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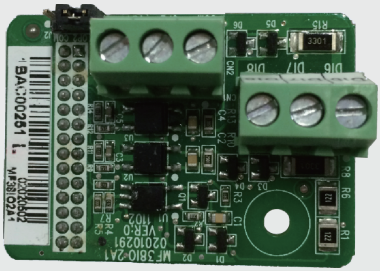

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MD38IO2 I/O Expansion Card

User Guide

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Preface

■ Introduction

The MD38IO2 expansion card is a simplified version of the MD38IO1 multi-function I/O expansion card. MD38IO2 provides three channels of digital input (DI).

This user guide describes the applicable AC drives, dimensions, interfaces, installation, and wiring of this product.

■ Revision History

Date	Version	Description
November 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 on the product with your smart phone.
- Scan the QR code below to install the Inovance app, and search for the following AC drives in the app to obtain this guide.
  - MD290
  - MD480
  - MD480-PLUS
  - MD500
  - MD500E
  - MD500-PLUS
  - MD510
  - MD520

■ 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

The MD38IO2 expansion card is a simplified version of the MD38IO1 multi-function I/O expansion card. MD38IO2 provides three channels of digital input (DI).

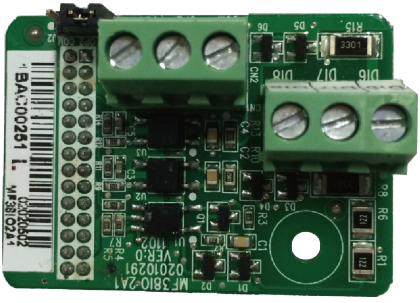


Figure 1-1 MD38IO2 card appearance

1.2 Applicable AC Drives

Card Model	Order No.	Applicable AC Drive
MD38IO2	01013103	MD290 MD480 MD480-PLUS MD500 MD500E MD500-PLUS MD510 MD520

1.3 Outline Dimensions

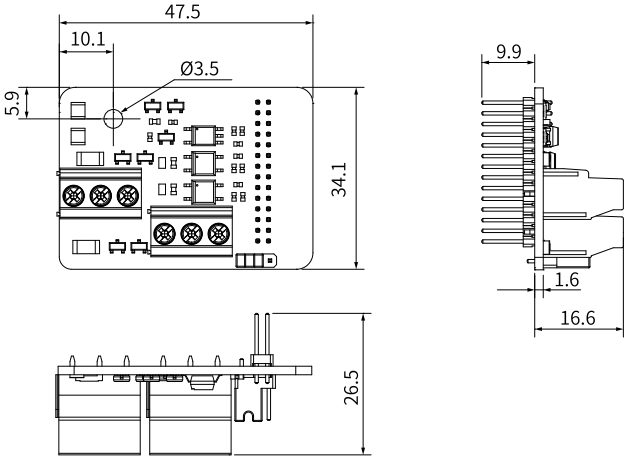


Figure 1-2 MD38IO2 card dimensions (unit: mm)

1.4 Interface Description

■ **Interface layout**

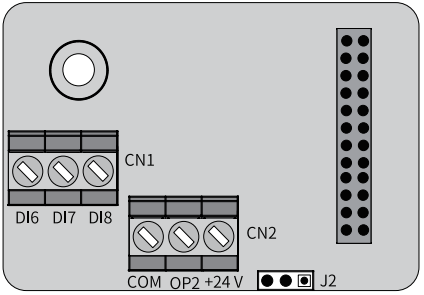


Figure 1-3 MD38IO2 card interface layout

■ Interfaces

Table 1–1 MD38IO2 card interface function description

Mark		Terminal Name	Function Description	Terminal Arrange-ment
CN1	DI6-OP2 to DI8-OP2	Three digital input terminals	Photocoupler isolation, compatible with dual-polarity inputs Input impedance: 3.3 kΩ for DI6 and DI7; 2.4 kΩ for DI8 Voltage upon level input: 9 V to 30 V Input frequency: < 100 Hz for DI6, DI7, and DI8 as common input terminals	
CN2	+24 V/COM	External 24 VDC power terminal	Provides a +24 V power supply externally. Typically, this is used to power DI/DO terminals and external sensors. Maximum output current: 200 mA	
	OP2	Digital input power terminal	OP2 is not connected to a power supply at delivery. It can be connected to an external power supply or the +24 V power supply as needed.	

■ Jumper

Table 1–2 MD38IO2 card jumper

Mark	Terminal Name	Function Description	Jumper/DIP Switch Settings
J2	Jumper for selecting DI terminal wiring mode (sink/source)	Wire the DI terminals in sink mode. Connect OP2 to 24 V.	
		Wire the DI terminals in source mode. Connect OP2 to COM.	

Note

The jumper setup is based on the top view of the expansion card with the main wiring terminal as the bottom side. For the position of the jumper, see the PCB silkscreen.

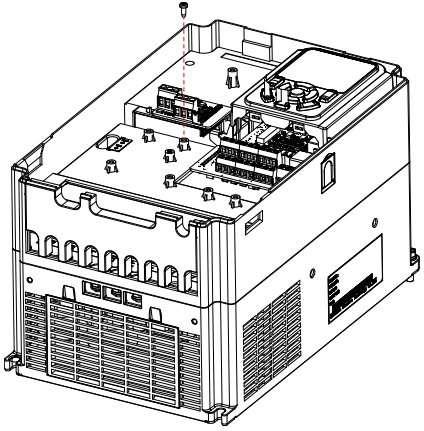
2 Installation and Wiring

2.1 Installation

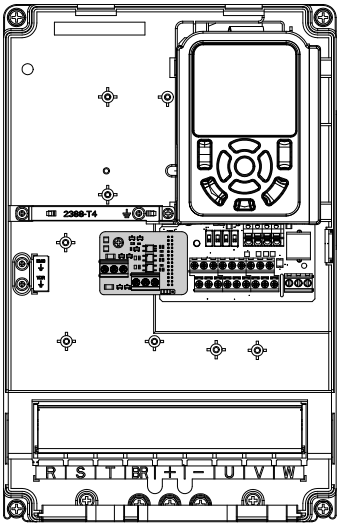
Note

Install the card only when the AC drive is completely de-energized.

Align the connector and positioning hole of the I/O expansion card with those on the AC drive control board. Fasten the card on the board with a screw.



The installation is completed as shown in the following figure.



2.2 Wiring

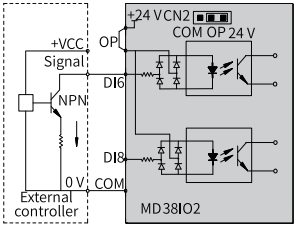
■ DI terminals

Sink wiring

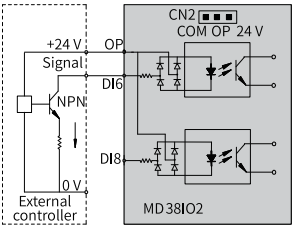
Most commonly, the internal 24 V power supply of the AC drive is used to power the card. In this case, short-circuit the OP terminal to the internal 24 V terminal, and connect the COM terminal of the AC drive to the 0 V terminal of the external controller. To use an external 24 V power supply, connect the +24 V terminal of the external power supply to the OP terminal, and connect the 0 V terminal of the external power supply to the corresponding DI terminal through the contact of the controller.

Note

In sink wiring, DI terminals of different AC drives must not be connected in parallel. Failure to comply may cause the DI terminals to malfunction.

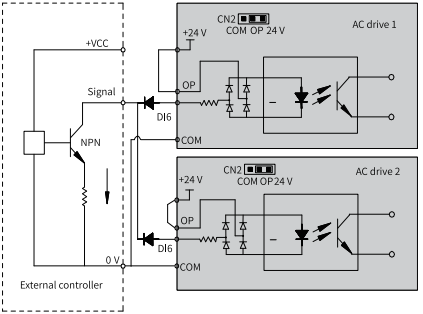


Sink wiring where the internal 24 V power supply of the AC drive is used



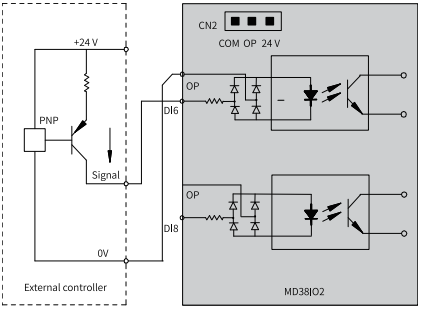
Sink wiring where an external 24 V power supply is used

To connect DI terminals of different AC drives in parallel, connect a diode in series to each DI terminal (connect the anode to DI), as shown below. The diode must meet the following requirements: IF > 40 mA, VR > 40 V.



Source wiring

In source wiring, an external 24 V power supply is used to power the card. In this case, connect the 0 V terminal of the external power supply to the OP terminal, as shown below.


CN2
COM OP 24 V
+24 V
PNP
Signal
0V
External controller
OP
DI6
OP
DI8
MD38IO2