



## M-7003

8-channel AI and 4-channels Relay Output Module

### Features

- Voltage and Current Inputs
- 120 VDC Overvoltage Protection
- High Resolution: 16 bit
- 2500 Vdc Intra-module Isolation
- Photocouple Isolation
- Support Relay Outputs
- DIN-Rail Mountable
- Dual Watchdog
- Wide Operating Temperature Range: -25 to +75°C



### Introduction

The M-7003 is a 16-bit, 8-channel analog inputs and 4-channel for relay output. 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 overvoltage 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 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

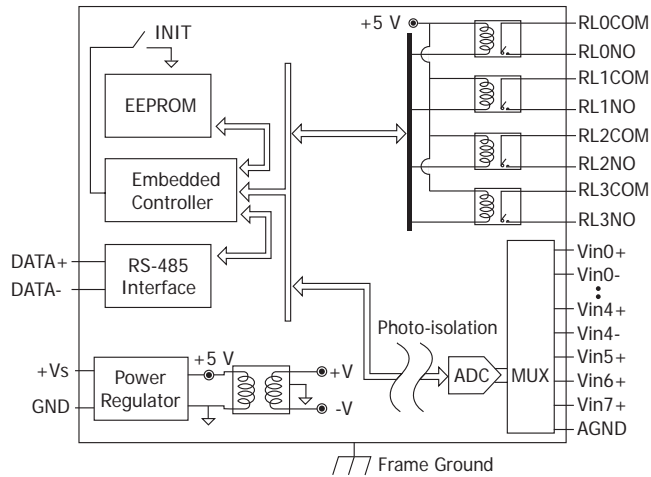
### System Specifications

Model	M-7003
<b>Communication</b>	
Interface	RS-485
Bias Resistor	No (Usually supplied by the RS-485 Master. Alternatively, add a tM-SG4 or SG-785.)
Format	N, 8, 1
Baud Rate	1200 to 115200 bps
Protocol	DCON Modbus/RTU
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
<b>LED Indicators/Display</b>	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
7-segment LED Display	Yes
<b>Isolation</b>	
Intra-module Isolation, Field-to-Logic	2500 Vdc
<b>EMS Protection</b>	
ESD (IEC 61000-4-2)	$\pm 4$ kV Contact for each Terminal
EFT (IEC 61000-4-4)	$\pm 4$ kV for Power Line
Surge (IEC 61000-4-5)	$\pm 3$ kV for Power Line
<b>Power</b>	
Reverse Polarity Protection	Yes
Input Range	+10 ~ +30 Vdc
Consumption	1.8 W
<b>Mechanical</b>	
Dimensions (L x W x H)	123 mm x 72 mm x 35 mm
Installation	DIN-Rail or Wall Mounting
<b>Environment</b>	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

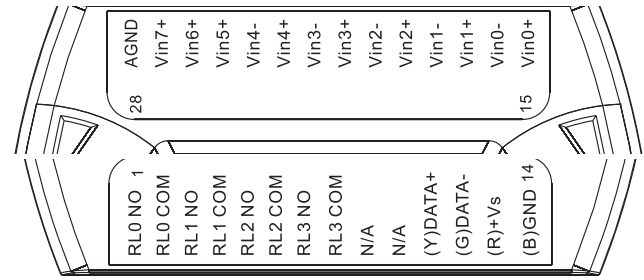
### I/O Specifications

Model	M-7003
<b>Analog Input</b>	
Channels	8
Wiring	5-channel differential and 3-channel single-ended
Input 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)
Resolution	12/16-bit
Accuracy	Normal Mode 0.1% Fast Mode 0.5%
Sampling Rate	Normal Mode 10 Hz Fast Mode 60 Hz
Input Impedance	Voltage 20 M (Differential) Currnet 10 M (Single-ended)
Common Voltage Protection	$\pm 15$ Vdc
Individual Channel Configuration	-
Overvoltage Protection	120 Vdc
<b>Relay Output</b>	
Channels	4
Type	Power Relay (Form A)
Contact Rating	5 A @ 250 VAC 5 A @ 30 Vdc
Surge Strength	3000 Vdc
Operate Time	3 ms
Release Time	2 ms
Mechanical Endurance	$2 \times 10^7$ ops.
Electrical Endurance	$10^5$ ops.
Power-on Value	Yes
Safe Value	Yes

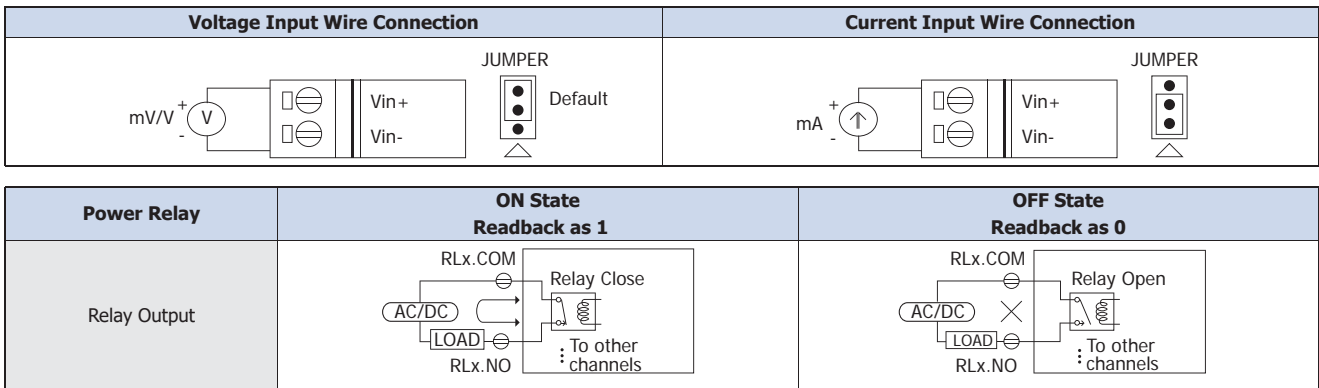
## Internal I/O Structure



## Pin Assignments



## Wire Connections



## Ordering Information

<b>M-7003 CR</b>	8-channel AI and 4-channel Relay Output Module using the DCON and Modbus Protocol (Gray Cover) (RoHS)
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## Accessories

	tM-7520U CR	RS-232 to RS-485 Converter (RoHS)
	tM-7561 CR	USB to RS-485 Converter (RoHS)
	tM-SG4 CR	RS-485 Bias and Termination Resistor Module (RoHS)
	I-7514U CR	4-channel RS-485 Hub (RoHS)
	SG-770 CR	7-channel Differential or 14-channel Single-ended Surge Protector (RoHS)
	SG-3000 Series	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Input Transformers