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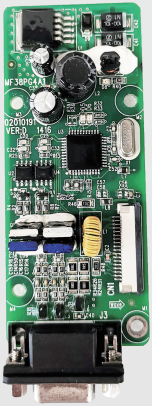

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MD38PG4
Resolver PG Card

User Guide

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Preface

■ Introduction

The MD38PG4 resolver PG card is a signal capture card specifically designed for resolvers. It is also an essential component for feedback vector control in AC drives.

The MD38PG4 card can output an excitation source of 7 VRMS/10 kHz and receive feedback signals with a transformation ratio of 0.5. It uses a universal D-type (9-pin) female connector for external connection. Besides, it uses an 18-pin flexible printed circuit (FPC) flat cable for data exchange with the main control board.

The MD38PG4 card is an optional general-purpose resolver PG card that can be used with various AC drive models.

■ Revision History

Date	Version	Description
October 2023	A00	First release

■ Access to the Guide

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

- Visit *www.inovance.com*, go to "Support" > "Download", search by keyword, and then download the PDF file.
- Scan the QR code below to install the Inovance app, and search for the following AC drives in the app to obtain this guide.
  - MD480 (T2 and larger models)
  - MD480-PLUS
  - MD500
  - MD500E
  - MD500-PLUS
  - MD510
  - MD520
  - MD580

■ Warranty

For faults and damage incurred during normal use in the warranty period, Inovance provides free repair service. (For details of the warranty period, see the purchase order.) A maintenance fee will be charged out of the warranty period.

Even in the warranty period, a maintenance fee will be charged for repair of the following damage:

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

The maintenance fee will be charged according to our latest Price List if not otherwise agreed upon.

For details, see the Product Warranty Card.

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1 Product Information

1.1 Introduction

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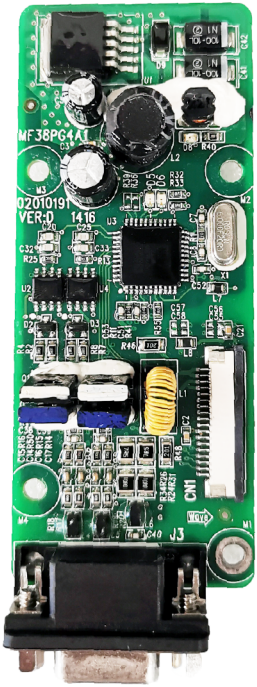


Figure 1-1 MD38PG4 card appearance

1.2 Applicable AC Drives

Card Model	Order No.	Applicable AC Drive
MD38PG4	01013081	MD480 (T2 and larger models) MD480-PLUS MD500 MD500E MD500-PLUS MD510 MD520 MD580

1.3 Technical Specifications

Item	Technical Specifications
User interface	DB9 female
Plug-type	Yes
Cable gauge	> 22 AWG
Resolution	12-bit
Excitation frequency	10 kHz
VRMS	7 V
VP-P	3.15±27%
Transformation ratio	0.5

1.4 Product Dimensions

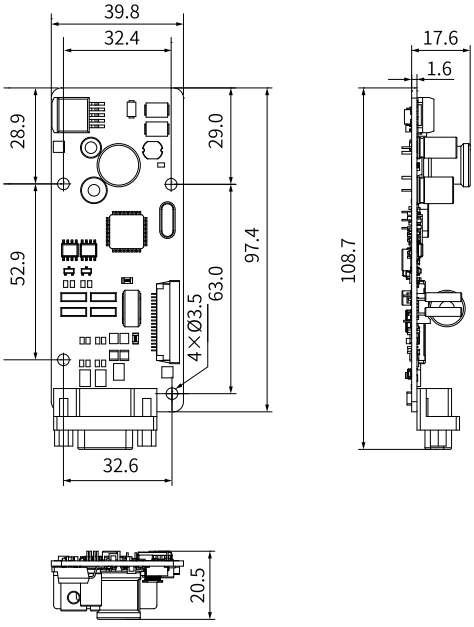


Figure 1-2 MD38PG4 card dimensions (unit: mm)

1.5 Interface Description

■ Interface layout

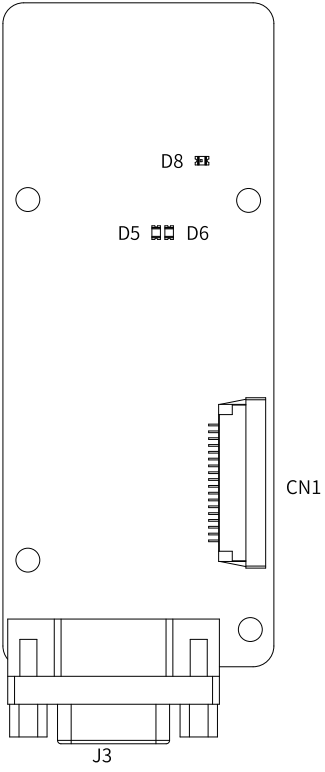


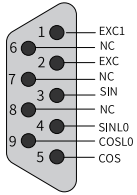
Figure 1-3 MD38PG4 card interface layout

■ Interfaces

Table 1–1 MD38PG4 card interface function description

Mark	Function Description
CN1	PG card signal interface with AC drive control board
J3	Resolver interface
D5/D6	Operation status indicators
D8	Power indicator

Table 1–2 J3 resolver interface pin assignment

Pin Number	Terminal Name	Function Description	Terminal Arrangement
1	EXC1	Exciting voltage–	
2	EXC	Exciting voltage+	
3	SIN	Sine input+	
4	SINL0	Sine input–	
5	COS	Cosine input+	
6/7/8	NC	Not connected	
9	COSL0	Cosine input–	

■ Status indicators

Table 1–3 Operation status indicators

Indicator		Status Description
D5 Upper limit indicator for the amplitude of signal	OFF	The encoder input signal is normal. The speed feedback is not beyond the upper limit or there is no interference.
	ON/Blinking	The SIN/COS amplitude of the encoder input signal is beyond the upper limit or the signal feedback is abnormal.
D6 Lower limit indicator for the amplitude of signal	OFF	The encoder input signal is normal. The speed feedback is not beyond the lower limit or there is no interference.
	ON/Blinking	The SIN/COS amplitude of the encoder input signal is too small or the signal is disconnected.

Table 1–4 Indicator status

D5	D6	MD38PG4 Fault Status	Action
OFF	OFF	Normal	None
ON/ Blinking	OFF	Phase-locked loop (PLL) loss of lock	Usually caused by excessive phase lag of the selected resolver
OFF	ON/ Blinking	SIN/COS signal amplitude beyond upper limit	Usually caused by interference if D6 is blinking. To solve this problem effectively, ground the motor properly and connect the ground point on the PG card to the PE terminal of the AC drive.
ON/ Blinking	ON/ Blinking	SIN/COS signal amplitude too small	Usually caused by the DB9 connector not being connected correctly or even being disconnected. Otherwise, check if the resolver model matches MD38PG4.

- The resolver model must fulfill parameter requirements of MD38PG4. The input DC resistance of the excitation must be larger than 17 Ω (you may measure it with a multimeter). Otherwise, MD38PG4 cannot work properly.
- Select a resolver with a maximum of four pole pairs. Otherwise, MD38PG4 will be overloaded.
- With the AC drive parameters set correctly, if the speed or position fed back by the PG card is unstable, it is indicated that the PG card suffers electromagnetic interference. In this case, connecting the shield of the encoder signal cable to the PE terminal of the AC drive can effectively suppress the interference.

2 Installation Guide

Install the MD38PG4 PG card in the reserved expansion card position on the AC drive with M3x8 screws. The following figure illustrates the installation of the MD38PG4 PG card on the MD520-T8 AC drive as an example.

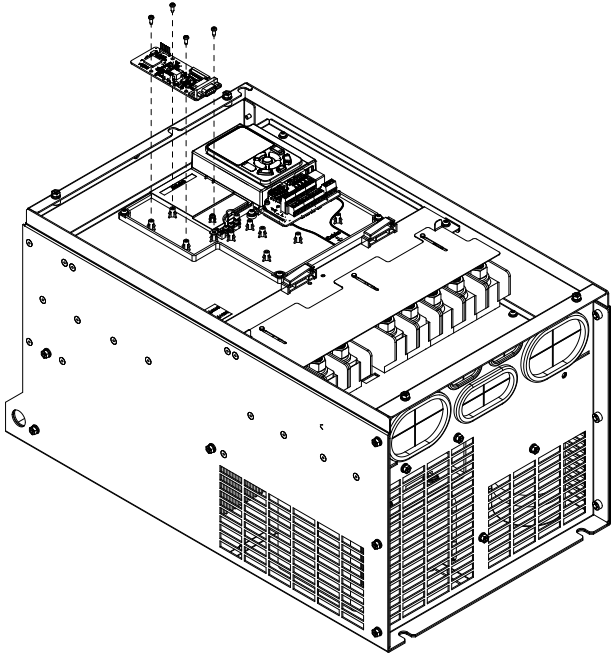


Figure 2-1 MD38PG4 PG card installation

3 Electrical Connection

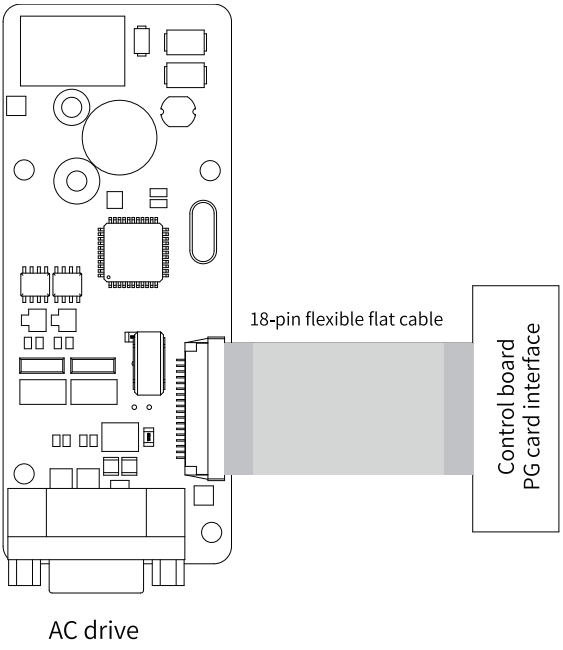


Figure 3-1 Electrical connection between the AC drive and the PG card