1	0	-	Unchangeable
L0-48	0x9030	DI1 inversion state	0 to 1	0	-	Unchangeable
L0-49	0x9031	DI2 inversion state	0 to 1	0	-	Unchangeable
L0-50	0x9032	DI3 inversion state	0 to 1	0	-	Unchangeable
L0-51	0x9033	DI4 inversion state	0 to 1	0	-	Unchangeable
L0-52	0x9034	DI5 inversion state	0 to 1	0	-	Unchangeable
L0-53	0x9035	DI6 inversion state	0 to 1	0	-	Unchangeable
L0-54	0x9036	DI7 inversion state	0 to 1	0	-	Unchangeable
L0-55	0x9037	DI8 inversion state	0 to 1	0	-	Unchangeable
L0-56	0x9038	DI9 inversion state	0 to 1	0	-	Unchangeable
L0-57	0x9039	DI10 inversion state	0 to 1	0	-	Unchangeable
L0-58	0x903A	VDI1 inversion state	0 to 1	0	-	Unchangeable
L0-59	0x903B	VDI2 inversion state	0 to 1	0	-	Unchangeable
L0-60	0x903C	VDI3 inversion state	0 to 1	0	-	Unchangeable
L0-61	0x903D	VDI4 inversion state	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L0-62	0x903E	VDI5 inversion state	0 to 1	0	-	Unchangeable
L0-63	0x903F	VDI6 inversion state	0 to 1	0	-	Unchangeable
L0-80	0x9050	Final output state of RELAY1 (DO3)	0 to 1	0	-	Unchangeable
L0-81	0x9051	Final output state of FMR	0 to 1	0	-	Unchangeable
L0-82	0x9052	Final output state of DO1	0 to 1	0	-	Unchangeable
L0-83	0x9053	Final output state of RELAY2 (DO4)	0 to 1	0	-	Unchangeable
L0-84	0x9054	Final output state of DO2	0 to 1	0	-	Unchangeable
L0-85	0x9055	Final output state of VDO1	0 to 1	0	-	Unchangeable
L0-86	0x9056	Final output state of VDO2	0 to 1	0	-	Unchangeable
L0-87	0x9057	Final output state of VDO3	0 to 1	0	-	Unchangeable
L0-88	0x9058	Final output state of VDO4	0 to 1	0	-	Unchangeable
L0-89	0x9059	Final output state of VDO5	0 to 1	0	-	Unchangeable
L0-90	0x905A	Final output state of VDO6	0 to 1	0	-	Unchangeable
L0-91	0x905B	Final output state of VDO7	0 to 1	0	-	Unchangeable
L0-92	0x905C	Final output state of VDO8	0 to 1	0	-	Unchangeable
L0-93	0x905D	Final output state of VDO9	0 to 1	0	-	Unchangeable
L0-94	0x905E	Final output state of VDO10	0 to 1	0	-	Unchangeable
L0-95	0x905F	Final output state of VDO11	0 to 1	0	-	Unchangeable
L0-96	0x9060	AI1 input limit violation	0 to 1	0	-	Unchangeable
L0-97	0x9061	AI2 input limit violation	0 to 1	0	-	Unchangeable
L0-98	0x9062	AI3 input limit exceeded	0 to 1	0	-	Unchangeable
L0-99	0x9063	HDI input wire breakage	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L1-00	0x9100	Set count value arrival	0 to 1	0	-	Unchangeable
L1-01	0x9101	Specified count value arrival	0 to 1	0	-	Unchangeable
L1-02	0x9102	Length comparison value arrival	0 to 1	0	-	Unchangeable
L1-03	0x9103	Comparison result of the first DIO edge counting module	0 to 1	0	-	Unchangeable
L1-04	0x9104	Comparison result of the 2nd DIO edge counting module	0 to 1	0	-	Unchangeable
L1-05	0x9105	Comparison result of the 3rd DIO edge counting module	0 to 1	0	-	Unchangeable
L1-06	0x9106	Comparison result of the 4th DIO edge counting module	0 to 1	0	-	Unchangeable
L1-07	0x9107	AI2 or AI3 temperature mode - motor temperature reached	0 to 1	0	-	Unchangeable
L1-08	0x9108	AI2 or AI3 temperature mode - motor overtempera ture fault	0 to 1	0	-	Unchangeable
L1-09	0x9109	AI2 or AI3 temperature mode - motor overtempera ture warning	0 to 1	0	-	Unchangeable
L1-10	0x910A	AI3 temperature mode - Motor overtempera ture fault	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L1-11	0x910B	Drive temperature reached (flag)	0 to 1	0	-	Unchangeable
L1-12	0x910C	Ready to switch on	0 to 1	0	-	Unchangeable
L1-13	0x910D	Ready to run	0 to 1	0	-	Unchangeable
L1-14	0x910E	Running	0 to 1	0	-	Unchangeable
L1-15	0x910F	Faulty	0 to 1	0	-	Unchangeable
L1-16	0x9110	OFF2 invalid	0 to 1	0	-	Unchangeable
L1-17	0x9111	OFF3 disabled	0 to 1	0	-	Unchangeable
L1-18	0x9112	Switch-on lockout	0 to 1	0	-	Unchangeable
L1-19	0x9113	Minor fault/ alarm activated	0 to 1	0	-	Unchangeable
L1-20	0x9114	Actual speed following reference speed	0 to 1	0	-	Unchangeable
L1-21	0x9115	Local/Remote	0: Local 1: Remote	0	-	Unchangeable
L1-22	0x9116	Target speed arrival	0 to 1	0	-	Unchangeable
L1-23	0x9117	Torque reach limit	0 to 1	0	-	Unchangeable
L1-24	0x9118	Positive speed	0 to 1	0	-	Unchangeable
L1-25	0x9119	Negative speed	0 to 1	0	-	Unchangeable
L1-26	0x911A	Motor operation flag	0: Stop 1: Running (pulsing)	0	-	Unchangeable
L1-27	0x911B	User setting 1	0 to 1	0	-	Unchangeable
L1-28	0x911C	Self-check	0 to 1	0	-	Unchangeable
L1-29	0x911D	Motor Parameter Auto-tuning	0 to 1	0	-	Unchangeable
L1-30	0x911E	Minor fault (operation limited) activated	0 to 1	0	-	Unchangeable
L1-31	0x911F	Error activation	0 to 1	0	-	Unchangeable
L1-32	0x9120	Speed control mode	0 to 1	0	-	Unchangeable
L1-33	0x9121	Torque control mode	0 to 1	0	-	Unchangeable
L1-35	0x9123	RFG function selection	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L1-36	0x9124	RFG module operation	0 to 1	0	-	Unchangeable
L1-37	0x9125	Stop upon fault	0 to 1	0	-	Unchangeable
L1-38	0x9126	Normal operation	0 to 1	0	-	Unchangeable
L1-39	0x9127	Jog	0 to 1	0	-	Unchangeable
L1-42	0x912A	Terminal control flag	0 to 1	0	-	Unchangeable
L1-43	0x912B	User setting 2	0 to 1	0	-	Unchangeable
L1-44	0x912C	Control channel selection	0: Control channel 1 1: Control channel 2	0	-	Unchangeable
L1-45	0x912D	Reference channel selection	0: Reference channel 1 1: Reference channel 2	0	-	Unchangeable
L1-60	0x913C	Excessive speed deviation	0 to 1	0	-	Unchangeable
L1-61	0x913D	Overspeed	0 to 1	0	-	Unchangeable
L1-62	0x913E	Target speed arrival	0 to 1	0	-	Unchangeable
L1-63	0x913F	Speed comparison reached 0	0 to 1	0	-	Unchangeable
L1-64	0x9140	Speed comparison reach 1	0 to 1	0	-	Unchangeable
L1-65	0x9141	Forward motor speed	0 to 1	0	-	Unchangeable
L1-66	0x9142	Reverse motor speed	0 to 1	0	-	Unchangeable
L1-76	0x914C	bit0 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-77	0x914D	bit1 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-78	0x914E	bit2 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-79	0x914F	bit3 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-80	0x9150	bit4 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-81	0x9151	bit5 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-82	0x9152	bit6 of word-to-bit A	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L1-83	0x9153	bit7 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-84	0x9154	bit8 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-85	0x9155	bit9 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-86	0x9156	bit10 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-87	0x9157	bit11 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-88	0x9158	bit12 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-89	0x9159	bit13 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-90	0x915A	bit14 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-91	0x915B	bit15 of word-to-bit A	0 to 1	0	-	Unchangeable
L1-92	0x915C	bit0 of word-to-bit B	0 to 1	0	-	Unchangeable
L1-93	0x915D	bit1 of word-to-bit B	0 to 1	0	-	Unchangeable
L1-94	0x915E	bit2 of word-to-bit B	0 to 1	0	-	Unchangeable
L1-95	0x915F	bit3 of word-to-bit B	0 to 1	0	-	Unchangeable
L1-96	0x9160	bit4 of word-to-bit B	0 to 1	0	-	Unchangeable
L1-97	0x9161	bit5 of word-to-bit B	0 to 1	0	-	Unchangeable
L1-98	0x9162	bit6 of word-to-bit B	0 to 1	0	-	Unchangeable
L1-99	0x9163	bit7 of word-to-bit B	0 to 1	0	-	Unchangeable
L2-00	0x9200	bit8 of word-to-bit B	0 to 1	0	-	Unchangeable
L2-01	0x9201	bit9 of word-to-bit B	0 to 1	0	-	Unchangeable
L2-02	0x9202	bit10 of word-to-bit B	0 to 1	0	-	Unchangeable
L2-03	0x9203	bit11 of word-to-bit B	0 to 1	0	-	Unchangeable
L2-04	0x9204	bit12 of word-to-bit B	0 to 1	0	-	Unchangeable
L2-05	0x9205	bit13 of word-to-bit B	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L2-06	0x9206	bit14 of word-to-bit B	0 to 1	0	-	Unchangeable
L2-07	0x9207	bit15 of word-to-bit B	0 to 1	0	-	Unchangeable
L2-08	0x9208	bit0 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-09	0x9209	bit1 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-10	0x920A	bit2 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-11	0x920B	bit3 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-12	0x920C	bit4 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-13	0x920D	bit5 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-14	0x920E	bit6 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-15	0x920F	bit7 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-16	0x9210	bit8 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-17	0x9211	bit9 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-18	0x9212	bit10 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-19	0x9213	bit11 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-20	0x9214	bit12 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-21	0x9215	bit13 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-22	0x9216	bit14 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-23	0x9217	bit15 of word-to-bit C	0 to 1	0	-	Unchangeable
L2-24	0x9218	bit0 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-25	0x9219	bit1 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-26	0x921A	bit2 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-27	0x921B	bit3 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-28	0x921C	bit4 of word-to-bit D	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L2-29	0x921D	bit5 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-30	0x921E	bit6 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-31	0x921F	bit7 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-32	0x9220	bit8 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-33	0x9221	bit9 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-34	0x9222	bit10 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-35	0x9223	bit11 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-36	0x9224	bit12 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-37	0x9225	bit13 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-38	0x9226	bit14 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-39	0x9227	bit15 of word-to-bit D	0 to 1	0	-	Unchangeable
L2-40	0x9228	bit0 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-41	0x9229	bit1 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-42	0x922A	bit2 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-43	0x922B	bit3 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-44	0x922C	bit4 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-45	0x922D	bit5 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-46	0x922E	bit6 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-47	0x922F	bit7 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-48	0x9230	bit8 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-49	0x9231	bit9 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-50	0x9232	bit10 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-51	0x9233	bit11 of word-to-bit E	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L2-52	0x9234	bit12 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-53	0x9235	bit13 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-54	0x9236	bit14 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-55	0x9237	bit15 of word-to-bit E	0 to 1	0	-	Unchangeable
L2-56	0x9238	bit0 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-57	0x9239	bit1 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-58	0x923A	bit2 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-59	0x923B	bit3 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-60	0x923C	bit4 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-61	0x923D	bit5 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-62	0x923E	bit6 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-63	0x923F	bit7 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-64	0x9240	bit8 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-65	0x9241	bit9 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-66	0x9242	bit10 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-67	0x9243	bit11 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-68	0x9244	bit12 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-69	0x9245	bit13 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-70	0x9246	bit14 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-71	0x9247	bit15 of word-to-bit F	0 to 1	0	-	Unchangeable
L2-72	0x9248	bit0 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-73	0x9249	bit1 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-74	0x924A	bit2 of word-to-bit G	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L2-75	0x924B	bit3 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-76	0x924C	bit4 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-77	0x924D	bit5 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-78	0x924E	bit6 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-79	0x924F	bit7 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-80	0x9250	bit8 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-81	0x9251	bit9 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-82	0x9252	bit10 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-83	0x9253	bit11 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-84	0x9254	bit12 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-85	0x9255	bit13 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-86	0x9256	bit14 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-87	0x9257	bit15 of word-to-bit G	0 to 1	0	-	Unchangeable
L2-88	0x9258	bit0 of word-to-bit H	0 to 1	0	-	Unchangeable
L2-89	0x9259	bit1 of word-to-bit H	0 to 1	0	-	Unchangeable
L2-90	0x925A	bit2 of word-to-bit H	0 to 1	0	-	Unchangeable
L2-91	0x925B	bit3 of word-to-bit H	0 to 1	0	-	Unchangeable
L2-92	0x925C	bit4 of word-to-bit H	0 to 1	0	-	Unchangeable
L2-93	0x925D	bit5 of word-to-bit H	0 to 1	0	-	Unchangeable
L2-94	0x925E	bit6 of word-to-bit H	0 to 1	0	-	Unchangeable
L2-95	0x925F	bit7 of word-to-bit H	0 to 1	0	-	Unchangeable
L2-96	0x9260	bit8 of word-to-bit H	0 to 1	0	-	Unchangeable
L2-97	0x9261	bit9 of word-to-bit H	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L2-98	0x9262	bit10 of word-to-bit H	0 to 1	0	-	Unchangeable
L2-99	0x9263	bit11 of word-to-bit H	0 to 1	0	-	Unchangeable
L3-00	0x9300	bit12 of word-to-bit H	0 to 1	0	-	Unchangeable
L3-01	0x9301	bit13 of word-to-bit H	0 to 1	0	-	Unchangeable
L3-02	0x9302	bit14 of word-to-bit H	0 to 1	0	-	Unchangeable
L3-03	0x9303	bit15 of word-to-bit H	0 to 1	0	-	Unchangeable
L3-04	0x9304	Output of binary switch module A	0 to 1	0	-	Unchangeable
L3-05	0x9305	Output of binary switch module B	0 to 1	0	-	Unchangeable
L3-06	0x9306	Output of binary switch module C	0 to 1	0	-	Unchangeable
L3-07	0x9307	Output of binary switch module D	0 to 1	0	-	Unchangeable
L3-08	0x9308	Output of binary switch module E	0 to 1	0	-	Unchangeable
L3-09	0x9309	Output of binary switch module F	0 to 1	0	-	Unchangeable
L3-10	0x930A	Output of binary switch module G	0 to 1	0	-	Unchangeable
L3-11	0x930B	Output of binary switch module H	0 to 1	0	-	Unchangeable
L3-20	0x9314	Output of logic delay module A	0 to 1	0	-	Unchangeable
L3-21	0x9315	Output of logic delay module B	0 to 1	0	-	Unchangeable
L3-22	0x9316	Output of logic delay module C	0 to 1	0	-	Unchangeable
L3-23	0x9317	Output of logic delay module D	0 to 1	0	-	Unchangeable
L3-24	0x9318	Output of logic delay module E	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L3-25	0x9319	Output of logic delay module F	0 to 1	0	-	Unchangeable
L3-26	0x931A	Output of logic delay module G	0 to 1	0	-	Unchangeable
L3-27	0x931B	Output of logic delay module H	0 to 1	0	-	Unchangeable
L3-36	0x9324	Output of logic AND/OR module A	0 to 1	0	-	Unchangeable
L3-37	0x9325	Output of logic AND/OR module B	0 to 1	0	-	Unchangeable
L3-38	0x9326	Output of logic AND/OR module C	0 to 1	0	-	Unchangeable
L3-39	0x9327	Output of logic AND/OR module D	0 to 1	0	-	Unchangeable
L3-40	0x9328	Output of logic AND/OR module E	0 to 1	0	-	Unchangeable
L3-41	0x9329	Output of logic AND/OR module F	0 to 1	0	-	Unchangeable
L3-42	0x932A	Output of logic AND/OR module G	0 to 1	0	-	Unchangeable
L3-43	0x932B	Output of logic AND/OR module H	0 to 1	0	-	Unchangeable
L3-44	0x932C	Output of logic AND/OR module I	0 to 1	0	-	Unchangeable
L3-45	0x932D	Output of logic AND/OR module J	0 to 1	0	-	Unchangeable
L3-46	0x932E	Output of logic AND/OR module K	0 to 1	0	-	Unchangeable
L3-47	0x932F	Output of logic AND/OR module L	0 to 1	0	-	Unchangeable
L3-52	0x9334	Output of logic NOT module A	0 to 1	0	-	Unchangeable
L3-53	0x9335	Output of Logic NOT module B	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L3-54	0x9336	Output of logic NOT module C	0 to 1	0	-	Unchangeable
L3-55	0x9337	Output of logic NOT module D	0 to 1	0	-	Unchangeable
L3-56	0x9338	Output of logic NOT module E	0 to 1	0	-	Unchangeable
L3-57	0x9339	Output of logic NOT module F	0 to 1	0	-	Unchangeable
L3-58	0x933A	Output of logic NOT module G	0 to 1	0	-	Unchangeable
L3-59	0x933B	Output of logic NOT module H	0 to 1	0	-	Unchangeable
L3-60	0x933C	Output of logic NOT module I	0 to 1	0	-	Unchangeable
L3-61	0x933D	Output of logic NOT module J	0 to 1	0	-	Unchangeable
L3-62	0x933E	Output of logic NOT module K	0 to 1	0	-	Unchangeable
L3-63	0x933F	Output of logic NOT module L	0 to 1	0	-	Unchangeable
L3-64	0x9340	Output of logic NOT module M	0 to 1	0	-	Unchangeable
L3-65	0x9341	Output of logic NOT module N	0 to 1	0	-	Unchangeable
L3-66	0x9342	Output of logic NOT module O	0 to 1	0	-	Unchangeable
L3-67	0x9343	Output of logic NOT module P	0 to 1	0	-	Unchangeable
L3-68	0x9344	Output of logic XOR/XNOR module A	0 to 1	0	-	Unchangeable
L3-69	0x9345	Output of logic XOR/XNOR module B	0 to 1	0	-	Unchangeable
L3-70	0x9346	Output of logic XOR/XNOR module C	0 to 1	0	-	Unchangeable
L3-71	0x9347	Output of logic XOR/XNOR module D	0 to 1	0	-	Unchangeable
L3-72	0x9348	Output of logic XOR/XNOR module E	0 to 1	0	-	Unchangeable
L3-73	0x9349	Output of logic XOR/XNOR module F	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L3-74	0x934A	Output of logic XOR/XNOR module G	0 to 1	0	-	Unchangeable
L3-75	0x934B	Output of logic XOR/XNOR module H	0 to 1	0	-	Unchangeable
L3-84	0x9354	Output of level-pulse conversion module A	0 to 1	0	-	Unchangeable
L3-85	0x9355	Output of level-pulse conversion module B	0 to 1	0	-	Unchangeable
L3-86	0x9356	Output of level-pulse conversion module C	0 to 1	0	-	Unchangeable
L3-87	0x9357	Output of level-pulse conversion module D	0 to 1	0	-	Unchangeable
L4-00	0x9400	Output of float comparison module A	0 to 1	0	-	Unchangeable
L4-01	0x9401	Output of float comparison module B	0 to 1	0	-	Unchangeable
L4-02	0x9402	Output of float comparison module C	0 to 1	0	-	Unchangeable
L4-03	0x9403	Output of float comparison module D	0 to 1	0	-	Unchangeable
L4-04	0x9404	Fix comparison module E output	0 to 1	0	-	Unchangeable
L4-05	0x9405	Fix comparison module F output	0 to 1	0	-	Unchangeable
L4-06	0x9406	Fix comparison module G output	0 to 1	0	-	Unchangeable
L4-07	0x9407	Fix comparison module H output	0 to 1	0	-	Unchangeable
L4-08	0x9408	Drive relay	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L4-09	0x9409	Grid relay	0 to 65535	0	-	Unchangeable
L4-10	0x940A	Grid synchronization off1 control source	0 to 65535	0	-	Unchangeable
L4-16	0x9410	Input of floating-point absolute module A being negative	0: Non-negative value 1: Negative value	0	-	Unchangeable
L4-17	0x9411	Input of float absolute module B being negative	0: Non-negative value 1: Negative value	0	-	Unchangeable
L4-18	0x9412	Input of float absolute module C being negative	0: Non-negative value 1: Negative value	0	-	Unchangeable
L4-19	0x9413	Input of float absolute module D being negative	0: Non-negative value 1: Negative value	0	-	Unchangeable
L4-20	0x9414	Input of float absolute module E being negative	0: Non-negative value 1: Negative value	0	-	Unchangeable
L4-21	0x9415	Input of fixed absolute module F being negative	0: Non-negative value 1: Negative value	0	-	Unchangeable
L4-22	0x9416	Input of fixed absolute module G being negative	0: Non-negative value 1: Negative value	0	-	Unchangeable
L4-23	0x9417	Input of fixed absolute module H being negative	0: Non-negative value 1: Negative value	0	-	Unchangeable
L4-32	0x9420	MULTIPLY/ DIVIDE module A divisor being 0 flag	0: Non-zero value 1: Zero	0	-	Unchangeable
L4-33	0x9421	Divide-by-zero flag of MULTIPLY/ DIVIDE module B	0: Non-zero value 1: Zero	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L4-34	0x9422	Divide-by-zero flag of MULTIPLY/ DIVIDE module C	0: Non-zero value 1: Zero	0	-	Unchangeable
L4-35	0x9423	Divide-by-zero flag of MULTIPLY/ DIVIDE module D	0: Non-zero value 1: Zero	0	-	Unchangeable
L4-36	0x9424	Divide-by-zero flag of MULTIPLY/ DIVIDE module E	0: Non-zero value 1: Zero	0	-	Unchangeable
L4-37	0x9425	Divide-by-zero flag of MULTIPLY/ DIVIDE module F	0: Non-zero value 1: Zero	0	-	Unchangeable
L4-38	0x9426	Divide-by-zero flag of MULTIPLY/ DIVIDE module G	0: Non-zero value 1: Zero	0	-	Unchangeable
L4-39	0x9427	Divide-by-zero flag of MULTIPLY/ DIVIDE module H	0: Non-zero value 1: Zero	0	-	Unchangeable
L4-48	0x9430	Lower limit flag of limiter module A	0 to 1	0	-	Unchangeable
L4-49	0x9431	Upper limit flag of limit module A	0 to 1	0	-	Unchangeable
L4-50	0x9432	Lower limit flag of limit module B	0 to 1	0	-	Unchangeable
L4-51	0x9433	Upper limit flag of limit module B	0 to 1	0	-	Unchangeable
L4-52	0x9434	Lower limit flag of limit module C	0 to 1	0	-	Unchangeable
L4-53	0x9435	Upper limit flag of limit module C	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L4-54	0x9436	Lower limit flag of limit module D	0 to 1	0	-	Unchangeable
L4-55	0x9437	Upper limit flag of limit module D	0 to 1	0	-	Unchangeable
L4-56	0x9438	Lower limit flag of limit module E	0 to 1	0	-	Unchangeable
L4-57	0x9439	Upper limit flag of limit module E	0 to 1	0	-	Unchangeable
L4-58	0x943A	Lower limit flag of limit module F	0 to 1	0	-	Unchangeable
L4-59	0x943B	Upper limit flag of limit module F	0 to 1	0	-	Unchangeable
L4-64	0x9440	Wake-up from sleep	0 to 1	0	-	Unchangeable
L4-66	0x9442	Starting frequency forced RFG	0 to 1	0	-	Unchangeable
L4-67	0x9443	Stop at frequencies lower than lower limit/ starting frequency	0 to 1	0	-	Unchangeable
L4-68	0x9444	Coast to stop at frequencies lower than lower limit	0 to 1	0	-	Unchangeable
L4-69	0x9445	Power dip ride-through deceleration and clear	0 to 1	0	-	Unchangeable
L4-70	0x9446	Decelerate to stop upon power dip ride-through	0 to 1	0	-	Unchangeable
L4-71	0x9447	Individual stop of simple PLC	0 to 1	0	-	Unchangeable
L4-72	0x9448	Power-on time reached	0 to 1	0	-	Unchangeable
L4-73	0x9449	Operating time reached	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L4-74	0x944A	Timing duration reached	0 to 1	0	-	Unchangeable
L4-75	0x944B	Current operating time arrival	0 to 1	0	-	Unchangeable
L4-76	0x944C	Brake command output	0: Brake close 1: Brake open	0	-	Unchangeable
L4-77	0x944D	Brake released	0 to 1	0	-	Unchangeable
L4-78	0x944E	Brake applied	0 to 1	0	-	Unchangeable
L4-80	0x9450	Operating at zero speed (inactive at stop)	0 to 1	0	-	Unchangeable
L4-81	0x9451	Zero speed (active at stop)	0 to 1	0	-	Unchangeable
L4-82	0x9452	Frequency detection value 1	0 to 1	0	-	Unchangeable
L4-83	0x9453	Frequency level detection FDT2 output	0 to 1	0	-	Unchangeable
L4-84	0x9454	AI1 larger than AI2	0 to 1	0	-	Unchangeable
L4-85	0x9455	Simple PLC cycle completed	0 to 1	0	-	Unchangeable
L4-87	0x9457	STO	0 to 1	0	-	Unchangeable
L4-88	0x9458	Current 1 reached	0 to 1	0	-	Unchangeable
L4-89	0x9459	Current 2 reached	0 to 1	0	-	Unchangeable
L4-90	0x945A	Zero current state	0 to 1	0	-	Unchangeable
L4-91	0x945B	Output current limit violation	0 to 1	0	-	Unchangeable
L4-92	0x945C	Motor overload pre-alarm	0 to 1	0	-	Unchangeable
L4-93	0x945D	Drive overload pre-alarm	0 to 1	0	-	Unchangeable
L4-94	0x945E	Undervoltage	0 to 1	0	-	Unchangeable
L4-95	0x945F	Load loss	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L5-00	0x9500	System status word 1	bit0: Ready for switch-on bit1: Ready to run bit2: Running bit3: Faulty bit4: OFF2 bit5: OFF3 bit6: Switch-on inhibited bit7: Alarm/Limited operation bit8: No speed deviation bit9: Local/Remote bit10: Target speed reached bit11: Torque limited bit12: Forward speed bit13: Reverse speed bit14: Running (wave generation) bit15: Custom state 0	0	-	Unchangeable
L5-01	0x9501	System status word 2	bit0: Self-testing bit1: Parameter auto-tuning bit2: Light fault state bit3: Alarm state bit4: Speed mode bit5: Torque mode bit6: Position mode bit7: RFG enable bit8: RFG operating bit9: Stop at fault bit10: Normal operation bit11: Jogging bit12: Decelerate to stop bit13: Brake closed bit14: Terminal control bit15: Custom state 1	0	-	Unchangeable
L5-02	0x9502	AC drive main status word	bit0 to bit1: Operation status bit2: Hardware information status bit3: Operation state bit4: Output locked out forcibly at fault bit5: Bus undervoltage state bit6 to bit15: Reserved	0	-	Unchangeable
L5-03	0x9503	AC drive auxiliary status word	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L5-04	0x9504	Main status word of motor	bit0: Operation mode. 0: Stop; 1:Normal operation; 2: Special operation; 3: Parameter auto-tuning; 4: System automatic inspection bit4: Control method. 0: SVC; 2: V/f bit7: Control target. 0: Speed control; 1: Torque control bit9: Hardware information status bit10: Motor operation permission bit11: Speed mode applied forcibly bit12: Decelerate forcibly	0	-	Unchangeable
L5-05	0x9505	Auxiliary status word of motor	bit0: Speed tracking in progress bit1: Speed tracking completed bit2: Pre-excitation in progress bit3: Pre-excitation completed bit4: DC braking in progress bit5: DC braking completed bit7: IF control in progress bit8: Short-circuit braking in progress bit9: Short-circuit braking completed bit10: Initial magnetic pole position auto-tuning completed bit11: Power-on inductance and other parameter calculation completed bit12: Fast encoder zero position angle auto-tuning bit13: Synchronous motor flying start flag bit14: Pre-positioning completed bit15: Reserved	0	-	Unchangeable
L5-06	0x9506	Current state of system status machine	0: Initialization 1: Switch-on inhibited 2: Switch-on allowed 3: Operation permission 4: Start 5: Run 6: Stop 7: Self-test 8: Motor parameter auto-tuning	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L5-07	0x9507	Switchover command of system status machine	bit0: Active at start command bit1: Active at stop command bit2: Active at OFF2 stop command bit3: Active at OFF3 stop command bit4: Active at operation permission command (non-sleep state) bit5: Active at operation inhibition command bit6: Active at stop at fault	0	-	Unchangeable
L5-08	0x9508	System operation state	0 to 65535	0	-	Unchangeable
L5-09	0x9509	Active stop mode	0: Coast to stop 1: Stop with maximum capability 2: Quick stop 3: Decelerate to stop	0	-	Unchangeable
L5-10	0x950A	Decelerate to stop/DC braking state	0 to 65535	0	-	Unchangeable
L5-17	0x9511	Bus voltage	0.0 to 6553.5	0.0	V	Unchangeable
L5-20	0x9514	Module temperature	-3276.8 to +3276.7	0.0	°C	Unchangeable
L5-21	0x9515	LED control word	0 to 65535	0	-	Unchangeable
L5-22	0x9516	IDS control word	0 to 65535	0	-	Unchangeable
L5-23	0x9517	SOP control word	0 to 65535	0	-	Unchangeable
L5-24	0x9518	Command channel system command	0 to 65535	0	-	Unchangeable
L5-25	0x9519	LED command clear flag	0 to 65535	0	-	Unchangeable
L5-26	0x951A	SOP command clear flag	0 to 65535	0	-	Unchangeable
L5-27	0x951B	IDS command clear flag	0 to 65535	0	-	Unchangeable
L5-28	0x951C	Terminal module command	0 to 65535	0	-	Unchangeable
L5-29	0x951D	Terminal Module A Input State	0 to 65535	0	-	Unchangeable
L5-30	0x951E	Terminal module B input state	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L5-31	0x951F	Operation mode (normal/ jog)	0 to 65535	0	-	Unchangeable
L5-32	0x9520	Jogging command source 1/2	0 to 65535	0	-	Unchangeable
L5-33	0x9521	Control target	0 to 65535	0	-	Unchangeable
L5-34	0x9522	RFG status word	0 to 65535	0	-	Unchangeable
L5-35	0x9523	RFG command word	0 to 65535	0	-	Unchangeable
L5-38	0x9526	V/f separation time set to 0	0 to 65535	0	-	Unchangeable
L5-40	0x9528	Original AI1 sampling value	-32.768 to 32.767	0.000	V	Unchangeable
L5-41	0x9529	Original AI2 sampling value	-32.768 to 32.767	0.000	V	Unchangeable
L5-42	0x952A	Original AI3 sampling value	-32.768 to 32.767	0.000	V	Unchangeable
L5-43	0x952B	AI1 sampling value after correction	-327.68 to 327.67	0.00	V	Unchangeable
L5-44	0x952C	AI2 sampling value after correction	-327.68 to 327.67	0.00	V	Unchangeable
L5-45	0x952D	AI3 sampling value after correction	-327.68 to 327.67	0.00	V	Unchangeable
L5-46	0x952E	AI1 curve input value	-327.68 to 327.67	0.00	V	Unchangeable
L5-47	0x952F	Input value of AI2 curve	-327.68 to 327.67	0.00	V	Unchangeable
L5-48	0x9530	AI3 curve input value	-327.68 to 327.67	0.00	V	Unchangeable
L5-49	0x9531	AO1 output (before correction)	-327.68 to 327.67	0.00	V	Unchangeable
L5-50	0x9532	AO2 output (before correction)	-327.68 to 327.67	0.00	V	Unchangeable
L5-51	0x9533	AO1 output (after correction)	-32.768 to 32.767	0.000	V	Unchangeable
L5-52	0x9534	AO2 output (corrected)	-32.768 to 32.767	0.000	V	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L5-53	0x9535	HDI input frequency	0.00 to 655.35	0.00	kHz	Unchangeable
L5-54	0x9536	Counter output	0 to 65535	0	-	Unchangeable
L5-55	0x9537	Length counting	0 to 65535	0	-	Unchangeable
L5-56	0x9538	Displays the communication reference command word.	0 to 65535	0	-	Unchangeable
L5-57	0x9539	Display of references set through communication	-3276.8 to +3276.7	0.0	%	Unchangeable
L5-58	0x953A	Clear communication command	0 to 65535	0	-	Unchangeable
L5-59	0x953B	RFG performance enabled forcibly	0 to 65535	0	-	Unchangeable
L5-60	0x953C	Pre-motor parameter auto-tuning command	0 to 65535	0	-	Unchangeable
L5-62	0x953E	Immediate DC braking triggered by DI	0 to 65535	0	-	Unchangeable
L5-70	0x9546	Main speed display	-327.68 to 327.67	0.00	Hz	Unchangeable
L5-71	0x9547	Auxiliary speed display	-327.68 to 327.67	0.00	Hz	Unchangeable
L6-00	0x9600	Rated motor speed	0 to 65535	0	rpm	Unchangeable
L6-01	0x9601	Rated motor frequency	0.0 to 6553.5	0.0	Hz	Unchangeable
L6-02	0x9602	Rated voltage	0.0 to 6553.5	0.0	V	Unchangeable
L6-03	0x9603	Rated Current	0.0 to 6553.5	0.0	A	Unchangeable
L6-04	0x9604	Rated power	0.0 to 6553.5	0.0	kW	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L6-05	0x9605	System main status word C	bit0: Control channel selection bit1: Setting channel selection bit2 to bit3: Motor group selection bit4: Error (fault/alarm) bit5: EEPROM idle bit8: Actual internal IGBT pulsing state. 0: Stop; 1: Operate (including deceleration) bit9: 0-Forward 1-Reverse bit12: Reserved	0	-	Unchangeable
L6-06	0x9606	Motor object auxiliary status word 2	0 to 65535	0	-	Unchangeable
L6-07	0x9607	Stop frequency control for V/f separation	0 to 65535	0	-	Unchangeable
L6-08	0x9608	Frequency offset mode in torque control	0 to 65535	0	-	Unchangeable
L6-09	0x9609	RFG acceleration/ deceleration state	0 to 65535	0	-	Unchangeable
L6-10	0x960A	RFG arc state	0 to 65535	0	-	Unchangeable
L6-11	0x960B	Drive protection state monitoring	0 to 65535	0	-	Unchangeable
L6-12	0x960C	Modulation module status word	0 to 65535	0	-	Unchangeable
L6-13	0x960D	Sampling status word	0 to 65535	0	-	Unchangeable
L6-14	0x960E	AI2 temperature mode - Motor temperature sampling value	-32768 to 32767	0	°C	Unchangeable
L6-15	0x960F	AI3 temperature mode - Motor temperature sampling value	-32768 to 32767	0	°C	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L6-16	0x9610	Motor protection status word	bit0: Motor in overload state bit1: Motor in pre-overload state bit2: Output phase loss state (reserved) bit3: PG detection fault (reserved) bit4: Current control error bit5: Motor stall bit6: Motor open circuit, two-phase or three-phase loss (reserved) bit7: Motor constant current load too large (reserved) bit8: Motor flux abnormal causing VC out-of-step operation bit9: Speed measurement fluctuation abnormal (reserved) bit10: Motor parameter setting error (reserved) bit11: HSVM sampling card open circuit or phase error (reserved) bit12: Synchronous motor overcurrent (reserved)	0	-	Unchangeable
L6-17	0x9611	Speed controller status word	bit0: Speed loop enable bit2: Integral forced to take effect bit3: Feedforward torque active bit4: Forward limit reach bit5: Reverse limit reach bit6: Integral kept active bit7: Quick integral cancellation bit8: Anti-load disturbance bit9: Last cycle integration method bit10: Reserved	0	-	Unchangeable
L6-18	0x9612	Vector overvoltage/ undervoltage suppression status word	bit0: Undervoltage suppression bit1: Overvoltage suppression bit2: Enter low frequency limit during undervoltage suppression bit3: Reserved	0	-	Unchangeable
L6-19	0x9613	Excitation module status word	0 to 65535	0	-	Unchangeable
L6-20	0x9614	Motor model status word	0 to 65535	0	-	Unchangeable
L6-21	0x9615	Motor current loop status word	0 to 65535	0	-	Unchangeable
L6-22	0x9616	Motor V/f control status word	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L6-23	0x9617	Defines the frequency per-unit value after display source is selected for HDO.	0.00 to 655.35	0.00	%	Unchangeable
L6-24	0x9618	Defines the frequency per-unit value before correction of HDO curve	0.00 to 655.35	0.00	%	Unchangeable
L6-25	0x9619	Defines the final frequency per-unit value of HDO	0.00 to 655.35	0.00	%	Unchangeable
L6-26	0x961A	Defines the actual frequency outputted finally by HDO.	0.00 to 655.35	0.00	kHz	Unchangeable
L6-27	0x961B	Flag for power-related decimal place change	0 to 65535	0	-	Unchangeable
L6-28	0x961C	Torque limit status word	0 to 65535	0	-	Unchangeable
L6-29	0x961D	IF control enable	0 to 65535	0	-	Unchangeable
L6-30	0x961E	Master state	0 to 65535	0	-	Unchangeable
L6-31	0x961F	Master phase sequence	0 to 65535	0	-	Unchangeable
L6-32	0x9620	Slave-follow-master command flag	0 to 65535	0	-	Unchangeable
L6-33	0x9621	Active control mode	0 to 65535	0	-	Unchangeable
L6-34	0x9622	STO state	0 to 65535	0	-	Unchangeable
L6-35	0x9623	System main status word D	0 to 65535	0	-	Unchangeable
L6-36	0x9624	Undervoltage fault flag	0 to 65535	0	-	Unchangeable
L6-37	0x9625	Fault restart clear command	0 to 65535	0	-	Unchangeable
L6-38	0x9626	Wiring mode of effective module A	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L6-39	0x9627	Wiring mode of effective module B	0 to 65535	0	-	Unchangeable
L6-40	0x9628	Effective external command source	0 to 65535	0	-	Unchangeable
L6-41	0x9629	CIA402 mode	0 to 65535	0	-	Unchangeable
L6-42	0x962A	Limit flag	0 to 65535	0	-	Unchangeable
L6-43	0x962B	Communication fault reset enable	0 to 65535	0	-	Unchangeable
L6-50	0x9632	Tension process control mode	0 to 65535	0	-	Unchangeable
L6-51	0x9633	Operation mode of tension process	0 to 65535	0	-	Unchangeable
L6-52	0x9634	Initial reel diameter	0.0 to 6553.5	0.0	mm	Unchangeable
L6-53	0x9635	Taper setting	0.0 to 6553.5	0.0	%	Unchangeable
L6-54	0x9636	Constant linear speed	0.0 to 6553.5	0.0	m/min	Unchangeable
L6-55	0x9637	Tension process mask	0 to 65535	0	-	Unchangeable
L7-05	0x9705	Per-unit constant value 27	0 to 65535	0	-	Unchangeable
L7-06	0x9706	Per-unit constant value 28	0 to 65535	0	-	Unchangeable
L7-07	0x9707	Per-unit constant value 29	0 to 65535	0	-	Unchangeable
L7-08	0x9708	Per-unit constant value 30	0 to 65535	0	-	Unchangeable
L7-09	0x9709	Per-unit constant value 31	0 to 65535	0	-	Unchangeable
L7-10	0x970A	Per-unit constant value 32	0 to 65535	0	-	Unchangeable
L7-11	0x970B	Per-unit constant value 33	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L7-12	0x970C	Per-unit constant value 34	0 to 65535	0	-	Unchangeable
L7-13	0x970D	Per-unit constant value 35	0 to 65535	0	-	Unchangeable
L7-14	0x970E	Per-unit constant value 36	0 to 65535	0	-	Unchangeable
L7-15	0x970F	Per-unit constant value 37	0 to 65535	0	-	Unchangeable
L7-16	0x9710	Per-unit constant value 38	0 to 65535	0	-	Unchangeable
L7-17	0x9711	Per-unit constant value 39	0 to 65535	0	-	Unchangeable
L7-18	0x9712	Per-unit constant value 40	0 to 65535	0	-	Unchangeable
L7-19	0x9713	Per-unit constant value 41	0 to 65535	0	-	Unchangeable
L7-20	0x9714	Per-unit constant value 42	0 to 65535	0	-	Unchangeable
L7-21	0x9715	bit-to-word A	0 to 65535	0	-	Unchangeable
L7-22	0x9716	bit-to-word B	0 to 65535	0	-	Unchangeable
L7-23	0x9717	bit-to-word C	0 to 65535	0	-	Unchangeable
L7-24	0x9718	bit-to-word D	0 to 65535	0	-	Unchangeable
L7-25	0x9719	Double word-to-high word A	0 to 65535	0	-	Unchangeable
L7-26	0x971A	Double word-to-low word A	0 to 65535	0	-	Unchangeable
L7-27	0x971B	Double word-to-high word B	0 to 65535	0	-	Unchangeable
L7-28	0x971C	Double word-to-low word B	0 to 65535	0	-	Unchangeable
L7-29	0x971D	Double word-to-high word C	0 to 65535	0	-	Unchangeable
L7-30	0x971E	Double word-to-low word C	-32768 to 32767	0	-	Unchangeable
L7-31	0x971F	Double word-to-high word D	-32768 to 32767	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L7-32	0x9720	Double word-to-low word D	-32768 to 32767	0	-	Unchangeable
L7-36	0x9724	16-bit parameter monitoring 1	-32768 to 32767	0	-	Unchangeable
L7-37	0x9725	16-bit parameter monitoring address 2	-32768 to 32767	0	-	Unchangeable
L7-38	0x9726	16-bit parameter monitoring address 3	0 to 65535	0	-	Unchangeable
L7-39	0x9727	16-bit parameter monitoring address 4	0 to 65535	0	-	Unchangeable
L7-40	0x9728	16-bit parameter monitoring address 5	0 to 65535	0	-	Unchangeable
L7-41	0x9729	Word selector A output	0 to 65535	0	-	Unchangeable
L7-42	0x972A	Word multiplexer B output	0 to 65535	0	-	Unchangeable
L7-43	0x972B	Word multiplexer C output	0 to 65535	0	-	Unchangeable
L7-44	0x972C	Single word selector module D output	0 to 65535	0	-	Unchangeable
L7-50	0x9732	Internal parameter monitoring output 1	0 to 1	0	-	Unchangeable
L7-51	0x9733	Output of monitored internal variable 2	0 to 1	0	-	Unchangeable
L7-52	0x9734	Output of monitored internal variable 3	0 to 1	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L7-53	0x9735	Output of monitored internal variable 4	0 to 1	0	-	Unchangeable
L7-54	0x9736	Output of monitored internal variable 5	0 to 1	0	-	Unchangeable
L7-55	0x9737	Output of monitored internal variable 6	0 to 1	0	-	Unchangeable
L7-56	0x9738	Output of monitored internal variable 7	0 to 1	0	-	Unchangeable
L7-57	0x9739	Output of monitored internal variable 8	0 to 1	0	-	Unchangeable
L9-00	0x9900	W-DW module A output	0 to 65535	0	-	Unchangeable
L9-01	0x9901	W-DW module B output	0 to 65535	0	-	Unchangeable
L9-02	0x9902	W-DW module C output	0 to 65535	0	-	Unchangeable
L9-03	0x9903	W-DW module D output	0 to 65535	0	-	Unchangeable
L9-04	0x9904	Double word selector module A output	0 to 65535	0	-	Unchangeable
L9-05	0x9905	Double word selector module B output	0 to 65535	0	-	Unchangeable
L9-06	0x9906	Double word selector module C output	0 to 65535	0	-	Unchangeable
L9-07	0x9907	Double word selector module D output	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L9-08	0x9908	Fixed-point absolute value module F output	0 to 65535	0	-	Unchangeable
L9-09	0x9909	Fixed-point absolute value module G output	0 to 65535	0	-	Unchangeable
L9-10	0x990A	Fixed-point absolute value module H output	0 to 65535	0	-	Unchangeable
L9-11	0x990B	Fixed-point addition/ subtraction module F output	0 to 65535	0	-	Unchangeable
L9-12	0x990C	Fixed-point addition/ subtraction module G output	0 to 65535	0	-	Unchangeable
L9-13	0x990D	Fixed-point addition/ subtraction module H output	0 to 65535	0	-	Unchangeable
L9-14	0x990E	Fixed-point multiplication/ division module F output	0 to 65535	0	-	Unchangeable
L9-15	0x990F	Fixed-point multiplication/ division module G output	0 to 65535	0	-	Unchangeable
L9-16	0x9910	Fixed-point multiplication/ division module H output	0 to 65535	0	-	Unchangeable
L9-17	0x9911	Fixed-point filter module E output	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L9-18	0x9912	Fixed-point filter module F output	0 to 65535	0	-	Unchangeable
L9-19	0x9913	Fixed-point limit module E output	0 to 65535	0	-	Unchangeable
L9-20	0x9914	Fixed-point limit module F output	0 to 65535	0	-	Unchangeable
L9-21	0x9915	32-bit parameter monitoring value 1	0 to 65535	0	-	Unchangeable
L9-22	0x9916	32-bit parameter monitoring value 2	0 to 65535	0	-	Unchangeable
L9-23	0x9917	32-bit parameter monitoring value 3	0 to 65535	0	-	Unchangeable
L9-24	0x9918	32-bit parameter monitoring value 4	0 to 65535	0	-	Unchangeable
L9-25	0x9919	32-bit parameter monitoring value 5	0 to 65535	0	-	Unchangeable
L9-30	0x991E	Indicates variable connector output view 1	0 to 65535	0	-	Unchangeable
L9-31	0x991F	Output 2 viewed through variable connector	0 to 65535	0	-	Unchangeable
L9-32	0x9920	Output 3 viewed through variable connector	0 to 65535	0	-	Unchangeable
L9-33	0x9921	Output 4 viewed through variable connector	0 to 65535	0	-	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
L9-34	0x9922	Output 5 viewed through variable connector	0 to 65535	0	-	Unchangeable
L9-35	0x9923	Output 6 viewed through variable connector	0 to 65535	0	-	Unchangeable
L9-36	0x9924	Output 7 viewed through variable connector	0 to 65535	0	-	Unchangeable
L9-37	0x9925	Output 8 viewed through variable connector	0 to 65535	0	-	Unchangeable
LB-00	0x9B00	AI1 input value per-unit value	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-01	0x9B01	AI2 input value per-unit value	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-02	0x9B02	AI3 input value per-unit value	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-03	0x9B03	HDI input per-unit value	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-04	0x9B04	Per unit value of frequency set through communication	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-05	0x9B05	Main speed reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-06	0x9B06	Auxiliary speed reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-07	0x9B07	Channel target speed	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-08	0x9B08	Channel additional speed	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-09	0x9B09	Additional speed reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-10	0x9B0A	Maximum positive speed	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-11	0x9B0B	Forward minimum speed	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LB-12	0x9B0C	Reverse maximum speed	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-13	0x9B0D	Reverse minimum speed	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-14	0x9B0E	Forward limit	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-15	0x9B0F	Reverse limit	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-16	0x9B10	Set speed-original	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-17	0x9B11	Set speed-Direction limit	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-18	0x9B12	Set speed - After limit	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-19	0x9B13	Set speed-After frequency hopping	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-20	0x9B14	Set speed - After slope change	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-21	0x9B15	Torque reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-22	0x9B16	Additional torque	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-23	0x9B17	Filtered torque reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-24	0x9B18	Target torque reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-25	0x9B19	Maximum torque	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-26	0x9B1A	Minimum torque	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-27	0x9B1B	RFG setting input	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-28	0x9B1C	RFG calculation input	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-29	0x9B1D	RFG actual target	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-30	0x9B1E	RFG calculation output	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-31	0x9B1F	Final RFG output (maximum per-unit value)	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LB-32	0x9B20	Final RFG output (rated per-unit)	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-33	0x9B21	Upper limit of frequency adjusted by UP/DOWN key	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-34	0x9B22	Lower limit of frequency adjusted by UP/DOWN key	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-35	0x9B23	RFG acceleration	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-36	0x9B24	V/f separation voltage output	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-37	0x9B25	RFG forced value of starting frequency function	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-38	0x9B26	Speed limit in torque control	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-39	0x9B27	Torque control frequency offset	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-40	0x9B28	Operating frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-41	0x9B29	Frequency reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-42	0x9B2A	Set speed (set by UP/DOWN key)	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-43	0x9B2B	Main frequency + Auxiliary frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-44	0x9B2C	Main frequency - Auxiliary frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-45	0x9B2D	Main frequency × Auxiliary frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-46	0x9B2E	Maximum between primary and secondary frequencies	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LB-47	0x9B2F	Minimum between primary and secondary frequencies	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-48	0x9B30	Original setting of main frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-49	0x9B31	Original setting of auxiliary frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-51	0x9B33	Maximum negative frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-52	0x9B34	Maximum between AI1 and AI2	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-53	0x9B35	Minimum between AI1 and AI2	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-54	0x9B36	Torque upper limit in motoring state	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-55	0x9B37	Torque upper limit in generative state	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-56	0x9B38	Target voltage upon decoupled V/f	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-57	0x9B39	Target torque in compatible torque mode	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-58	0x9B3A	Forward jog frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-59	0x9B3B	Reverse jog frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-60	0x9B3C	Intermediate value of operating frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-61	0x9B3D	Speed setpoint after being limited	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-62	0x9B3E	Output current display	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LB-64	0x9B40	Output power display	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-65	0x9B41	Output torque display	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-66	0x9B42	Motor rotational speed display	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-67	0x9B43	Y-channel adjustment range	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-93	0x9B5D	Master frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-94	0x9B5E	Master torque	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-95	0x9B5F	Indicates the speed base value.	-3276.8 to +3276.7	0.0	%	Unchangeable
LB-96	0x9B60	Frequency base value	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-00	0x9C00	Final frequency setpoint control	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-01	0x9C01	Final voltage setpoint control	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-02	0x9C02	Unlimited output voltage	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-03	0x9C03	Voltage phase angle	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-04	0x9C04	Max. output voltage	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-05	0x9C05	Current loop saturation voltage	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-06	0x9C06	Control torque reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-07	0x9C07	Control final flux reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-08	0x9C08	Excitation current reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-09	0x9C09	Torque current reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-10	0x9C0A	Rotor speed	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-12	0x9C0C	Output torque	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-13	0x9C0D	Flux amplitude	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-14	0x9C0E	Flux angle	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LC-15	0x9C0F	Synchronous frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-16	0x9C10	Synchronous rotation angle	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-17	0x9C11	Motor object output power	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-18	0x9C12	Output voltage amplitude	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-19	0x9C13	Output current amplitude	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-20	0x9C14	Actual excitation current of the motor	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-21	0x9C15	Actual torque current of the motor	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-22	0x9C16	Output electric power	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-23	0x9C17	PWMU	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-24	0x9C18	PWMV	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-25	0x9C19	PWMW	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-26	0x9C1A	IU	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-27	0x9C1B	IV	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-28	0x9C1C	IW	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-31	0x9C1F	Drive bus voltage	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-32	0x9C20	Drive overload accumulative value	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-33	0x9C21	Motor overload accumulation	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-34	0x9C22	Output voltage phase	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-35	0x9C23	Output current phase	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-36	0x9C24	General PID output	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-37	0x9C25	General PID error	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-38	0x9C26	General PID reference	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-39	0x9C27	General PID feedback	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LC-40	0x9C28	General PID proportional output	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-41	0x9C29	General PID integral output	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-42	0x9C2A	General PID derivative output	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-92	0x9C5C	Indicates variable connector output view 1	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-93	0x9C5D	Output 2 viewed through variable connector	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-94	0x9C5E	Output 3 viewed through variable connector	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-95	0x9C5F	Output 4 viewed through variable connector	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-96	0x9C60	Output 5 viewed through variable connector	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-97	0x9C61	Output 6 viewed through variable connector	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-98	0x9C62	Output 7 viewed through variable connector	-3276.8 to +3276.7	0.0	%	Unchangeable
LC-99	0x9C63	Output 8 viewed through variable connector	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-00	0x9D00	Float selector module A output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-01	0x9D01	Float selector module B output	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LD-02	0x9D02	Float selector module C output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-03	0x9D03	Float selector module D output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-04	0x9D04	Float selector module E output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-05	0x9D05	Float selector module F output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-06	0x9D06	Float selector module G output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-07	0x9D07	Float selector module H output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-08	0x9D08	Floating point absolute module A output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-09	0x9D09	Floating point absolute module B output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-10	0x9D0A	Floating point absolute module C output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-11	0x9D0B	Floating point absolute module D output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-12	0x9D0C	Floating point absolute module E output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-13	0x9D0D	Floating point addition/ subtraction module A output	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LD-14	0x9D0E	Floating point addition/ subtraction module B output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-15	0x9D0F	Floating point addition/ subtraction module C output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-16	0x9D10	Floating point addition/ subtraction module D output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-17	0x9D11	Floating point addition/ subtraction module E output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-18	0x9D12	Floating point multiplication/ division module A output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-19	0x9D13	Floating point multiplication/ division module B output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-20	0x9D14	Floating point multiplication/ division module C output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-21	0x9D15	Floating point multiplication/ division module D output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-22	0x9D16	Floating point multiplication/ division module E output	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LD-23	0x9D17	Floating point filter module A output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-24	0x9D18	Floating point filter module B output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-25	0x9D19	Floating point filter module C output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-26	0x9D1A	Floating point filter module D output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-27	0x9D1B	Floating point limit module A output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-28	0x9D1C	Floating point limit module B output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-29	0x9D1D	Floating point limit module C output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-30	0x9D1E	Floating point limit module D output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-31	0x9D1F	Single word-to-float A output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-32	0x9D20	Single word-to-float B output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-33	0x9D21	Single word-to-float C output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-34	0x9D22	Single word-to-float D output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-35	0x9D23	Dual word-to-float A output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-36	0x9D24	Dual word-to-float B output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-37	0x9D25	Dual word-to-float C output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-38	0x9D26	Dual word-to-float D output	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LD-39	0x9D27	Motorized potentiometer forced value	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-40	0x9D28	Motorized potentiometer reset value	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-41	0x9D29	Max. value of motorized potentiometer	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-42	0x9D2A	Min. value of motorized potentiometer	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-43	0x9D2B	Initial value of motorized potentiometer	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-44	0x9D2C	Motorized potentiometer process calculation output value	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-45	0x9D2D	Motorized potentiometer final output value	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-46	0x9D2E	Output of multi-point curve module A	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-47	0x9D2F	Output of multi-point curve module B	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-48	0x9D30	Multi-reference selection output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-49	0x9D31	Multi-reference 1 output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-50	0x9D32	Output corresponding to multi-reference 2	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-51	0x9D33	Output corresponding to multi-reference 3	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-52	0x9D34	Output corresponding to multi-reference 4	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LD-53	0x9D35	Output corresponding to multi-reference 5	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-54	0x9D36	Output corresponding to multi-reference 6	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-55	0x9D37	Multi-reference 7 output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-56	0x9D38	Output corresponding to multi-reference 8	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-57	0x9D39	Output corresponding to multi-reference 9	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-58	0x9D3A	Output corresponding to multi-reference 10	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-59	0x9D3B	Output corresponding to multi-reference 11	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-60	0x9D3C	Output corresponding to multi-reference 12	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-61	0x9D3D	Output corresponding to multi-reference 13	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-62	0x9D3E	Output corresponding to multi-reference 14	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-63	0x9D3F	Output corresponding to multi-reference 15	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-64	0x9D40	Output corresponding to multi-reference 16	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LD-65	0x9D41	Per-unit constant value 1	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-66	0x9D42	Per-unit constant value 2	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-67	0x9D43	Per-unit constant value 3	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-68	0x9D44	Per-unit constant value 4	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-69	0x9D45	Per-unit constant value 5	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-70	0x9D46	Per-unit constant value 6	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-71	0x9D47	Per-unit constant value 7	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-72	0x9D48	Per-unit constant value 8	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-73	0x9D49	Per-unit constant value 9	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-74	0x9D4A	Per-unit constant value 10	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-75	0x9D4B	Per-unit constant value 11	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-76	0x9D4C	Per-unit constant value 12	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-77	0x9D4D	Per-unit constant value 13	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-78	0x9D4E	Per-unit constant value 14	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-79	0x9D4F	Per-unit constant value 15	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LD-80	0x9D50	Per-unit constant value 16	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-81	0x9D51	Per-unit constant value 17	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-82	0x9D52	Per-unit constant value 18	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-83	0x9D53	Per-unit constant value 19	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-84	0x9D54	Per-unit constant value 20	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-85	0x9D55	Per-unit constant value 21	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-86	0x9D56	Offset value of UP/DOWN key	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-87	0x9D57	Percentage of current length to set target length	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-88	0x9D58	Percentage of current counting value to set target counting value	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-89	0x9D59	AO1 value percentage written via communication	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-90	0x9D5A	AO2 value percentage written via communication	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-91	0x9D5B	HDO value percentage written through communication	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-92	0x9D5C	Per unit current value based on 1000 A at maximum	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LD-93	0x9D5D	Per unit voltage value based on 1000 V at maximum	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-94	0x9D5E	AO output torque absolute output	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-95	0x9D5F	AO output torque -200.0% to +200.0%	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-98	0x9D62	Real-time current reference of IF separation	-3276.8 to +3276.7	0.0	%	Unchangeable
LD-99	0x9D63	Communication setting	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-00	0x9E00	Tension process target speed	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-01	0x9E01	Tension process target torque	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-02	0x9E02	Tension process speed limit	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-03	0x9E03	Tension process speed limit offset	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-04	0x9E04	Tension process torque limit	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-05	0x9E05	Taper AO output	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-06	0x9E06	Roll diameter AO output	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-07	0x9E07	Tension AO output	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-08	0x9E08	Closed loop tension PID limit	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-09	0x9E09	Closed loop tension PID proportional coefficient	-3276.8 to +3276.7	0.0	%	Unchangeable

Parameter	Address	Name	Range	Default	Unit	Change Mode
LE-10	0x9E0A	Closed loop tension PID integral coefficient	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-11	0x9E0B	Closed loop tension PID derivative coefficient	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-12	0x9E0C	Tension Torque Compensation	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-20	0x9E14	Monitored frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-21	0x9E15	Monitored phase	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-22	0x9E16	Voltage rise for switching from power frequency to variable frequency	-3276.8 to +3276.7	0.0	%	Unchangeable
LE-31	0x9E1F	Position lock output	-3276.8 to +3276.7	0.0	%	Unchangeable

10 Technical Data

10.1 Electrical Specifications

Note

For three-phase 380 V to 480 V models, the input voltage is 440 VAC.

Table 10–1 Electrical specifications of T1 to T4 models (three-phase 380 V to 480 V)

<table>
<tr><th colspan="2">Project</th><th colspan="11">Specification</th></tr>
<tr><th colspan="2">Module: MD520-4Txxxxx-INT</th><th>7.5BS</th><th>11BS</th><th>15BS</th><th>18.5BS-T</th><th>22BS-T</th><th>30BS</th><th>37BS</th><th>45BS</th><th>55BS</th><th>75BS</th><th>90S</th></tr>
<tr><td colspan="2">Structure</td><td colspan="2">T1</td><td colspan="4">T2</td><td colspan="3">T3</td><td colspan="2">T4</td></tr>
<tr><td rowspan="6">Output</td><td>Power (kW) (heavy load)</td><td>7.5</td><td>11</td><td>15</td><td>18.5</td><td>22</td><td>30</td><td>37</td><td>45</td><td>55</td><td>75</td><td>90</td></tr>
<tr><td>Rated output current (A) (heavy load)</td><td>17</td><td>25</td><td>32</td><td>37</td><td>45</td><td>60</td><td>75</td><td>91</td><td>112</td><td>150</td><td>176</td></tr>
<tr><td>Output voltage</td><td colspan="11">Three-phase 0 V to input voltage</td></tr>
<tr><td>Maximum output frequency</td><td colspan="11">599 Hz</td></tr>
<tr><td>Carrier frequency</td><td colspan="11">0.5 kHz to 12.0 kHz (automatically adjusted according to the load)</td></tr>
<tr><td>Overload capacity</td><td colspan="11">Heavy load: 60s at 150% of the rated current continuously</td></tr>
</table>

Project		Specification										
Module: MD520-4Txxxxx-INT		7.5BS	11BS	15BS	18.5BS-T	22BS-T	30BS	37BS	45BS	55BS	75BS	90S
Input	Rated input current (A) (heavy load)	21.9	32.2	41.3	37.2	43.4	52	63	89	106	139	164
	Rated voltage/ Rated frequency	Three-phase 380 VAC to 480 VAC, 50/60 Hz										
	Permissible voltage fluctuation range	-15% to +10%; actual permissible range: 323 VAC to 528 VAC										
	Permissible frequency fluctuation range	±5%, or 47.5 Hz to 63.0 Hz										
	Power supply capacity (kVA) (heavy load)	22.8	33.4	42.8	33	39	52	63	81	97	127	150
Thermal design	Thermal design power (kW) (heavy load)	0.24	0.355	0.454	0.478	0.551	0.694	0.815	1.01	1.21	1.57	1.81
	Exhaust airflow (CFM)	30	40	42	51.9	57.4	118.5	118.5	122.2	122.2	218.6	287.2
Efficiency class (IEC 61800-9-2)	IE2											
Overvoltage category	OVC III											
Pollution degree	PD2											
IP rating	IP55 (open type, applicable to IEC-compliant products) Type 1 (enclosed type, applicable to UL-certified products)											
Protection category	Class I											

10.2 General Specifications

Item			Technical specification
Control Performance	Applicable motor type		Asynchronous induction motors (IM), permanent magnet synchronous motors (PMSM), and synchronous reluctance motors (SynRM)
	Control mode		Sensorless vector control (SVC), and voltage/frequency (V/f) control
	Asynchronous motor (V/f)	Supported function	Energy saving control, overvoltage suppression, overcurrent suppression, voltage dip suppression, oscillation suppression, torque boost, slip compensation, different V/f curve selection, V/f separation, DC braking, random PWM, overexcitation fast deceleration, and droop control
	Asynchronous motor (SVC)	Supported function	Energy saving control, inertia auto-tuning, acceleration feedforward, droop control, master-slave control, free programming and self-adaption of speed loop parameters, load observer, overvoltage suppression, voltage dip suppression, overexcitation fast deceleration, automatic voltage adjustment (AVR generator bus voltage control), flying start, and DC braking
		Speed regulation range	1:500
		Starting torque	200%
		Torque step response	Within 2 ms
		Torque control accuracy	±3% at frequencies above 5 Hz
		Speed stability accuracy	Within 10% of the rated slip value
		Flux weakening magnification	5 x field weakening
	Synchronous Motor SVC	Supported function	Flying start, electronic motor stator shorting, overexcitation fast deceleration, master-slave control, MTPA control, maximum ratio of torque to current, inertia auto-tuning, acceleration feedforward, droop control, free programming and self-adaption of speed loop parameters, overvoltage suppression, voltage dip suppression, automatic voltage adjustment (AVR generator bus voltage control), and DC braking
		Speed regulation range	1:200
		Starting torque	200%
		Torque step response	Within 2 ms
		Speed stability accuracy	0.05% (without motor defects)
		Torque control accuracy	±3% at frequencies above 5 Hz

<table>
<tr><th colspan="3">Item</th><th>Technical specification</th></tr>
<tr><td rowspan="9">Basic functions</td><td colspan="2">Command source</td><td>The commands are used to start or stop the motor. The command sources include the DI, DO, virtual DI, virtual DO, and DI/DO on the external expansion card. Switchover among four different sets of motor parameters and control parameters is supported. Start and stop commands can be set through programming.</td></tr>
<tr><td rowspan="2">Reference channel</td><td>Input frequency resolution</td><td>Digital setting: 0.01 Hz
Analog setting: maximum frequency x 0.1%</td></tr>
<tr><td>Speed/Torque reference</td><td>Acceleration and deceleration curve, dynamic switchover among multiple acceleration and deceleration time sets, acceleration and deceleration S curve, external PID reference, AI (2 channels, supporting ±10 V or 0-20 mA), speed and torque set through communication, pulse reference (DI5), multi-reference, speed/torque set through programming</td></tr>
<tr><td colspan="2">Communication mode</td><td>PROFIBUS DP, CANlink, CANopen, PROFINET, EtherCAT, EtherNet/IP, Modbus (Modbus RTU, Modbus ASCII, and Modbus TCP)</td></tr>
<tr><td colspan="2">Output limit</td><td>Torque limit, power limit, current limit, maximum/minimum torque limit, speed limit, and jump frequency</td></tr>
<tr><td rowspan="2">Process control</td><td>PID</td><td>Hibernation, configurable reference and feedback sources, 2-segment PID parameter switchover, feedback loss detection, configuration of output limit, configuration initialization</td></tr>
<tr><td>Brake</td><td>Brake with or without feedback, start speed, start torque, and brake judgment condition settings</td></tr>
<tr><td colspan="2">Protection</td><td>AC drive and motor protection, including protection against overvoltage, overcurrent, overload, motor overheating (PT100, PT1000, KTY-84-130, PTC-130, PTC-150), and load loss, as well as automatic fault reset, automatic restart, and limp mode upon fault</td></tr>
<tr><td rowspan="6">Customized function</td><td colspan="2">Programming</td><td>Programming is supported. Word and bit conversion, word and double word conversion, logic (AND, OR, NOT, XOR, XNOT), arithmetic operations (fixed point and floating point addition/subtraction/multiplication/ division, absolute value, numerical comparison), selector switch, free filtering, switch-on and switch-off delay through logic, multi-point curve, and constant value</td></tr>
<tr><td colspan="2">Self-check</td><td>The AC drive and motor support self-check. IGBT shoot through, short circuit to ground, phase loss, and inter-phase short circuit tests are supported.</td></tr>
<tr><td colspan="2">Long-cable drive</td><td>The AC drive supports long-distance driving of the motor and various types of output filters.</td></tr>
<tr><td colspan="2">Reluctance motor</td><td>The drive can control reluctance motors in SVC mode, ferrite motors with magnet, pure reluctance motors, and permanent magnet and ferrite hybrid reluctance motors.</td></tr>
<tr><td colspan="2">Electromagnetic coil</td><td>The current and frequency are set separately. The three-phase AC power supply with variable frequency is provided, which applies mainly to electromagnetic mixers and welding equipment.</td></tr>
<tr><td colspan="2">Powerful software</td><td>The software InoDriverShop allows you to upload and download AC drive parameters and supports the oscilloscope function. In addition, the InoDriverShop supports remote commissioning and fault diagnosis. With the oscilloscope function, you can monitor the internal state of the AC drive.</td></tr>
</table>

Item		Technical specification
In operation	Operation Command	Operating panel, control terminal, and serial communication port (switchable in multiple ways)
	Frequency reference	The drive supports 10 frequency reference sources, including digital setting, analog voltage, analog current, pulse setting, and serial communication ports (switchable in multiple ways).
	Auxiliary frequency reference setting channel	Ten auxiliary frequency references are available. The auxiliary frequency reference can be used together with the main frequency reference to implement fine adjustment and frequency superposition.
	Input terminal	Standard: 7 DI terminals Two AIs, AI1 and AI2. AI1 supports only voltage input of -10 V to +10 V. AI2 supports voltage input of -10 V to +10 V, current input of 0 mA to 20 mA, and temperature input, which can be switched over through the DIP switch. Extension capacity: Three DI terminals
	Output terminal	Standard: Two DO terminals One relay output terminal One FM (can be set with high-speed pulse output or common DO function) One AO, supporting current output of 0 mA to 20 mA or voltage output of 0 V to 10 V Extension capacity: One DO One relay output terminal
Display and operations on the operating panel	LED operating panel	It can display parameters and AC drive status (forward running, reverse running, stop, operating panel/terminal/communication control, speed/ torque control, STO state) and can be used to modify parameters.
	External LCD operating panel	It is optional and displays content in Chinese, English, or Russian. You can use it to modify parameters.
	Parameter copy	You can use the LCD operating panel to implement quick parameter upload and download.
	Key lock and function	To prevent inadvertent operations, some keys on the operating panel can be locked, and functions with limited availability range can be assigned to some keys.

Item		Technical specification
Environ ment	Operating location	Indoors without direct sunlight, dust, corrosive gas, combustible gas, oil mist, water vapor, drip, or salt
	Altitude	For altitudes equal to or below 1000 m, derating is not required. For altitude ranging from 1000 m to 3000 m, derate 1% for every additional 100 m. For altitude above 3000 m, contact Inovance. **Note:** The maximum altitude for T1 models is 2000 m. If the altitude is above 2000 m, contact Inovance.
	Ambient temperature	-10°C to +50°C. 40°C to 50°C: derate by 1.5% for every additional 1°C.
	Humidity	Storage/Ambient humidity: ≤ 95% RH, non-condensing
	Vibration	Operating scenario: Test according to IEC 60068-2-6. Vibration amplitude at 5 Hz to 8.4 Hz: 3.5 mm; acceleration at 8.4 Hz to 200 Hz: 1 g; 10 cycles/ axis Transport scenario: Test according to IEC 60068-2-64. Power spectrum density at 5 Hz to 100 Hz: 0.01 g^2/Hz; power spectrum density at 200 Hz: 0.001 g^2/Hz; Grms: 1.14 g
	Shock	Operating/Transport scenario: Test according to IEC 60068-2-27. Acceleration: 15 g; pulse width; 11 ms; 18 times in total in each of X, Y, Z axes
	Storage temperature	-20 °C to +60°C
Power grid	Applicable power grid	TN, TT, IT (Y)

10.3 Accessory Specifications

10.3.1Option List

Optional peripherals include braking units, function expansion cards, and external operating panels. For use of each option, see the related user guide. If any option is needed, specify it in your order.

Table 10–2 Option List

Name		Model	Code	Supported drive model	Description
Braking component	External braking unit [1]	MDBUN-60-T	01013133	All models	60 A, 380 VAC series
		MDBUN-60-5T	0101AR57	All models	60 A, 480 VAC series
		MDBUN-90-T	01013126	All models	90 A, 380 VAC series
		MDBUN-90-5T	0101AR58	All models	90 A, 480 VAC series
		MDBUN-200-T	01040104	All models	200 A, 380 VAC series
		MDBUN-200-5T	01040160	All models	200 A, 480 VAC series
	Built-in braking unit	Model with the name containing letter "B"	/	T1 to T4 (7.5 kW to 75 kW)	Three-phase 380 V to 480 V: T1 to T4 models come with built-in braking units as standard.
Expansion card	I/O expansion card 2	MD38IO2	01013103	T1 to T4 (7.5 kW to 90 kW)	Three DIs
	I/O expansion card 3	MD38IO3	01040051	T1 to T4 (7.5 kW to 90 kW)	Three DIs, one RO, and one RS485 communication signal isolation input terminal
	RS485 communication card	MD38TX1	01013112	T1 to T4 (7.5 kW to 90 kW)	Modbus communication card with the isolation feature
	CANopen/ CANlink communication card	MD38CAN1	01013100	T1 to T4 (7.5 kW to 90 kW)	CANopen/CANlink communication card
	CANopen/ CANlink communication card	MD38CAN2	01013102	T1 to T4 (7.5 kW to 90 kW)	CANopen/CANlink communication card
	PROFINET communication card <1>	MD500-PN1	01040098	T1 to T4 (7.5 kW to 90 kW)	PROFINET communication card
	EtherCAT communication card	MD500-ECAT	01040113	T1 to T4 (7.5 kW to 90 kW)	EtherCAT communication card
	Ethernet/IP communication card	MD500-EN1	01040167	T1 to T4 (7.5 kW to 90 kW)	Ethernet/IP communication card
	Modbus TCP communication card	MD500-EM1	01040201	T1 to T4 (7.5 kW to 90 kW)	Modbus TCP communication card

Name		Model	Code	Supported drive model	Description
Cable	Main circuit cable	Cable lugs manufactured by KST are recommended. For details of recommended lugs, see *"10.3.3.1 Main Circuit Cables" on page 772*.			It is recommended that the input and output main circuit cables use symmetrical shielded cables. Compared with four-conductor cables, symmetrical shielded cables can reduce electromagnetic radiation in the whole transmission system. It is recommended that power cables also use symmetrical shielded cables.
	Control circuit cable	All control circuit cables must be shielded cables. Use separate shielded cables for different analog signals. It is recommended that digital signal cables use shielded twisted pair (STP) cables.			
	External LED operating panel	MDKE-10	01040182	All models	It supports parameter display and modification.
	External LCD operating panel	SOP-20	01040028	All models	It supports parameter copy and download, and supports English and Chinese.
	SOP-20 mounting base	CP600-BASE1	01040022	All models	It is used to install the SOP-20 to the cabinet door.
	MDKE-10 mounting base	MD580-AZJ1	01040202	All models	It is used to install the MDKE-10 to the cabinet door.
	Extension cable	MDCAB	01013008	All models	Standard eight-core, three-meter network cable used to connect to the external LED operating panel MDKE-10 and LCD operating panel SOP-20.
		MDCAB-1.5	15048471	All models	1.5-meter cable for the external operating panel

10.3.2 Peripheral Electrical Component

10.3.2.1 Fuse, Contactor, and Circuit Breaker

CAUTION

To avoid electric shocks, do not power on the AC drive or operate peripherals immediately after a fuse burns or a circuit breaker trips. Instead, wait at least a period of time specified on the product warning label before further operations. Failure to comply will result in product damage, several injuries, or even death.

To comply with EN 61800-5-1 and UL 61800-5-1 standards, install a fuse/circuit breaker on the input side of the drive to prevent accidents caused by short circuit in the internal circuit.

The following table lists the recommended models.

Table 10–3 Selection of fuses, contactors, and circuit breakers (three-phase 380 V to 480 V, compliant with CE certification)

Structure	Power (kW)	Option model	Recommended fuse specification BUSSMANN		Recommended contactor specification (A series of ABB)	Recommended circuit breaker specification (Tmax series of ABB)
			Rated current (A)	Option model	Rated current (A)	Rated current (A)
T1	7.5 kW to 11 kW	MD520-4T7.5BS-T-IP55-INT	25	FWP-25B	26	25
		MD520-4T11BS-T-IP55-INT	35	FWP-35D	30	32
T2	15 kW to 30 kW	MD520-4T15BS-T-IP55-INT	50	FWP-50D	38	40
		MD520-4T18.5BS-T-IP55-INT	60	FWP-60D	40	50
		MD520-4T22BS-T-IP55-INT	70	FWP-70B	50	63
		MD520-4T30BS-T-IP55-INT	90	FWP-90B	63	80
T3	37 kW to 55 kW	MD520-4T37BS-T-IP55-INT	100	FWP-100B	75	100
		MD520-4T45BS-T-IP55-INT	125	FWP-125A	95	125
		MD520-4T55BS-T-IP55-INT	150	FWP-150A	110	160
T4	75 kW to 90 kW	MD520-4T75BS-T-IP55-INT	200	FWP-200A	145	200
		MD520-4T90S-T-IP55-INT	225	FWP-225A	185	200

Note

- Values recommended in the preceding table are based on
  - ambient temperature of 40°C without forced air-cooling.
  - The altitude is 2000 m.
  - An individual drive is installed.
  - The current-carrying density of the conductor or copper busbar is 1.3 A/mm².
- If the conditions vary, select the model according to actual conditions.
- Fuses with the CE certification are recommended.
- The Bussmann fuse in the following table is only for your reference and is not mandatory. You can select a fuse with higher performance than the recommended fuse.

10.3.2.2 AC Input Reactor

The optional AC input reactor is mainly used to reduce harmonics in the input current. In applications where harmonics need to be suppressed, install an external reactor.

Models and dimensions (Inovance)

Recommended AC input reactor manufacturers and models are listed in the following tables.

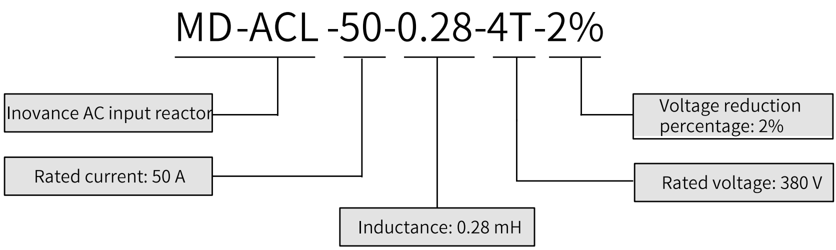


Figure 10-1 AC input reactor model

Table 10–4 Selection of AC input reactors (three-phase 380 V to 480 V)

Structure	Power (kW)	Model	Applicable Reactor	Inductance (mH)	Power consumption (W)
T1	7.5 kW to 11 kW	MD520-4T7.5BS-T-IP55-INT	MD-ACL-40-1.45-4T	1.45	100
		MD520-4T11BS-T-IP55-INT	MD-ACL-40-1.45-4T	1.45	100
T2	15 kW to 30 kW	MD520-4T15BS-T-IP55-INT	MD-ACL-50-1.2-4T	1.2	150
		MD520-4T18.5BS-T-IP55-INT	MD-ACL-50-0.28-4T-2	0.28	-
		MD520-4T22BS-T-IP55-INT	MD-ACL-60-0.24-4T-2%	0.24	-
		MD520-4T30BS-T-IP55-INT	MD-ACL-80-0.17-4T-2%	0.17	-
T3	37 kW to 55 kW	MD520-4T37BS-T-IP55-INT	MD-ACL-90-0.16-4T-2%	0.16	-
		MD520-4T45BS-T-IP55-INT	MD-ACL-120-0.12-4T-2%	0.12	-
		MD520-4T55BS-T-IP55-INT	MD-ACL-150-0.095-4T-2%	0.095	-
T4	75 kW to 90 kW	MD520-4T75BS-T-IP55-INT	MD-ACL-200-0.07-4T-2%	0.07	-
		MD520-4T90S-T-IP55-INT	MD-ACL-250-0.056-4T-2%	0.056	-

Dimension

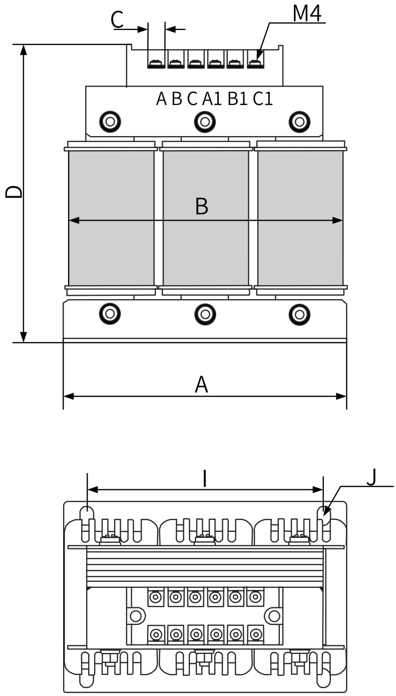


Figure 10-2 Dimensions of AC input reactors (10 A/15 A)

Table 10–5 Dimensions of AC input reactors (10 A/15 A, unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J
10	150±2	155	8	160	80	10	85 ± 2	100 ± 2	125 ± 1	Φ7 x 10
15	150±2	155	8	160	80	10	85 ± 2	100 ± 2	125 ± 1	Φ7 x 10

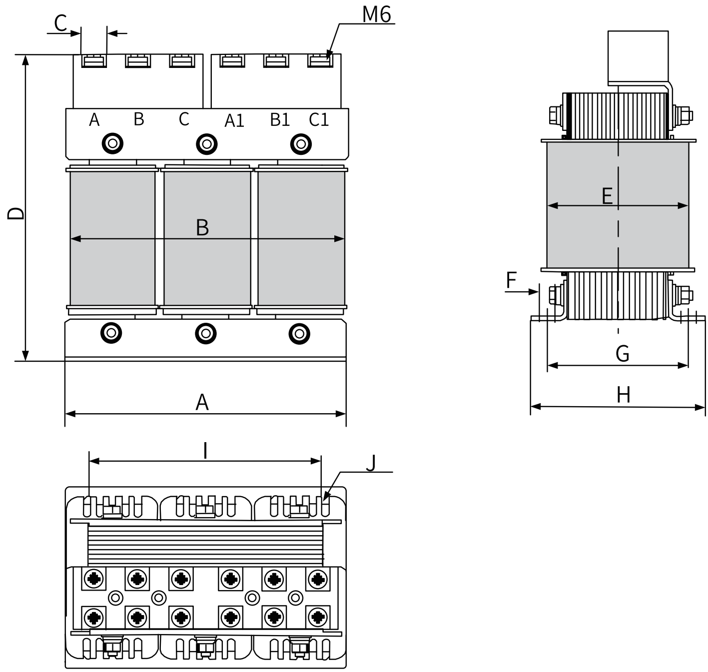


Figure 10-3 Dimensions of AC input reactors (40 A/50 A, 1.2 mH)

Table 10–6 Dimensions of AC input reactors (40 A/50 A, 1.2 mH, unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J
40	180 ± 2	185	16	200	105	10	95 ± 2	117 ± 2	150 ± 1	Φ7 x 10
50	200 ± 2	210	16	230	110	10	115 ± 2	130 ± 2	170 ± 1	Φ7 x 10

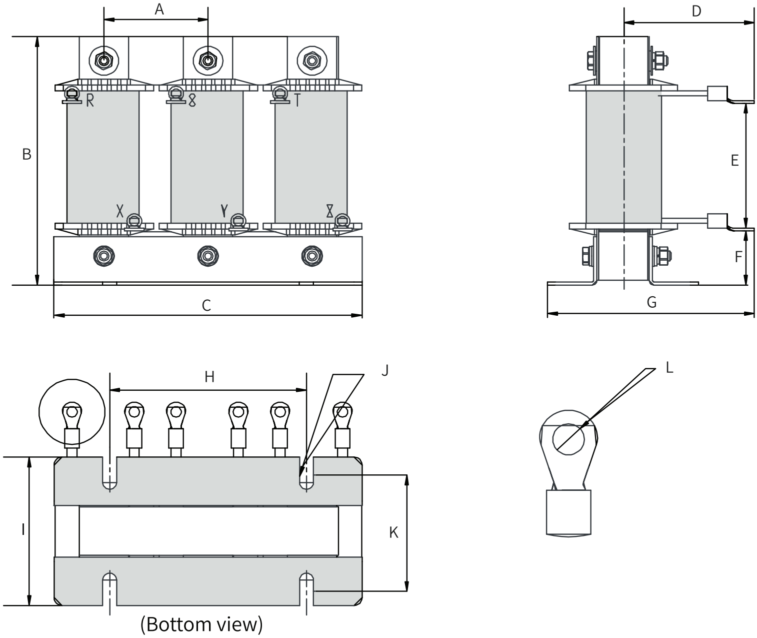


Figure 10-4 Dimensions of AC input reactors (50 A/0.28 mH, 60 A)

Table 10–7 Dimensions of AC input reactors (50 A/0.28 mH, 60 A, unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J	K	L
50	64	160	195	80 ± 10	75 ± 5	35 ± 5	135	120 ± 1	92 ± 2	Φ8.5x20	72 ± 2	Φ6.4
60	64	160	195	80 ± 10	75 ± 5	35 ± 5	135	120 ± 1	92 ± 2	Φ8.5x20	72 ± 2	Φ6.4

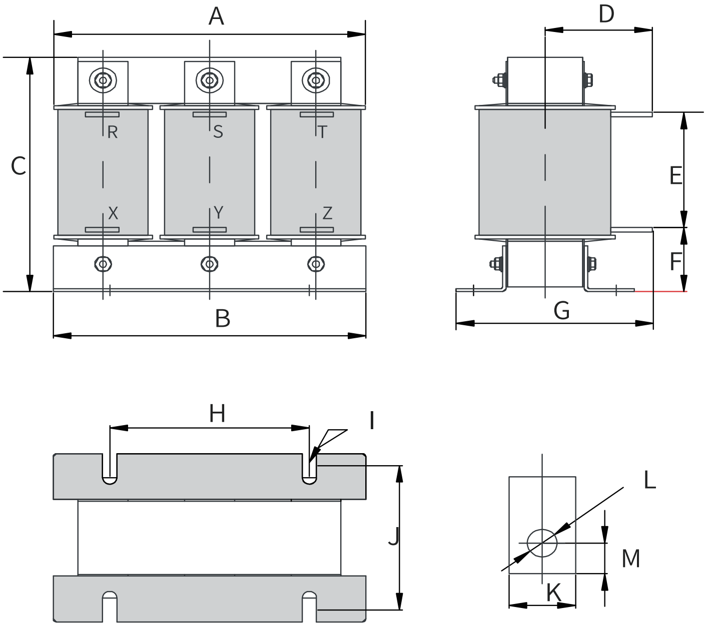


Figure 10-5 Dimensions of AC input reactors (80 A to 120 A)

Table 10–8 Dimensions of AC input reactors (80 A to 120 A, unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J	K	L	M
80	195	188 ± 1	160	-	-	-	150	120 ± 1	Φ8.5x20	72 ± 2	-	-	-
90	195	188 ± 1	160	-	-	-	150	120 ± 1	Φ8.5x20	72 ± 2	-	-	-
120	195	188 ± 1	160	78 ± 10	79 ± 5	40 ± 5	135	120 ± 1	Φ8.5x20	92 ± 2	20	Φ9	10

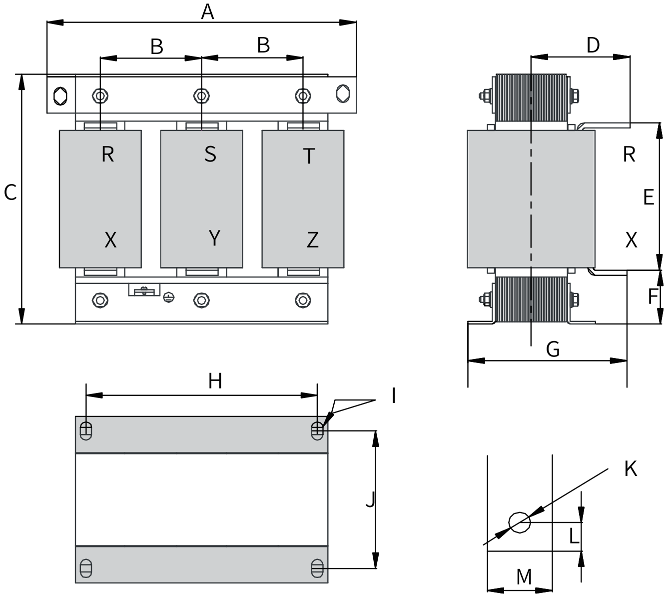


Figure 10-6 Dimensions of AC input reactors (150 A to 330 A)

Table 10–9 Dimensions of AC input reactors (150 A to 250 A, unit: mm)

Rated cur rent (A)	A	B	C	D	E	F	G	H	I	J	K	L	M
150	250	81 ± 5	230	92 ± 10	145 ± 5	38±5	155	182 ± 1	Φ11x18	76 ± 2	Φ11	13	25
200	250	81 ± 5	230	102 ± 10	145 ± 5	40 ± 5	175	182 ± 1	Φ11x18	96 ± 2	Φ11	13	25
250	250	81 ± 5	260	102 ± 10	160 ± 5	50 ± 5	175	182 ± 1	Φ11x18	96 ± 2	Φ11	13	25

Note

The dimensions of reactors provided are only for reference. Actual dimensions may vary with models.

Models and dimensions (Schaffner)

Table 10–10 Selection of Schaffner AC input reactors (three-phase 380-480 V)

Structure	Power (kW)	Model	Applicable Reactor	Inductance (mH)	Power consumption (W)
T1	7.5 kW to 11 kW	MD520-4T7.5BS-T-IP55-INT	RWK 3044-24-89-E0XXX	1.22	106
		MD520-4T11BS-T-IP55-INT	RWK 3044-35-92-E0XXX	0.83	151
T2	15 kW to 30 kW	MD520-4T15BS-T-IP55-INT	RWK 3044-48-92-E0XXX	0.61	172
		MD520-4T18.5BS-T-IP55-INT	RWK 3044-59-92-E0XXX	0.5	206
		MD520-4T22BS-T-IP55-INT	RWK 3044-59-92-E0XXX	0.5	206
		MD520-4T30BS-T-IP55-INT	RWK 3044-59-92-E0XXX	0.5	206
T3	37 kW to 55 kW	MD520-4T37BS-T-IP55-INT	RWK 3044-72-99-E0XXX	0.41	294
		MD520-4T45BS-T-IP55-INT	RWK 3044-120-99-E0XXX	0.24	324
		MD520-4T55BS-T-IP55-INT	RWK 3044-120-99-E0XXX	0.24	324
T4	75 kW to 90 kW	MD520-4T75BS-T-IP55-INT	RWK 3044-140-99-E0XXX	0.2	399
		MD520-4T90S-T-IP55-INT	RWK 3044-180-99-E0XXX	0.17	456

10.3.2.3 EMC Filter

Overview

To comply with the radiated and conducted emission requirements of EN IEC 61800-3, install the EMC filter listed in the following table. The following EMC filters can be used.

For AC drives with the power equal to or lower than 15 kW, built-in filters can meet requirements of EN IEC 61800-3 C3. Therefore, external filters are not required.

Table 10–11 Standard EMC filter model and appearance

Filter model		Appearance
Schaffner	FN 2090 series	
	FN 3258 series	
	FN 3359 series	
Jianli	TH series	
	EBK5 series	

Models and dimensions of Schaffner filters

Table 10–12 Selection of Schaffner filters (three-phase 380 V to 480 V)

Structure	Power (kW)	Model	Filter model	Power consumption (W)
T1	7.5 kW to 11 kW	MD520-4T7.5BS-T-IP55-INT	FN 3258-30-33	11.8
		MD520-4T11BS-T-IP55-INT	FN3258-42-33	15.7
T2	15 kW to 30 kW	MD520-4T15BS-T-IP55-INT	FN3258-42-33	15.7
		MD520-4T18.5BS-T-IP55-INT	FN 3258-55-34	25.9
		MD520-4T22BS-T-IP55-INT	FN 3258-75-34	31.2
		MD520-4T30BS-T-IP55-INT	FN 3258-75-34	32.2
T3	37 kW to 55 kW	MD520-4T37BS-T-IP55-INT	FN 3258-75-34	32.2
		MD520-4T45BS-T-IP55-INT	FN 3258-100-35	34.5
		MD520-4T55BS-T-IP55-INT	FN 3258-130-35	43.1
T4	75 kW to 90 kW	MD520-4T75BS-T-IP55-INT	FN 3258-180-40	58.3
		MD520-4T90S-T-IP55-INT	FN 3258-180-40	58.3

The following figure shows the dimensions of FN 3258 series filters (7 A to 180 A).

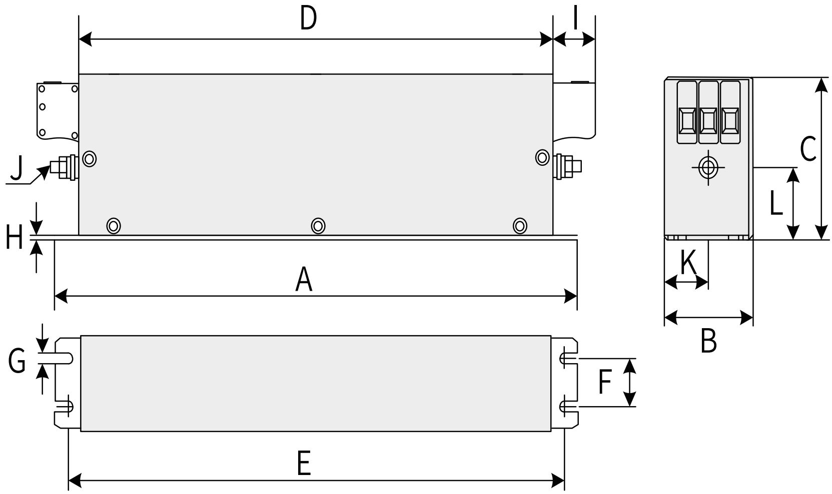


Figure 10-7 Dimension drawing of FN 3258 series filters (7 A to 180 A)

Table 10–13 Dimensions of FN 3258 series filters (7 A to 180 A, unit: mm)

Rated Current (A)	A	B	C	D	E	F	G	H	I	J	K	L
7	190	40	70	160	180	20	4.5	1	22	M5	20	29.5
16	250	45	70	220	235	25	5.4	1	22	M5	22.5	29.5
30	270	50	85	240	255	30	5.4	1	25	M5	25	39.5
42	310	50	85	280	295	30	5.4	1	25	M6	25	37.5
55	250	85	90	220	235	60	5.4	1	39	M6	42.5	26.5
75	270	80	135	240	255	60	6.5	1.5	39	M6	40	70.5
100	270	90	150	240	255	65	6.5	1.5	45	M10	45	64
130	270	90	150	240	255	65	6.5	1.5	45	M10	45	64
180	380	120	170	350	365	102	6.5	1.5	51	M10	60	47

The following figure shows the dimensions of FN 3359 series filters (150 A to 250 A).

150 A to 250 A

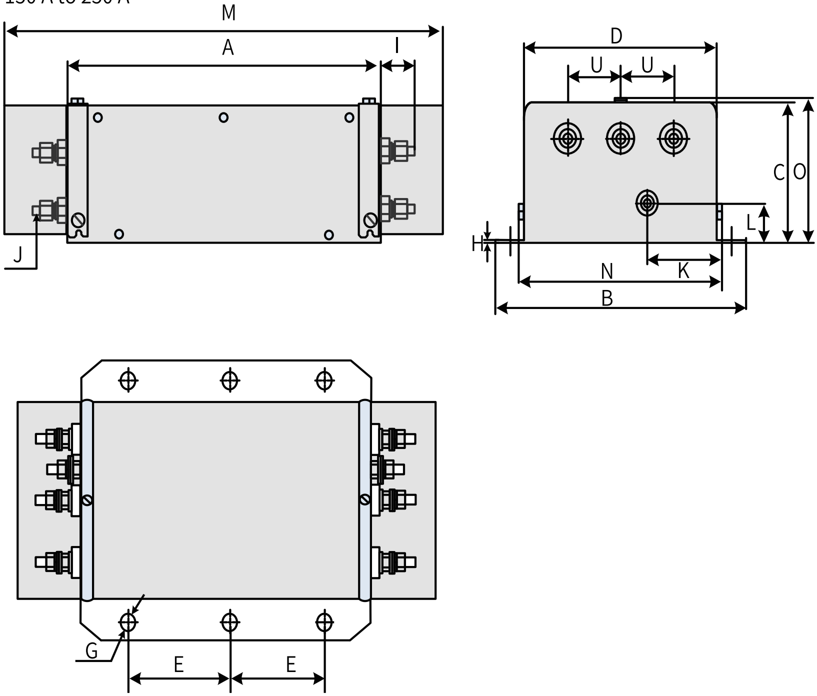


Figure 10-8 Dimension drawing of FN 3359 series filters (150 A to 250 A)

Table 10–14 Dimensions of FN 3359 series filters (150 A to 250 A, unit: mm)

Mark	Rated Current		
	150 A	180 A	250 A
A	300	300	300
B	210	210	230
C	120	120	125
D	160	160	180
E	120	120	120
F	185	185	205
G	Φ12	Φ12	Φ12
H	2	2	2
I	33	33	33
J	M10	M10	M10
K	55	55	62.5
L	30	30	35
M	420	420	420
N	171	171	191
O	127	127	132

Mark	Rated Current		
	150 A	180 A	250 A
S	-	-	-
T	-	-	-
U	50	50	55
V	-	-	-
W	-	-	-
X	-	-	-
Y	-	-	-
Z	-	-	-

Models and dimensions of Jianli filters

Table 10–15 Selection of Jianli filters (three-phase 380 V to 480 V)

Structure	Power (kW)	Model	Filter model	Power consumption (W)
T1	7.5 kW to 11 kW	MD520-4T7.5BS-T-IP55-INT	DL-25EBK5	11
		MD520-4T11BS-T-IP55-INT	DL-35EBK5	19.2
T2	15 kW to 30 kW	MD520-4T15BS-T-IP55-INT	DL-50EBK5	21.7
		MD520-4T18.5BS-T-IP55-INT	DL-50EBK5	21.7
		MD520-4T22BS-T-IP55-INT	DL-65EBK5	27.4
		MD520-4T30BS-T-IP55-INT	DL-65EBK5	27.4
T3	37 kW to 55 kW	MD520-4T37BS-T-IP55-INT	DL-80EBK5	32.6
		MD520-4T45BS-T-IP55-INT	DL-100EBK5	33
		MD520-4T55BS-T-IP55-INT	DL-130EBK5	37.5
T4	75 kW to 90 kW	MD520-4T75BS-T-IP55-INT	DL-160EBK5	38.4
		MD520-4T90S-T-IP55-INT	DL-200EBK5	34

The following figure shows the dimensions of Jianli filters (25 A to 200 A).

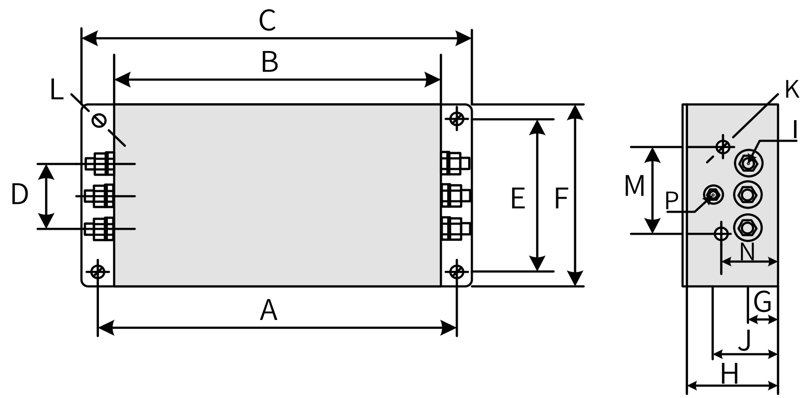


Figure 10-9 Dimensions of Jianli filters (25 A to 200 A, unit: mm)

Table 10–16 Dimensions of Jianli filters (25 A to 200 A, unit: mm)

Model	A	B	C	D	E	F	G	H	I	J	K	M	N	P	L
DL-25EBK5	243	224	265	58	70	102	25	92	M6	58	M4	74	49	M6	6.4x9.4
DL-35EBK5															
DL-50EBK5															
DL-65EBK5															
DL-80EBK5	354	323	388	66	155	188	30	92	M8	62	M4	86	56	M8	6.4x9.4
DL-100EBK5															
DL-130EBK5															
DL-160EBK5															
DL-200EBK5															

10.3.2.4 Simple Filter

The simple EMC filter effectively attenuates radio frequency noise from the power grid and running AC drive. In addition, for devices equipped with the residual current device (RCD), if the RCD trips incorrectly, install a simple filter on the input side of the drive for suppression.

Ground the simple filter properly and use a cable shorter than 30 cm to connect the filter and the drive. Its grounding terminal must be connected to the PE terminal of the AC drive, and the grounding cable (< 30 cm) must be as short as possible.

Dimension

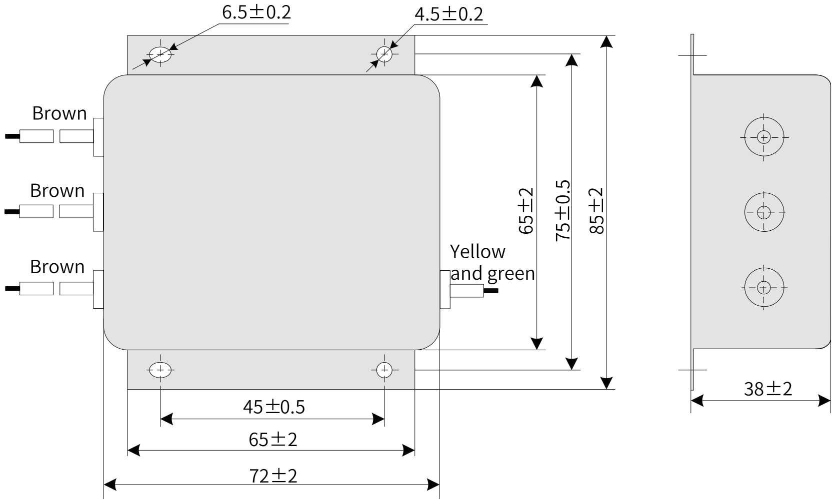


Figure 10-10 Outline dimensions of the simple filter (unit: mm)

Table 10–17 Outline dimensions of the simple filter

Model	Encoding	Outline dimensions (width x depth x height, in unit: mm)	Mounting dimensions (width x depth, in mm)
Cxy-1-1	11025018	85 x 72 x 38	45 x 75

Installation method

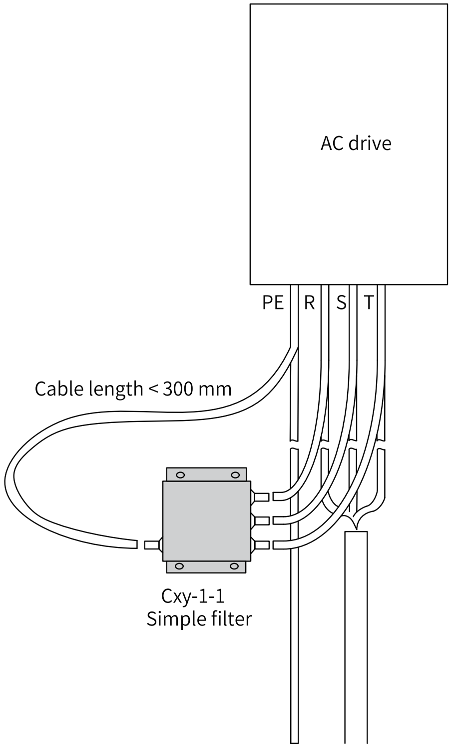
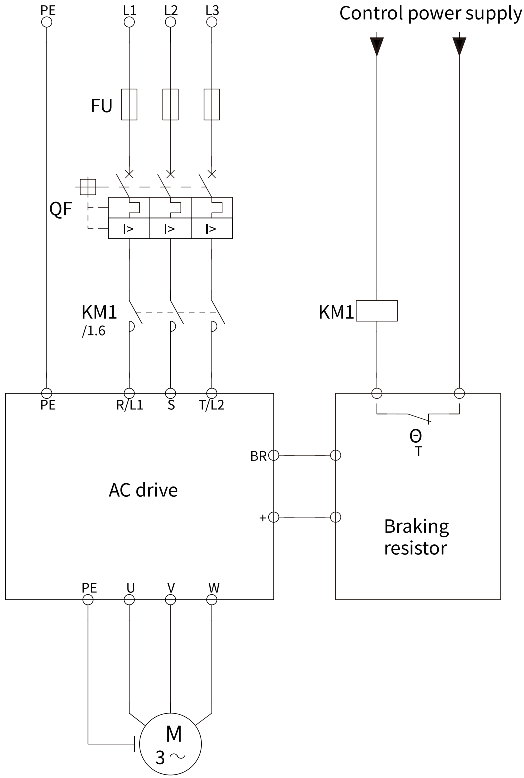


Figure 10-11 Simple filter installation

10.3.2.5 Braking Components

Braking resistor protection

In applications where a braking resistor is installed, it is recommended to use a resistor with a temperature switch to ensure safety and avoid overheating and burning of the braking resistor. Connect the temperature switch output to the electromagnetic contactor control circuit on the front end of the AC drive (as shown in the following figure) to implement the interlock protection function. When the resistor overheats, a tripping fault occurs, avoiding the resistor to be burned.



Selecting the resistance of the braking resistor

During braking, almost all the regenerative energy of the motor is consumed by the braking resistor. The resistance of the braking resistor is calculated by the following formula: U x U/R = Pb.

U indicates the braking voltage used to stabilize the system braking. The value of U varies with systems. The default braking voltage of the AC drive is 760 V, which can be adjusted through F9-08.

Pb indicates the braking power.

Selecting the power of the braking resistor

In theory, the power of the braking resistor is consistent with the braking power. However, in consideration of the derating value K, K x Pr = Pb x D

K: about 50%

Pr: power of the braking resistor

D: braking frequency, which is the proportion of the regenerative process to the whole working process

The power of the braking resistor Pr can be calculated based on the following equations:

K x Pr = Pb x D = U x U/R x D

Pr = (U x U x D)/(R x K)

You can then calculate the power of the braking resistor.

K is the derating factor of the braking resistor. A low K ensures that the braking resistor does not overheat. You can increase K properly in case of good heat dissipation of the braking resistor. Make sure that K does not exceed 50%. Otherwise, the braking resistor will overheat, which may cause fire.

The braking frequency D is determined based on actual applications. *"Table 10-18 " on page 755* lists the typical values in common applications.

Table 10–18 Braking frequencies in common applications

Common application	Elevator	Winding and unwinding	Centrifuge	Occasional braking load	General application
Braking frequency	20% to 30%	20% to 30%	50% to 60%	5%	10%

Outline dimensions of the braking unit

The braking unit has two types of outline dimensions.

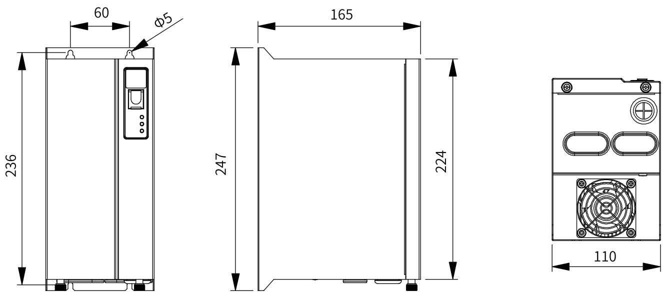


Figure 10-12 Dimensions of MDBUN series braking units (MDBUN-45-2T to MDBUN-90-2T; MDBUN-45-T to MDBUN-90-T; MDBUN-45-5T to MDBUN-90-5T) (mm)

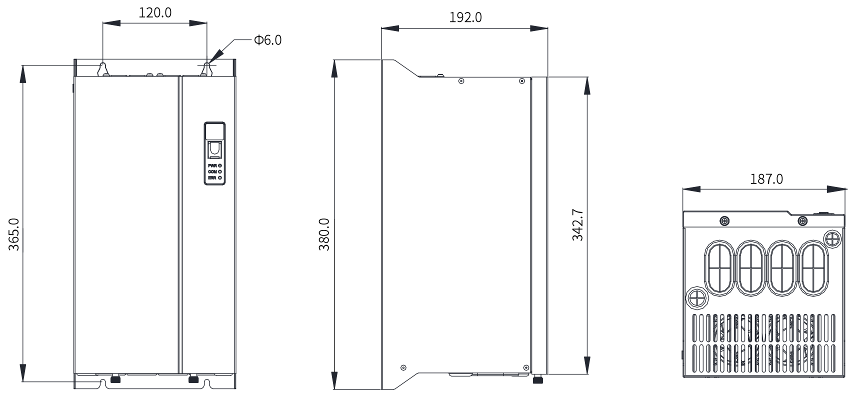


Figure 10-13 Dimensions of MDBUN series braking units (MDBUN-200-T, MDBUN-200-5T, MDBUN-200-7T) (mm)

Braking unit models

Note

The braking resistance in the table is obtained under working conditions featuring a braking usage ratio of 10% and the maximum braking time of 10s for heavy overload G-type equipment.

Table 10–19 Selection of braking components (three-phase 380 V to 480 V)

Model	Power (kW)	Braking Unit		125% of braking torque (ED: 10%; max. 10s)		Remarks	Minimum Braking Resistance (Ω)
		Model	Quantity	Recommended braking resistor specifications	Quantity of braking resistors		
MD520-4T7.5BS-T-IP55-INT	7.5	Built-in as standard		1500 W, 75 Ω	1		32
MD520-4T11BS-T-IP55-INT	11			2200 W, 50 Ω	1		24
MD520-4T15BS-T-IP55-INT	15			3000 W, 38 Ω	1		24
MD520-4T18.5BS-T-IP55-INT	18.5			4000 W, 32 Ω	1	AC drive model with the model name containing "B"	24
MD520-4T22BS-T-IP55-INT	22			4500 W, 27 Ω	1		24
MD520-4T30BS-T-IP55-INT	30			6000 W, 20 Ω	1		19.2
MD520-4T37BS-T-IP55-INT	37			7000 W, 16 Ω	1		14.8
MD520-4T45BS-T-IP55-INT	45			9000 W, 13 Ω	1		12.8
MD520-4T55BS-T-IP55-INT	55			11000 W, 10.5 Ω	1		9.6
MD520-4T75BS-T-IP55-INT	75			15000 W, 7.7 Ω	1		6.8
MD520-4T90S-T-IP55-INT	90	MDBUN-60-T	2	9000 W, 10.2 Ω	2	Input voltage ≤ 440 VAC	10.2 x 2
		MDBUN-60-5T	2	9000 W, 12.8 Ω	2	Input voltage > 440 VAC	11.4 x 2

Note

- For models of 380 V to 480 V, the default starting braking voltage for the built-in braking unit is 760 V.
- The default initial braking voltage of the external braking units MDBUN-60-T, MDBUN-90-T, and MDBUN-200-T is 670 V. These braking units apply to grids with the input voltage lower than or equal to 440 VAC. The default initial braking voltage of the external braking units MDBUN-60-5T, MDBUN-90-5T, and MDBUN-200-5T is 760 V. These braking units apply to grids with the input voltage higher than 440 VAC. You can adjust the initial braking voltage based on the grid voltage. Higher initial braking voltage requires higher braking resistance.
- The data in the preceding table is only for reference. You can select the resistance and power of the braking resistor as required. (Note that the resistance cannot be lower than the recommended minimum value, whereas the power can exceed or be equal to the recommended value.) Select the braking resistor based on the generation power of the motor in the actual system, system inertia, deceleration time, and potential energy load.
- Larger system inertia requires shorter deceleration time and more frequent braking. In this case, select a braking resistor with a higher power rating and lower resistance.
- For details about how to install and use MDBUN, see *MDBUN Series Braking Unit User Guide*.

10.3.2.6 AFE Unit

The active front end (AFE) is an optional unit used to feed the energy generated by the motor during braking back to the mains power. With the AFE installed, the braking unit and braking resistor are not required, which reduces heat emission. Inovance AFE features energy efficiency, low noise, low harmonic, and high power factor.

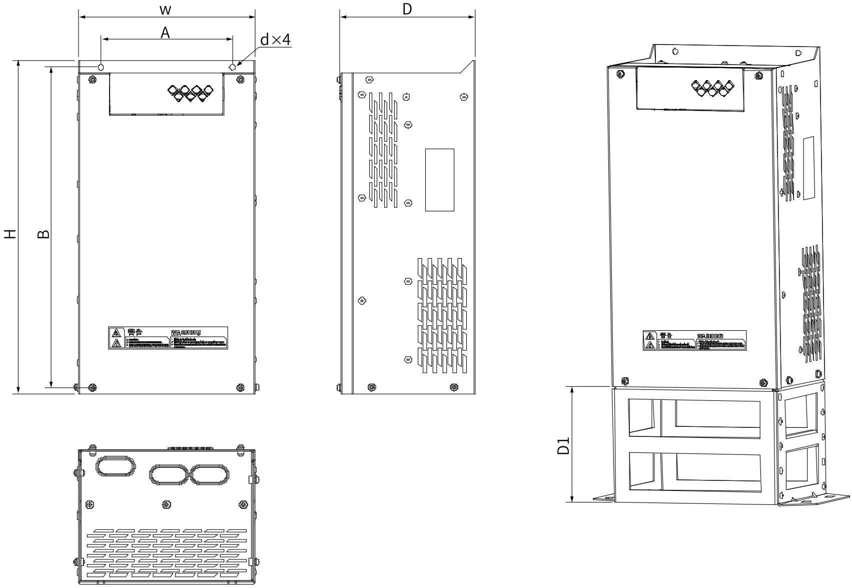


Figure 10-14 Outline dimensions of MD051 series AFE unit

Table 10–20 Dimensions of MD051 series AFE

Model	Overall dimensions (mm)			Bracket Dimension (mm)	Mounting Hole (mm)		Mounting hole (mm)	Weight (kg)
	H	W	D	D1	A	B	d	
MD051T7.5G	365	200	153	121	160	350	Φ6	8.7
MD051T11G								9.0
MD051T15G	405	215	165	142	160	390	ϕ7	14.0
MD051T18.5G								14.8
MD051T22G	505	260	171	161	160	490	ϕ7	18.2
MD051T30G								20.0

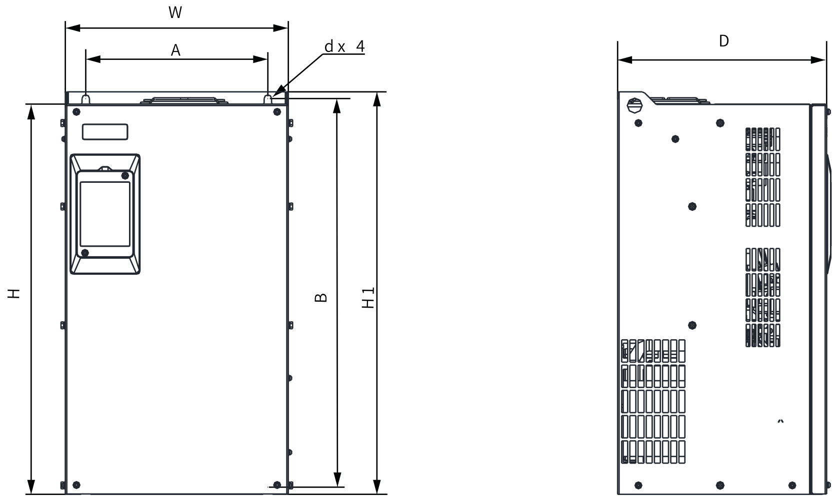


Figure 10-15 Outline and installation dimensions (unit: mm) of MD050NT55G-S to MD050NT160G-S models

Table 10–21 Outline dimensions of MD050NT55G-S to MD050NT160G-S models

Model	Overall dimensions (mm)				Mounting Hole (mm)		Mounting hole (mm)	Weight (kg)
	H	H1	W	D	A	B	d	
MD050NT55G-S	525	542	300	275	245	523	Φ10	35.0
MD050NT75G-S	554	580	338	315	270	560	Φ10	51.5
MD050NT90G-S								

Note

For installation and use of the energy feedback unit, see *MD051 Series Active Front End (AFE) User Guide* or *MD050N-S Series Active Front End (AFE) User Guide*.

10.3.2.7 Output Reactor

With an output reactor installed on the output side of the drive, the excessive dV/dt can be reduced. This can reduce the voltage stress on the motor winding to protect it, lower the motor temperature, and prolong the service life of the motor.

Table 10–22 Minimum length of the cable for the output reactor (three-phase 380 V to 480 V)

AC drive power (kW)	Rated Voltage (V)	Minimum Cable Length when an AC Output Reactor is Recommended (m)
7.5	200 to 500	100
11	200 to 500	110
15	200 to 500	125
18.5	200 to 500	135
22	200 to 500	150
≥ 30	280 to 690	150

Models and dimensions (Inovance)

Models and dimensions of the recommended Inovance AC output reactors are as follows.

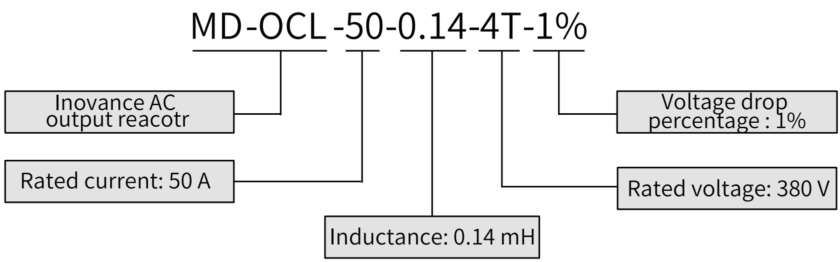


Figure 10-16 AC output reactor model

The following recommended AC output reactors are applicable only to T1 to T4 models.

Table 10–23 Selection of Inovance AC output reactors (three-phase 380 V to 480 V)

Drive structure	Power (kW)	Drive model	Reactor model	Inductance (mH)	Power consumption (W)
T1	7.5 kW to 11 kW	MD520-4T7.5BS-T-IP55-INT	MD-OCL-20-0.35-4T-1%	0.35	-
		MD520-4T11BS-T-IP55-INT	MD-OCL-30-0.23-4T-1%	0.23	-
T2	15 kW to 30 kW	MD520-4T15BS-T-IP55-INT	MD-OCL-40-0.18-4T-1%	0.18	-
		MD520-4T18.5BS-T-IP55-INT	MD-OCL-40-0.18-4T-1%	0.18	-
		MD520-4T22BS-T-IP55-INT	MD-OCL-50-0.14-4T-1%	0.14	-
		MD520-4T30BS-T-IP55-INT	MD-OCL-60-0.12-4T-1%	0.12	-
T3	37 kW to 55 kW	MD520-4T37BS-T-IP55-INT	MD-OCL-80-0.087-4T-1%	0.087	-
		MD520-4T45BS-T-IP55-INT	MD-OCL-90-0.078-4T-1%	0.078	-
		MD520-4T55BS-T-IP55-INT	MD-OCL-120-0.058-4T-1%	0.058	-
T4	75 kW to 90 kW	MD520-4T75BS-T-IP55-INT	MD-OCL-150-0.047-4T-1%	0.047	-
		MD520-4T90S-T-IP55-INT	MD-OCL-200-0.035-4T-1%	0.035	-

The following figure and table describe dimensions of the AC output reactor.

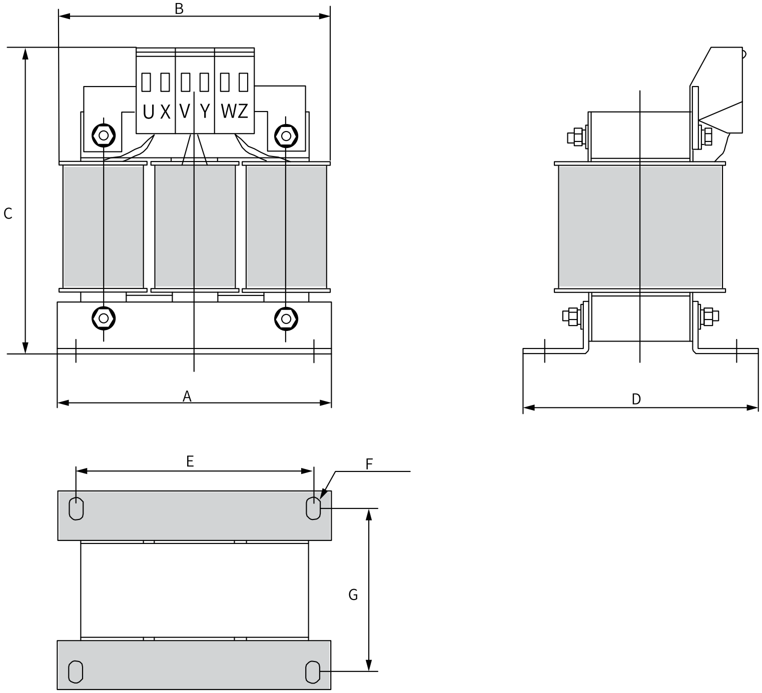


Figure 10-17 Dimensions of AC output reactors (5 A to 10 A)

Table 10–24 Dimensions of AC output reactors (5 A to 10 A, unit: mm)

Rated current (A)	A	B	C	D	E	F	G
5	105 ± 1	110	130	84 ± 2	91 ± 1	Φ6x11	65 ± 2
7	105 ± 1	110	130	84 ± 2	91 ± 1	Φ6x11	65 ± 2
10	105 ± 1	110	130	84 ± 2	91 ± 1	Φ6x11	65 ± 2

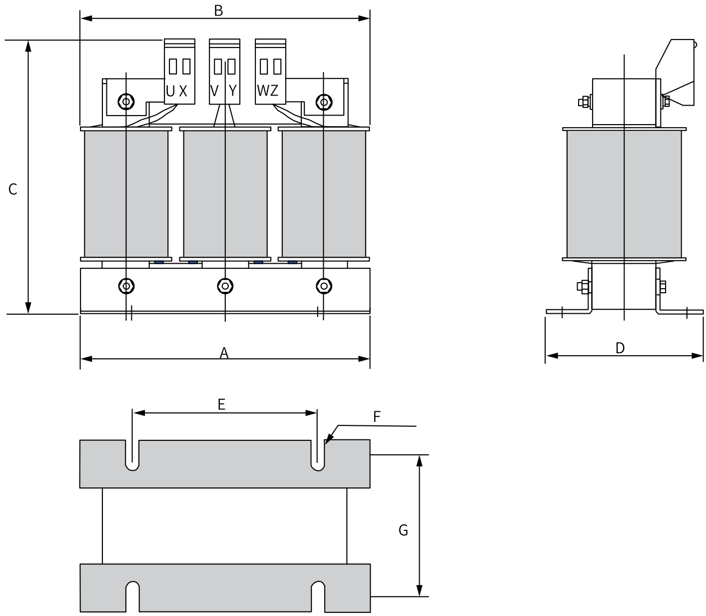


Figure 10-18 Physical dimension diagram of 15 A AC output reactor

Table 10–25 Dimensions of 15 A AC output reactor (unit: mm)

Rated current (A)	A	B	C	D	E	F	G
15	148 ± 1	155	140	76 ± 2	95 ± 1	Φ6x15	61 ± 2

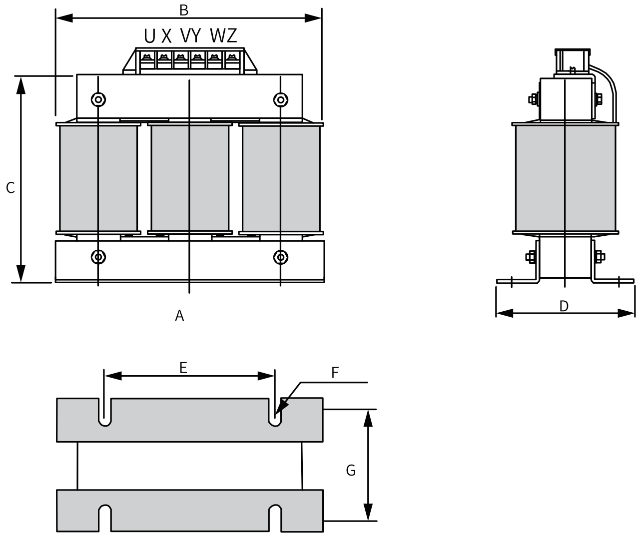


Figure 10-19 Dimension drawing of 20 A AC output reactor

Table 10–26 Dimensions of the AC output reactor (20 A) (unit: mm)

Rated current (A)	A	B	C	D	E	F	G
20	148 ± 1	155	165	76 ± 2	95 ± 1	Φ6x15	61 ± 2

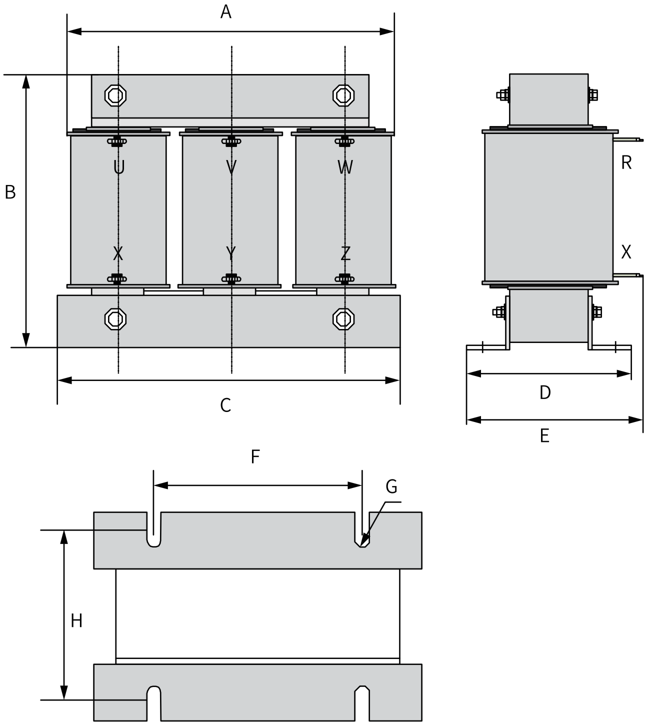


Figure 10-20 Dimensions of AC output reactors (30 A to 60 A)

Table 10–27 Dimensions of AC output reactors (30 A to 60 A, unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H
30	155	130	148 ± 1	95 ± 2	135	95 ± 1	Φ6x15	80 ± 2
40	155	130	148 ± 1	95 ± 2	135	95 ± 1	Φ6x15	80 ± 2
50	155	130	148 ± 1	95 ± 2	135	95 ± 1	Φ6x15	80 ± 2
60	195	165	188 ± 1	92 ± 2	130	120 ± 1	Φ8.5x20	72 ± 2

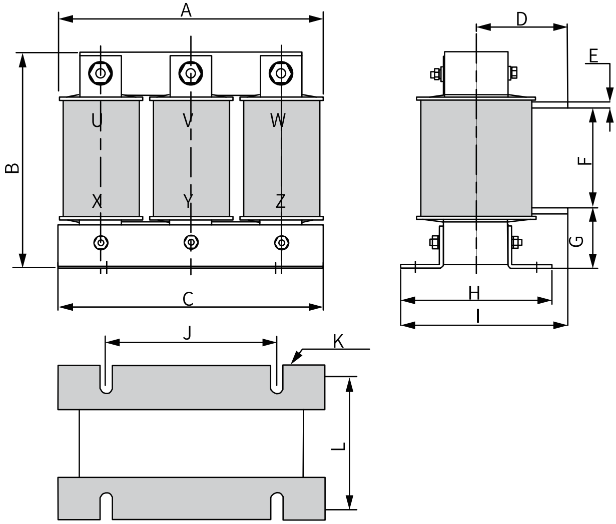


Figure 10-21 Dimensions of AC output reactors (80 A to 120 A)

Table 10–28 Dimensions of AC output reactors (80 A to 120 A, unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J	K	L
80	195	165	188 ± 1	68 ± 10	4	75 ± 5	40 ± 5	92 ± 2	130	120 ± 1	Φ8.5x20	72 ± 2
90	195	165	188 ± 1	68 ± 10	4	75 ± 5	40 ± 5	92 ± 2	130	120 ± 1	Φ8.5x20	72 ± 2
120	195	165	188 ± 1	78 ± 10	4	75 ± 5	40 ± 5	112 ± 2	135	120 ± 1	Φ8.5x20	72 ± 2

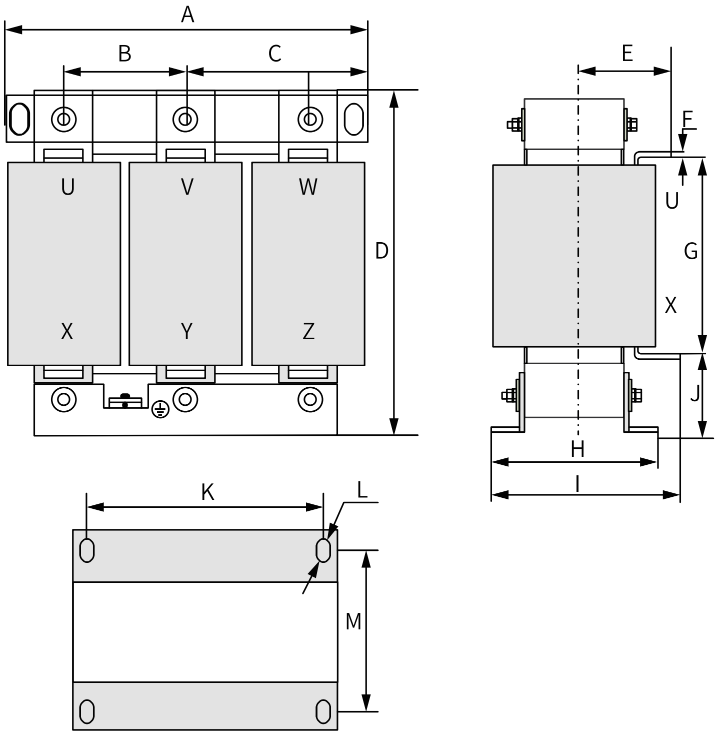


Figure 10-22 Dimensions of AC output reactors (150 A to 250 A)

Table 10–29 Dimensions of AC output reactors (150 A to 250 A, unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J	K	L	M
150	250	81 ± 5	81 ± 5	230	97 ± 10	5	140 ± 5	113 ± 2	170	42 ± 5	182 ± 1	Φ11x18	87 ± 2
200	250	81 ± 5	81 ± 5	230	102 ± 10	5	140 ± 5	123 ± 2	175	42 ± 5	182 ± 1	Φ11x18	97 ± 2
250	250	81 ± 5	81 ± 5	230	102 ± 10	5	140 ± 5	123 ± 2	175	42 ± 5	182 ± 1	Φ11x18	97 ± 2

Models and dimensions (Schaffner)

Models and dimensions of the recommended Schaffner AC output reactors are as follows.

Table 10–30 Selection of Schaffner output reactors (380 V to 480 V)

Structure	Power (kW)	Model	Applicable Reactor	Inductance (mH)	Power consumption (W)
T1	7.5 kW to 11 kW	MD520-4T7.5BS-T-IP55-INT	RWK 305-17-KL	0.364	38
		MD520-4T11BS-T-IP55-INT	RWK 305-32-KL	0.184	55
T2	15 kW to 30 kW	MD520-4T15BS-T-IP55-INT	RWK 305-32-KL	0.184	55
		MD520-4T18.5BS-T-IP55-INT	RWK 305-45-KL	0.131	60
		MD520-4T22BS-T-IP55-INT	RWK 305-45-KL	0.131	60
		MD520-4T30BS-T-IP55-INT	RWK 305-60-KL	0.098	65
T3	37 kW to 55 kW	MD520-4T37BS-T-IP55-INT	RWK 305-90-KL	0.065	75
		MD520-4T45BS-T-IP55-INT	RWK 305-110-KL	0.053	90
		MD520-4T55BS-T-IP55-INT	RWK 305-156-KS	0.038	120
T4	75 kW to 90 kW	MD520-4T75BS-T-IP55-INT	RWK 305-182-KS	0.032	140
		MD520-4T90S-T-IP55-INT	RWK 305-230-KS	0.026	180

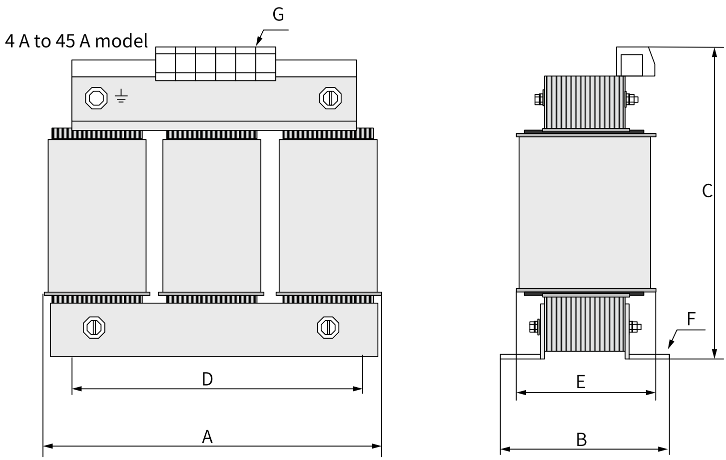


Figure 10-23 Dimensions of output reactors (4 A to 45 A)

Table 10–31 Dimensions of output reactors (4 A to 45 A, unit: mm)

Series	A	B	C	D	E	F	G
4 A and 7.8 A	100	Max. 60	Max. 115	56	34	4.8 x 9	2.5 mm^2
10 A	100	Max. 70	Max. 115	56	43	4.8 x 9	2.5 mm^2
14 A	125	Max. 70	Max. 135	100	45	5 x 8	2.5 mm^2
17 A	125	Max. 75	Max. 135	100	55	5 x 8	2.5 mm^2
24 A	125	Max. 75	Max. 135	100	55	5 x 8	4 mm^2
32 A	155	Max. 95	Max. 170	130	56	8 x 12	10 mm^2
45 A	155	Max. 110	Max. 190	130	72	8 x 12	10 mm^2

60 A to 110 A model

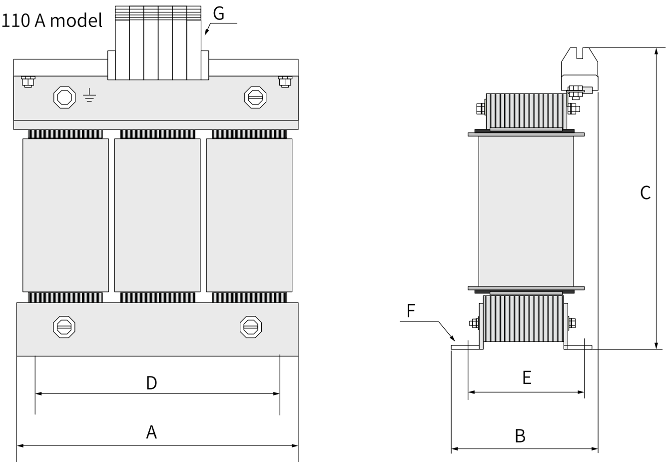


Figure 10-24 Dimensions of 60-110 A output reactors

Table 10–32 Dimensions of the output reactor (60 A to 110 A, unit: mm)

Series	A	B	C	D	E	F	G
60 A and 72 A	155	Max. 125	Max. 190	130	70	8 x 12	16 mm^2
90 A	190	Max. 115	Max. 225	170	57	8 x 12	35 mm^2
110 A	190	Max. 130	Max. 220	170	67	8 x 12	35 mm^2

124 A to 1100 A model

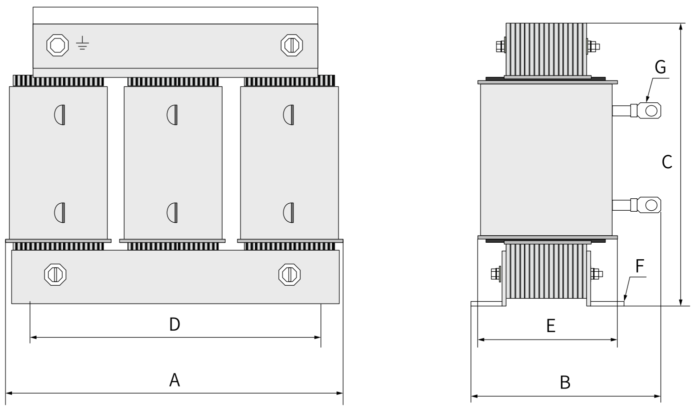


Figure 10-25 Dimensions of output reactors (124 A to 230 A)

Table 10–33 Dimensions of output reactors (124 A to 230 A, unit: mm)

Series	A	B	C	D	E	F	G
124 A	190	Max. 180	Max. 160	170	67	8 x 12	Φ8
143 A	190	Max. 180	Max. 160	170	77	8 x 12	Φ8
156 A and 170 A	190	Max. 180	Max. 160	170	77	8 x 12	Φ10
182 A	210	Max. 180	Max. 185	175	97	8 x 12	Φ10
230 A	240	220	220	190	119	11 × 15	Φ12

10.3.2.8 Magnetic Ring and Ferrite Clamp

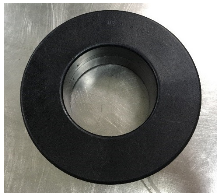
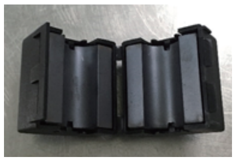
Models

The magnetic ring can be used on the input or output side of the AC drive. Install it as close to the AC drive as possible. When installed on the input side, the magnetic ring can suppress the noise in the input power supply system of the drive. When installed on the output side, the magnetic ring can suppress interference generated by the AC drive to external devices and reduce the bearing current.

In applications with leakage current and signal cable interference, install a magnetic ring or a ferrite clamp.

- Amorphous magnetic ring: featuring high permeability when the frequency is within 1 MHz and excellent anti-interference performance, but not as low-cost as the ferrite clamp
- Ferrite clamp: featuring high permeability when the frequency is above 1 MHz and excellent suppression performance on interference generated by low-power drives and signal cables

Table 10–34 Appearance and models of the magnetic ring and ferrite clamp

Category	Model	Appearance
Magnetic ring	DY644020H	
	DY805020H	
	DY1207030H	
Ferrite clamp	DYR-130-B	

Dimensions

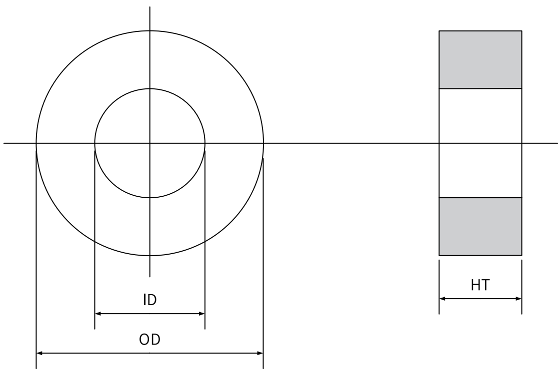


Figure 10-26 Dimensions of the magnetic ring

Table 10–35 Dimensions of the magnetic ring

Model	Dimension (OD x ID x HT) (mm)
DY644020H	64 x 40 x 20
DY805020H	80 x 50 x 20
DY1207030H	120 x 70 x 30

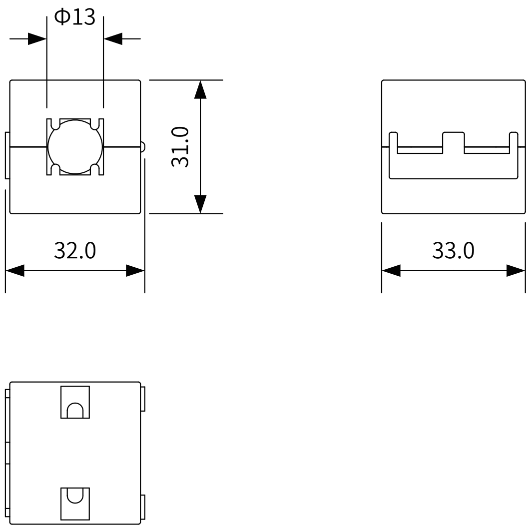


Figure 10-27 Dimensions of the ferrite clamp (unit: mm)

10.3.3 Cable

10.3.3.1 Main Circuit Cables

Power cable selection requirements

For selection of power cables, follow national or regional regulations. Select IEC cables according to the following requirements:

- Compliant with EN 60204-1 and IEC 60364-5-52 standards
- PVC insulated cables with copper conductors
- Heat resistance: ambient temperature of 40°C and cable surface temperature of 70°C (Note: Contact the manufacturer if the ambient temperature exceeds 40°C.)
- Symmetric cable with copper-braided shield

If the recommended cables for peripheral equipment or options are not suitable for the product, contact Inovance.

To meet the EMC requirements, the cable with the shield must be used. The shielded cables are divided into three-conductor cables and four-conductor cables, as shown below. If the conductivity of three-conductor cable shield cannot meet requirements, add an independent PE cable. Alternatively, use a four-conductor cable with one conductor as the PE. The shield of the shielded cable consists of coaxial cooper braids to suppress radio frequency interference. The braided density of the cooper braid should be greater than 90% to enhance the shielding efficiency and conductivity.

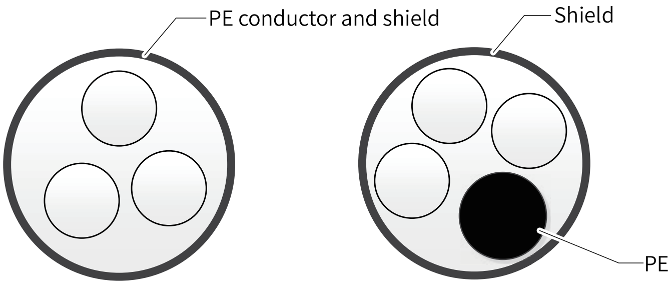


Figure 10-28 Recommended power cable

Recommended cable

Table 10–36 Cable selection (three-phase 380–480 V) (with CE certification)

Structure	Model	Rated input current (A)	Rated output current (A)	RST+PE/UVW+PE IEC (mm^2) Cable (mm^2) [1]	Recommended terminal type for RST/UVW	Recommended terminal type for PE	**Cable outer diameter** (mm)	Screw specification	Tightening torque (N·m)
T1	MD520-4T7.5BS-T-IP55-INT	18	17	3x6+6	E6010	TLK6-4	13 to 18	M4 (RST) M4 (PE)	1.5 (RST) 1.2 (PE)
	MD520-4T11BS-T-IP55-INT	26	25	3x6+6	E6010	TLK6-4	13 to 18		
T2	MD520-4T15BS-T-IP55-INT	33	32	3x10+10	E10-12	TLK10-4	18 to 25	M5 (RST) M4 (PE)	1.8 (RST) 1.2 (PE)
	MD520-4T18.5BS-T-IP55-INT	38	37	3x10+10	E10-12	TLK10-4	18 to 25		
	MD520-4T22BS-T-IP55-INT	46	45	3x10+10	E10-12	TLK10-4	18 to 25		
	MD520-4T30BS-T-IP55-INT	61	60	3x16+16	E16-12	TLK16-4	18 to 25		
T3	MD520-4T37BS-T-IP55-INT	69	75	3x25+16	TLK25-8	TLK16-8	30 to 38	M8 (RST) M8 (PE)	13 (RST) 13 (PE)
	MD520-4T45BS-T-IP55-INT	89	91	3x35+25	TLK35-8	TLK25-8	30 to 38		
	MD520-4T55BS-T-IP55-INT	106	112	3x50+35	TLK50-8	TLK35-8	30 to 38		

Structure	Model	Rated input current (A)	Rated output current (A)	RST+PE/UVW+PE IEC (mm²) Cable (mm²) [1]	Recommended terminal type for RST/UVW	Recommended terminal type for PE	**Cable outer diameter** (mm)	Screw specification	Tightening torque (N·m)
T4	MD520-4T75BS-T-IP55-INT	139	150	3x70+50	TLK70-12	TLK50-8	37 to 44	M12 (RST) M8 (PE)	35.0 (RST) 13 (PE)
	MD520-4T90S-T-IP55-INT	164	176	3x95+70	TLK95-12	TLK70-8	37 to 44		

Note

[1] applies to standards in China, where 3x6+6 indicates one four-core 6 mm² cable and 3x25+16 indicates one four-core cable (three 25 mm² cores and one 16 mm² core).

The preceding recommended terminals are TLK and E series of KST.

Note:

- Observe national or regional regulations during selection. The recommended values in the preceding table are based on the following conditions:
  - Cables with PVC insulation and copper conductor
  - Maximum cable surface temperature not exceeding 70°C/75°C at the ambient temperature of 40°C (Note: Contact the manufacturer when the ambient temperature exceeds 40°C.)
  - Cable installation type E applied (See IEC60204-1.)
- For IP55 compliance, use a cable with the recommended outer diameter, or protect the cable entry with heat shrink tubing or fire-resistant putty.
- If the conditions vary, select the model according to actual conditions.

Table 10–37 Cable selection (three-phase 380 V to 480 V) (with UL certification)

Structure	Model	Rated input current (A)	Rated output current (A)	RST+PE/UVW+PE				Screw specification	Tightening torque (N·m)
				UL (AWG)					
				Cable (AWG)[2]	Recommended terminal type for RST/UVW	Recommended terminal type for PE	**Cable outer diameter** (mm)		
T1	MD520-4T7.5BS-T-IP55-INT	18	17	3x10+10	E6010	TLK6-4	13 to 18	M4 (RST) M4 (PE)	1.5 (RST) 1.2 (PE)
	MD520-4T11BS-T-IP55-INT	26	25	3x10+10	E6010	TLK6-4	13 to 18		
T2	MD520-4T15BS-T-IP55-INT	33	32	3x8+8	E10-12	TLK10-4	18 to 25	M5 (RST) M4 (PE)	1.8 (RST) 1.2 (PE)
	MD520-4T18.5BS-T-IP55-INT	38	37	3x8+8	E10-12	TLK10-4	18 to 25		
	MD520-4T22BS-T-IP55-INT	46	45	3x8+8	E10-12	TLK10-4	18 to 25		
	MD520-4T30BS-T-IP55-INT	61	60	3x6+6	E16-12	TLK16-4	18 to 25		
T3	MD520-4T37BS-T-IP55-INT	69	75	3x4+6	TLK25-8	TLK16-8	30 to 38	M8 (RST) M8 (PE)	13 (RST) 13 (PE)
	MD520-4T45BS-T-IP55-INT	89	91	3x2+4	TLK35-8	TLK25-8	30 to 38		
	MD520-4T55BS-T-IP55-INT	106	112	3x2+4	TLK35-8	TLK25-8	30 to 38		
T4	MD520-4T75BS-T-IP55-INT	139	150	3x1/0+2	TLK50-12	TLK35-8	37 to 44	M12 (RST) M8 (PE)	35.0 (RST) 13 (PE)
	MD520-4T90S-T-IP55-INT	164	176	3x2/0+1/0	TLK70-12	TLK50-8	37 to 44		

Note

[2] applies to standards in the USA, where 3x10+10 means one four-core 10AWG cable, and 3x4+6 means one four-core cable (three 4AWG cores and one 6AWG core).

The preceding recommended terminals are TLK and E series of KST.

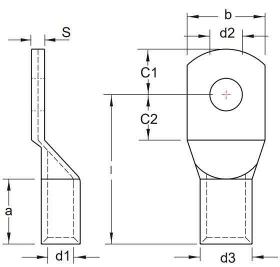
Note:

- Observe national or regional regulations during selection. The recommended values in the preceding table are based on the following conditions:
  - Cables with PVC insulation and copper conductor
  - Maximum cable surface temperature not exceeding 70°C/75°C at the ambient temperature of 40°C (Note: Contact the manufacturer when the ambient temperature exceeds 40°C.)
  - Cable installation type E applied (See IEC60204-1.)
- For IP55 compliance, use a cable with the recommended outer diameter, or protect the cable entry with heat shrink tubing or fire-resistant putty.
- If the conditions vary, select the model according to actual conditions.

Recommended terminal

The preceding recommended terminals are TLK and E series terminals of KST.

Table 10–38 Appearance, models, and dimensions of TLK series lugs (unit: mm)

<table>
<tr><th>Model</th><th>S</th><th>a</th><th>b</th><th>C1</th><th>C2</th><th>d1</th><th>d2</th><th>d3</th><th>l</th></tr>
<tr><td colspan="10">
</td></tr>
<tr><td>2.5-4</td><td>1.25</td><td>6</td><td>7.5</td><td>4</td><td>5</td><td>2.3</td><td>4.3</td><td>4.2</td><td>13</td></tr>
<tr><td>4-4</td><td>-</td><td>8.0</td><td>8.5</td><td>4.7</td><td>5.5</td><td>3.0</td><td>4.3</td><td>5.0</td><td>17</td></tr>
<tr><td>6-5</td><td>2.4</td><td>9</td><td>10</td><td>6.5</td><td>3.5</td><td>5.5</td><td>6.5</td><td>21</td><td>2.4</td></tr>
<tr><td>10-6</td><td>1.8</td><td>10</td><td>12</td><td>6.5</td><td>7.5</td><td>4.6</td><td>6.4</td><td>7.0</td><td>22</td></tr>
<tr><td>16-5</td><td rowspan="2">2.8</td><td rowspan="2">13</td><td rowspan="2">12</td><td>5.5</td><td>6.5</td><td rowspan="2">5.5</td><td>5.5</td><td rowspan="2">8.5</td><td>26</td></tr>
<tr><td>16-6</td><td>6.25</td><td>7.5</td><td>6.4</td><td>27</td></tr>
<tr><td>16-8</td><td>2.1</td><td>13</td><td>15</td><td>8.5</td><td>9.5</td><td>5.5</td><td>8.4</td><td>8.5</td><td>29</td></tr>
<tr><td>16-12</td><td>1.5</td><td>13</td><td>19</td><td>12</td><td>13</td><td>5.5</td><td>13</td><td>8.5</td><td>33</td></tr>
<tr><td>25-6</td><td>2.8</td><td rowspan="2">15</td><td>14</td><td>7.5</td><td>7.5</td><td rowspan="2">7</td><td>6.4</td><td rowspan="2">10</td><td>30</td></tr>
<tr><td>25-8</td><td>2.4</td><td>16</td><td>10</td><td>10</td><td>8.4</td><td>32</td></tr>
</table>

Model	S	a	b	C1	C2	d1	d2	d3	l
35-6	3.2	17	17	7.5	7.5	8.5	6.4	12	32
35-8				10	10		8.4		34
50-8	3.7	19	20	10	10	10	8.4	14	37
50-12	3.3	19	23	13	13	10	13	14	43
70-12	4.3	21	23	13	13	12	13	16.5	46
95-8	4.2	25	26	12	12	13.5	8.4	18	48
95-12				13	13	13.5	13	18	49

10.3.3.2 Control Circuit Cables

Note

Wire the control circuit cable according to EN 60204-1.

To ensure that I/O signal cables are not affected by peripheral interference and noise, use shielded cables as signal cables. Install the signal shield bracket at each end of the shield to bond the shield to the drive 360 degrees. Use separate shielded cables for different analog signals. It is recommended to use shielded twisted pair (STP) cables for digital signals.

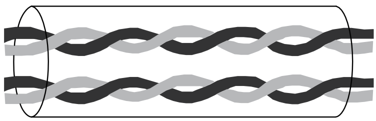


Figure 10-29 Shielded twisted pair cable

11 Solutions to Common EMC Problems

11.1 Residual Current Device Malfunction

When the residual current device (RCD) malfunctions, perform troubleshooting according to the following table.

Table 11–1 Measures against current leakage

Symptom	Possible cause	Solution
Tripping upon power-on	The anti-interference performance of the RCD is poor.	1. Use RCDs of recommended brands. 2. Use an RCD with a higher tripping current. 3. Move the unbalanced load to the upstream side of the residual current device. 4. Disconnect the EMC screw or the grounding terminal of the external EMC filter to reduce the ground capacitance of the input end.
	The tripping current of the RCD is excessively low.	
	An unbalanced load is connected to the downstream side of the RCD.	
	An excessive ground capacitance exists in the upstream side of the drive.	
The RCD trips during operation.	The anti-interference performance of the RCD is poor.	1. Use RCDs of recommended brands. 2. For a single AC drive, tighten the EMC screw. For multiple AC drives, disconnect the optional EMC grounding screw, as shown in *"Figure 11–1 Disconnect the EMC selective grounding screw." on page 779*. 3. Install a simple filter on the input side of the drive and wind the magnetic ring on the LN and RST cables near the RCD, as shown in *"Figure 11–2 Installing simple filter and ferrite ring on the input side" on page 779*. 4. Use an RCD with a higher rated tripping current. 5. Reduce the carrier frequency without compromising the performance. 6. Use shorter motor cables.
	The tripping current of the RCD is excessively low.	
	An unbalanced load is connected to the downstream side of the RCD.	
	The distributed capacitance to ground of the motor cable and motor is excessively high.	

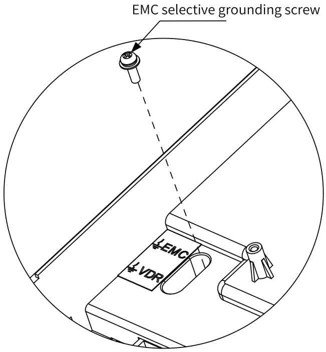


Figure 11-1 Disconnect the EMC selective grounding screw.

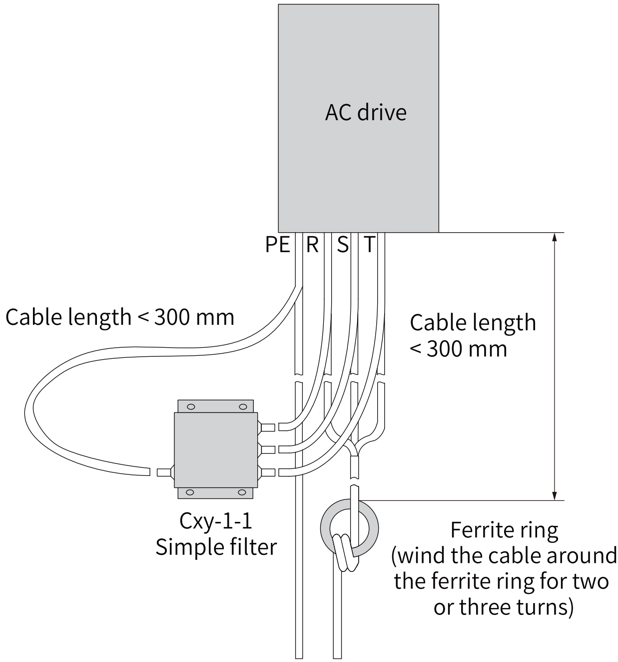


Figure 11-2 Installing simple filter and ferrite ring on the input side

11.2 Harmonic Suppression

To suppress the higher harmonic current of this product and improve the power factor, install an AC input reactor on the input side of the product. This will enable the product to meet standard requirements.

11.3 I/O Signal Interference

11.3.1High-Speed Pulse Interference

Obverse the following steps for troubleshooting.

Step	Remedy
1	Use shielded twisted pair cables and ground both ends.
2	Connect the PE terminal of the AC drive to the motor housing.
3	Connect the PE terminal of the AC drive to that of the power grid.
4	Add an equipotential bonding grounding cable between the host controller and the AC drive.
5	Separate signal cables from power cables with a distance of at least 30 cm.
6	Add a ferrite clamp to the signal cable, or add a magnetic ring and wind the signal cable through the magnetic ring for one to two turns.
7	Install a magnetic ring to the U, V, and W output cables at the drive side and wind the cables through the magnetic ring for two to four turns.
8	Use a shielded power cable and ground the shield securely.

11.3.2Common I/O Signal Interference

The power supply generates strong interference during operation, which may interfere with other devices due to improper wiring or grounding. When the drive interferes with or is interfered by other devices, adopt the following measures.

Step	Remedy
1	Use shielded I/O signal cables with the shield connected to the PE terminal.
2	Connect the PE terminal of the motor to that of the drive, and connect the PE terminal of the drive to that of the power grid.
3	Add an equipotential bonding grounding cable between the host controller and the AC drive.
4	Install a magnetic ring to the U, V, and W output cables at the drive side and wind the cables through the magnetic ring for two to four turns.
5	Increase the filtering capacitance of the low-speed DI. The recommended maximum value is 0.1 uF.
6	Increase the filtering capacitance of the AI. The recommended maximum value is 0.22 uF.

Step	Remedy
7	Install a ferrite clamp or a magnetic ring to the signal cable and wind the signal cable through the magnetic ring for one to two turns.
8	Use a shielded power cable and ground the shield securely.

11.4 Communication Interference

11.4.1RS485 and CAN Communication Interference

Obverse the following steps for troubleshooting.

Step	Remedy
1	Install a 120 Ω termination resistor at both ends of the bus.
2	Replace with multi-conductor shielded twisted pair cables and ground both ends of the shield.
3	Separate the communication cable from the power cable by a distance of at least 30 cm.
4	Adopt the daisy chain mode for multi-node communication.
5	For multi-node communication, add an equipotential bonding grounding cable between nodes.
6	Add a ferrite clamp at both ends of the communication cable or add a magnetic ring at both ends of the communication cable and wind the communication cable through the magnetic ring for one to two turns.
7	Install a magnetic ring to the U, V, and W output cables at the drive side and wind the cables through the magnetic ring for two to four turns.
8	Use a shielded power cable and ground the shield securely.

11.4.2EtherCAT and PROFINET Communication Interference

Obverse the following steps for troubleshooting.

No.	Step
1	Check that the communication network cables meet the specification requirements for shielded Cat 5e cables.
2	Check that the communication port is in good contact.
3	Separate the communication cable from the power cable by a distance of at least 30 cm.
4	For multi-node communication, add an equipotential bonding grounding cable between nodes.

No.	Step
5	Check that the cable between two nodes is no longer than 100 m in length.
6	Install the ferrite clamp on both sides of the communication cable and wind the cable around the ferrite clamp by one or two turns.
7	Install a magnetic ring to the U, V, and W output cables at the drive side and wind the cables through the magnetic ring for two to four turns.
8	Use a shielded power cable and ground the shield securely.

Service and Support

Should you encounter a safety accident during the use or operation of the product, or face challenges in operating and maintaining the equipment, which remain unresolved after the relevant documentation is consulted, we provide multiple channels to ensure prompt resolution:

- Channel #1: Contact service@inovance.com.
- Channel #2: Visit https://www.inovance.com/global to access document downloads, after-sales support, spare parts ordering, repair applications, and authenticity verification services.
- Channel #3: Download My Inovance app (https://zshc-eu.inovance.com/download-pc/) where you can access products info and documentation, and query product parameters.

We are committed to providing you with quick and professional technical support, and we look forward to your satisfaction and trust.

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