

MD580-PG-AU1



19012867A00

ABZ & SSI Dual Encoder PG Card User Guide

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Preface

MD580-PG-AU1 is an ABZ and SSI dual encoder expansion card that supports fully closed-loop control scenarios. The card is connected to the control board by using the FPC cable, and provides the universal DB15 connector which requires a DB15 male connector customized according to the pin sequences defined in the user guide. The ABZ encoder is used to detect the signal input of TTL or RS422 incremental encoders, and the SSI encoder is used to detect the signal input of the absolute encoder adopting the universal serial port protocol. The interface can support power supplies of 5 V, 12 V and 24 V for encoders.

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Product Information

Terminal arrangement and description

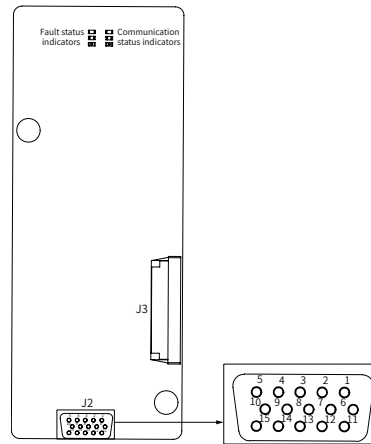


Figure 1 MD580-PG-AU1 terminal arrangement

Type	Pin No.	Pin name	Function	Wiring description	Recommended cable specifications
ABZ & SSI dual-encoder card (J2)	3	Z+	Z signal of the incremental encoder (+)	Twisted pair	Quad-conductor shielded twisted pair cable Cross-sectional area: 0.5mm ² ~2.5 mm ² It is recommended to use a cable with a large cross-sectional area to reduce power consumption and signal loss.
	8	Z-	Z signal of the incremental encoder (-)		
	1	A+	A signal of the incremental encoder (+)	Twisted pair	
	6	A-	A signal of the incremental encoder (-)		
	2	B+	B signal of the incremental encoder (+)	Twisted pair	
	7	B-	B signal of the incremental encoder (-)		
	14	12V	12 V power supply of the encoder	-	
	15	COM	Encoder power supply ground	-	
	4	DATA+	DATA signal of the SSI encoder (+)	Twisted pair	
	9	DATA-	DATA signal of the SSI encoder (-)		
	11	5V	5 V power supply of the encoder	-	
	12	COM	Encoder power supply ground	-	
	13	24V	24 V power supply of the encoder	-	
	5	CLK+	Clock output signal of the SSI encoder (+)	Twisted pair	
	10	CLK-	Clock output signal of the SSI encoder (-)		

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Communication interface with the control board (J3)	An 18-pin FPC interface to connect to the PG card slot on the control board of the AC drive	-	-
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Indicator descriptions

Name	Status	Description
Fault status indicator	Red	ABZ encoder fault (disconnection)
	Yellow	SSI encoder fault (frame error or invalid data)
	Green	The ABZ and SSI encoders are normal.
Communication status indicator	Red	SPI communication fault (CRC fault or PG card not activated)
	Green	Communication normal
	Yellow	Reserved

Technical specifications

Item	ABZ	SSI
5 V power supply of the encoder	5 VDC±5%, 500 mA; 12 VDC±10%, 300 mA; 24 VDC±10%, 100 mA	
Encoder input signal	Differential TTL or RS422 incremental signal	RS422 absolute signal
Signal maximum input frequency	500kHz	1 MHz
Disconnection detection	Supported	Supported
Encoder resolution	-	32 bits

Installation and Wiring

Installation instructions

Use M3×8 screws to install MD580-PG-AU1 to the dedicated expansion card slot of the AC drive. The figure below illustrates the installation using the MD580S as an example.

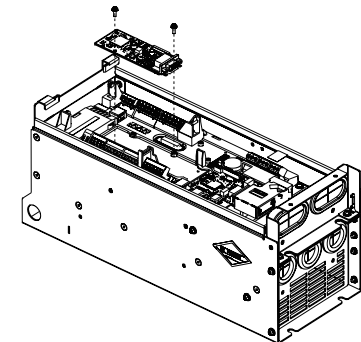


Figure 2 Installation of MD580-PG-AU1

■ Wiring Instructions

Connect the wires as per the diagram below.

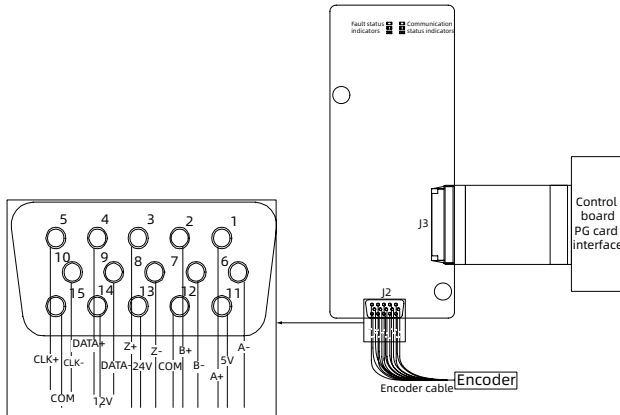


Figure 3 Wiring of MD580-PG-AU1

■ Relationship between the length and the cross-sectional area of the encoder cables

The longer the encoder cable, the greater the cable resistance, and consequently, the larger the voltage drop across the cable resistance for both the encoder power supply and encoder signals. For long-distance applications, improper cable specification will cause the encoder and PG card to malfunction due to signal attenuation induced by cable resistance. Refer to the table below and select appropriate cables based on the on-site cable length. The cable specification is expressed by AWG, which is the US standard measurement for the cross-sectional area of cables.

Table 1 Relationship between the length and the cross-sectional area of the ABZ encoder cable

Cable Length (m)	Specification (AWG)
10	≤ 26
20	
30	≤ 24
40	
50	≤ 22
60	
70	≤ 21
80	
90	≤ 20
100	

Table 2 Relationship between the length and the cross-sectional area of the SSI encoder cable

Cable Length (m)	Specification (AWG)
10	≤ 20
20	
30	
40	
50	≤ 18
80	

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	Post code:	Tel.:
Product Information	Product model:	
	Product barcode (attached here):	
	Agent name:	
Fault Information	Fault details	
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