



## M-7003-G

8-ch AI and 4-ch Relay Module

### Features

- Voltage and Current Inputs
- Relay Outputs
- High Resolution: 16-bit
- Photocoupler Isolation
- Built-in Dual Watchdog



### Introduction

M-7003 is a 16-bit, 8-channel analog input, and 4-channel relay output module. All of its channels are Form A type relay module that provides programmable input range on all analog channels ( $\pm 150$  mV,  $\pm 500$  mV,  $\pm 1$  V,  $\pm 5$  V,  $\pm 10$  V,  $\pm 20$  mA,  $0 \sim 20$  mA, and  $4 \sim 20$  mA). Each analog channel is allowed to configure an individual range and has 120 VDC High Over-voltage Input Protection. Jumper selectable for voltage or current input. The sampling rate of M-7003 is changeable; there are fast mode and normal mode for your consideration. M-7003 also has a qualification for 4 kV ESD protection as well as 2500 VDC intra-module isolation.

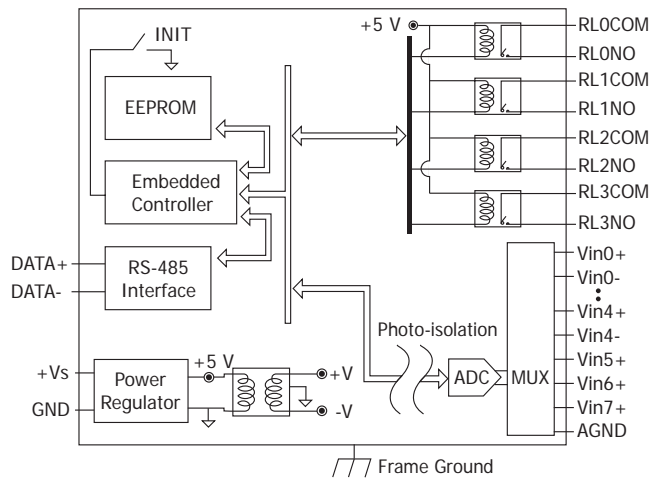
### Applications

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

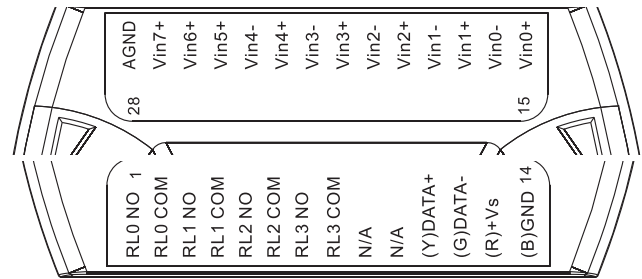
### Specifications

CPU Module		Relay Output	
Watchdog Timer	Module, Communication (Programmable)	Channels	4
<b>Isolation</b>		Type	Power Relay (Form A)
Intra-module Isolation	2500 VDC	Contact Rating	5 A @ 250 VAC 5 A @ 30 VDC
<b>EMS Protection</b>		Operate Time	3 ms
EFT (IEC 61000-4-4)	$\pm 4$ kV for Power Line	Release Time	2 ms
ESD (IEC 61000-4-2)	$\pm 4$ kV Contact for Each Terminal	Electrical Endurance	$10^5$ ops.
Surge (IEC 61000-4-5)	$\pm 3$ kV for Power Line	Mechanical Endurance	$2 \times 10^7$ ops.
<b>LED Indicators</b>		Power on Value	Programmable
Status	1 x Power and Communication	Safe Value	Programmable
<b>Analog Input</b>		<b>COM Ports</b>	
Channels	8 (5 Differential and 3 Single-ended)	Ports	1 x RS-485
Type	Voltage, Current	Baud Rate	1200 ~ 115200 bps
Range	$\pm 150$ mV, $\pm 500$ mV, $\pm 1$ V, $\pm 5$ V, $\pm 10$ V, $\pm 20$ mA, $0 \sim 20$ mA, $4 \sim 20$ mA (Jumper selectable)	Data Format	(N, 8, 1) (N, 8, 2) (E, 8, 1) (O, 8, 1)
Resolution	16-bit	Protocol	Modbus RTU, DCON
Accuracy	Normal Mode: 0.1% Fast Mode: 0.5%	<b>Power</b>	
Sampling Rate	Normal Mode: 10 Hz Fast Mode: 60 Hz	Reverse Polarity Protection	Yes
Input Impedance	Voltage	Input Range	+10 ~ +30 VDC
	Current	Consumption	1.8 W
Common Voltage Protection	$\pm 15$ VDC	<b>Mechanical</b>	
Overvoltage Protection	120 VDC	Dimensions (mm)	72 x 123 x 35 (W x L x H)
Individual Channel Configuration	Yes	Installation	DIN-Rail Mounting
		<b>Environment</b>	
		Operating Temperature	-25 ~ +75 °C
		Storage Temperature	-40 ~ +85 °C
		Humidity	10 ~ 95% RH, Non-condensing

## Internal I/O Structure



## Pin Assignments









## Wire Connections

Analog Input	Differential	Single-ended
<b>Voltage Input</b>		
<b>Current Input</b>		
Power Relay	ON State Readback as 1	OFF State Readback as 0
<b>Relay Output</b>		

## Ordering Information

<b>M-7003-G CR</b>	8-ch AI and 4-ch Relay Module using DCON and Modbus Protocols (Gray Cover) (RoHS)
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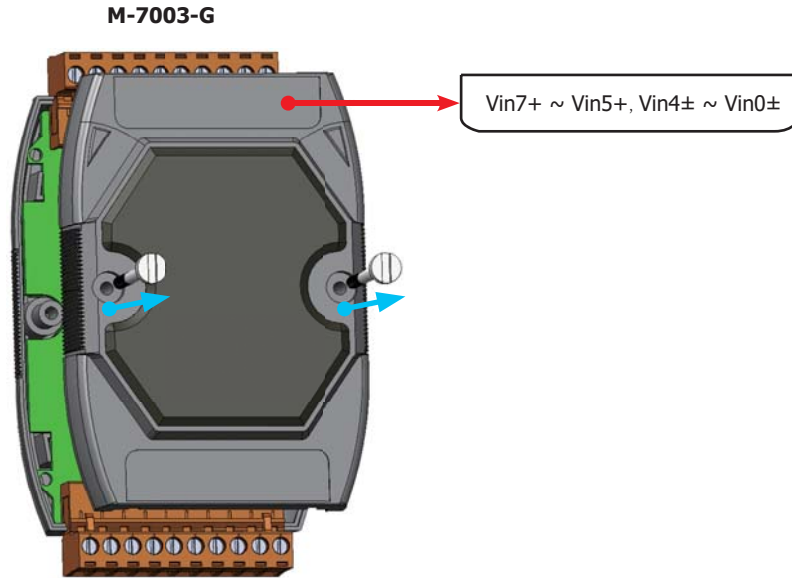
## Accessories

<b>tM-7520U CR</b>	 Tiny Isolated RS-232 to RS-485 Converter (RoHS)
<b>tM-7561 CR</b>	 Tiny USB to Isolated RS-485 Converter with CA-USB18 Cable (RoHS)
<b>tM-SG4 CR</b>	 RS-485 Pull-high/Pull-low and Termination Resistor Module (RoHS)
<b>I-7514U CR</b>	 Isolated 4-channel RS-485 Repeater/Hub/Splitter (Gray Cover) (RoHS)
<b>SG-770 CR</b>	 7/14 channel Surge Protector (RoHS)
<b>SG-3000 Series</b>	 Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Input Transformers

## 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.



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

Channel	Vin7+	Vin6+	Vin5+	Vin4±	Vin3±	Vin2±	Vin1±	Vin0±
Jumper	J8	J7	J6	J5	J4	J3	J2	J1

