

M-7002-G

4-ch AI, 5-ch DI and 4-ch Relay Module

Features

- Voltage and Current Inputs
- Sink- or Source-type Digital Input
- Relay Outputs
- High Resolution: 16-bit
- High Over-voltage Input Protection
- High Common Voltage Protection
- Photocoupler Isolation
- Built-in Dual Watchdog

Introduction

The M-7002 module features 16-bit resolution, 4 differential analog inputs, 5 digital inputs, and 4 Form A relay outputs. The analog channels on the module offer programmable input ranges of ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±20 mA, 0-20 mA, and 4-20 mA, while the digital outputs can be set to provide an alarm with short circuit and overload protection. Each analog channel can be configured individually and is protected against high over-voltage input up to 240 Vrms. The input type (voltage or current) can be selected via a jumper. The M-7002 offers two sampling rates: fast mode and normal mode. Additionally, the M-7002 is qualified for 4 kV ESD protection and has intra-module isolation of up to 2500 VDC.

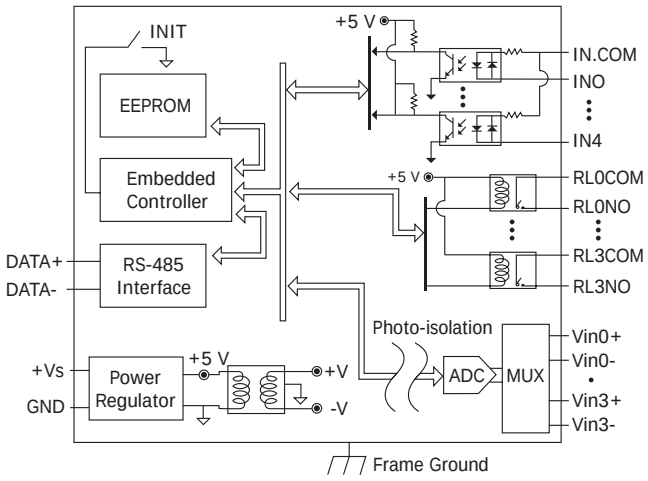
Specifications

CPU Module	
Watchdog Timer	Module, Communication (Programmable)
Display	
Type	5-Digit 7 Segment LED Display
Isolation	
Intra-module Isolation	2500 VDC
EMS Protection	
EFT (IEC 61000-4-4)	±4 kV for Power Line
ESD (IEC 61000-4-2)	±4 kV Contact for Each Terminal
Surge (IEC 61000-4-5)	±3 kV for Power Line
LED Indicators	
Status	1 x Power and Communication
Analog Input	
Channels	4 Differential
Type	Voltage, Current
Range	±150 mV, ±500 mV, ±1 V , ±5 V, ±10 V, ±20 mA , 0 ~ 20 mA, 4 ~ 20 mA (Jumper selectable)
Resolution	16-bit
Accuracy	Normal Mode: 0.1% Fast Mode: 0.5%
Sampling Rate	Normal Mode: 10 Hz Fast Mode: 60 Hz
Input Impedance	Voltage: 2 M Ω, Currnet: 139 Ω
Common Voltage Protection	±200 VDC
Overvoltage Protection	240 Vrms
Individual Channel Configuration	Yes
Digital Input/Counter	
Channels	5
Type	Wet Contact
Sink/Source (NPN/PNP)	Sink/Source
ON Voltage Level	+10 ~ +50 VDC
OFF Voltage Level	+4 VDC Max.

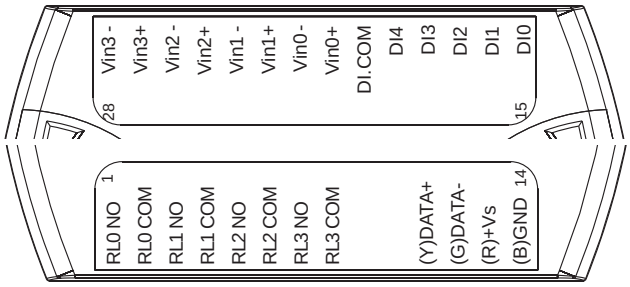
Digital Input/Counter	
Max. Counts	65535 (16-bit)
Frequency	50 Hz
Isolation	3750 VDC
Input Impedance	10 kΩ
Overvoltage Protection	±70 VDC
Relay Output	
Channels	4
Type	Power Relay (Form A)
Contact Rating	5 A @ 250 VAC 5 A @ 30 VDC
Operate Time	6 ms
Release Time	3 ms
Electrical Endurance	10^5 ops.
Mechanical Endurance	2 x 10^7 ops.
Power on Value	Programmable
Safe Value	Programmable
COM Ports	
Ports	1 x RS-485
Baud Rate	1200 ~ 115200 bps
Data Format	(N, 8, 1)
Protocol	Modbus RTU, DCON
Power	
Reverse Polarity Protection	Yes
Input Range	+10 ~ +30 VDC
Consumption	1.8 W
Mechanical	
Dimensions (mm)	72 x 123 x 35 (W x L x H)
Installation	DIN-Rail Mounting
Environment	
Operating Temperature	-25 ~ +75 °C
Storage Temperature	-40 ~ +85 °C
Humidity	10 ~ 95% RH, Non-condensing

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Internal I/O Structure



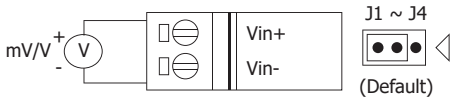
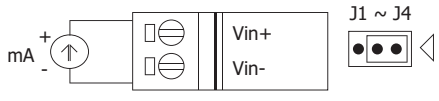
Pin Assignments

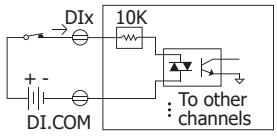
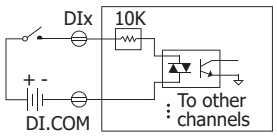
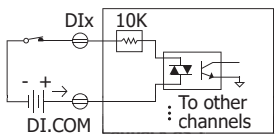
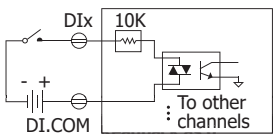


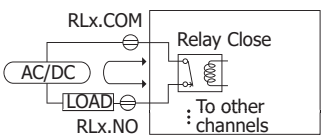
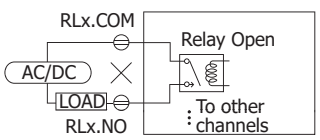
Applications

- Building Automation
- Factory Automation
- Machine Automation
- Remote Maintenance
- Remote Diagnosis
- Testing Equipment

Wire Connections

Voltage Input	Current Input
	

Digital Input/Counter	Readback as 1	Readback as 0
Sink	+10 ~ +50 VDC	OPEN or <4 VDC
		
Source	+10 ~ +50 VDC	OPEN or <4 VDC
		

Power Relay	ON State Readback as 1	OFF State Readback as 0
Relay Output		

Ordering Information

M-7002-G CR	4-ch AI, 5-ch DI and 4-ch Relay Module using DCON and Modbus Protocols (Gray Cover) (RoHS)

Accessories

tM-7520U CR 	Tiny Isolated RS-232 to RS-485 Converter (RoHS)
tM-7561 CR 	Tiny USB to Isolated RS-485 Converter with CA-USB18 Cable (RoHS)
tM-SG4 CR 	RS-485 Pull-high/Pull-low and Termination Resistor Module (RoHS)

I-7514U CR 	Isolated 4-channel RS-485 Repeater/Hub/ Splitter (Gray Cover) (RoHS)
SG-770 CR 	7/14 channel Surge Protector (RoHS)
SG-3000 Series 	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Input Transformers

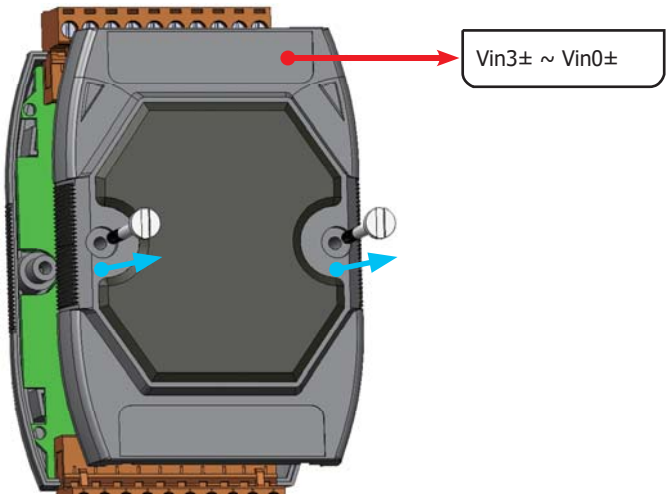
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Jumper

Notice:

1. Remove the top cover of the module before adjusting the jumper. Additionally, some modules may have two screws on the back cover.

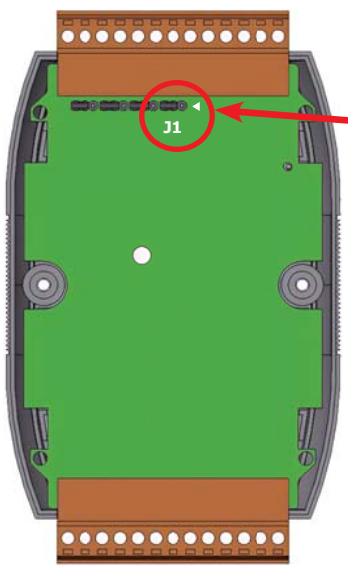
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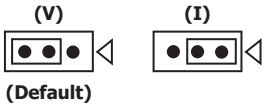
2. Users can locate the Jx/JPx jumpers on the board by checking the I/O labels on the cover.

Channel	Vin3±	Vin2±	Vin1±	Vin0±
Jumper	J4	J3	J2	J1

M-7002-G



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Top

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