



## M-7002

4-channel AI, 5-channel DI and 4-channels Relay Output Module

### Features

- Voltage and Current Inputs
- $\pm 240 V_{rms}$  Overvoltage Protection
- High Resolution: 16 bit
- 2500 V<sub>dc</sub> Intra-Module Isolation
- Sink and Source Type Digital Inputs
- Photocouple Isolation
- Support Relay Outputs
- DIN-Rail Mountable
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C



### Introduction

The M-7002 is a 16-bit, 4-channel differential analog inputs 5-channel digital inputs and 4-channels 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  $4 \sim 20 mA$ ) and digital output can be set alarm output with short-circuit protection and overload protection. Each analog channel is allowed to configure an individual range and has 240 V<sub>rms</sub> high overvoltage protection. Jumper selectable for voltage or current input. The sampling rate of M-7002 is changeable; there are fast mode and normal mode for your consideration. M-7002 also has qualification for 4 kV ESD protection as well as 2500 V<sub>dc</sub> intra-module isolation.

### Applications

Building Automation, Factory Automation, Machine Automation, Remote Maintenance, Remote Diagnosis, Testing Equipment.

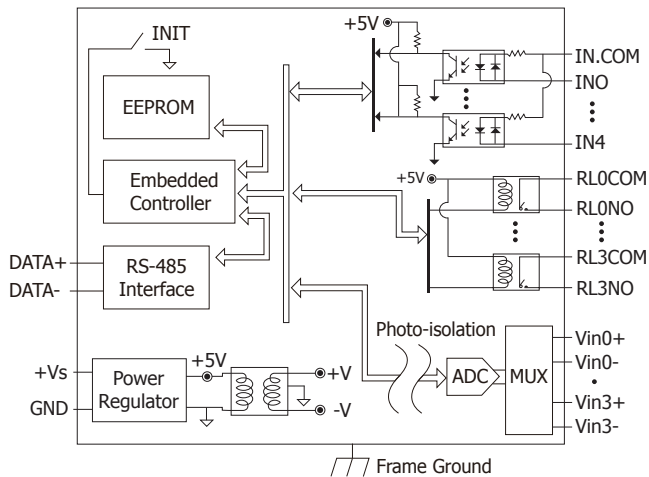
### I/O Specifications

Models		M-7002
Analog Input		
Channel		4
Wiring		Differential
Input Range		+/-150 mV, +/-500 mV, +/-1 V , +/-5 V, +/-10 V +/-20 mA , 0~20 mA, 4~20 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	2 M
	Curmet	139 Ω
Common Voltage Protection		+/-200 V <sub>DC</sub>
Individual Channel Configuration		Yes
Overvoltage Protection		240 V <sub>rms</sub>
Digital Input/Counter		
Channel		5
Contact		Wet
Sink/Source (NPN/PNP)		Sink/Source
On Voltage Level		10 ~ 50 V <sub>DC</sub>
Off Voltage Level		+4 V <sub>DC</sub> Max.
Counter (50 Hz, 16-bit)		Yes
Input Impedance		10 kΩ
Overvoltage Protection		+/-70 V <sub>DC</sub>
Isolation Voltage		3750 V <sub>DC</sub>
Relay Output		
Channel		4
Type		Power Relay (Form A)
Contact Rating		5 A @ 250 V <sub>AC</sub> 5 A @ 30 V <sub>DC</sub>
Surge Strength		3000 V <sub>DC</sub>
Operate Time		6 ms
Release Time		3 ms
Mechanical Endurance		2 × 10 <sup>7</sup> ops.
Electrical Endurance		10 <sup>5</sup> ops.
Power-on Value		Yes
Safe Value		Yes

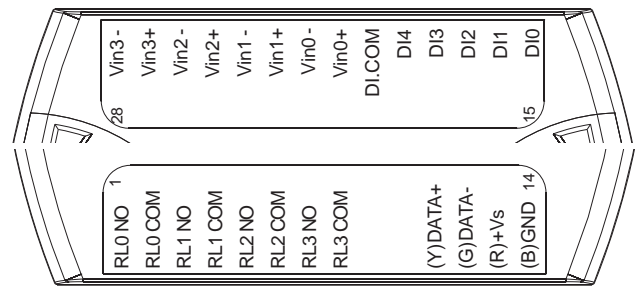
### System Specifications

Models	M-7002
<b>Communication</b>	
Interface	RS-485
Format	N, 8, 1
Baud Rate	1200 ~ 115200 bps
Protocol	DCON Modbus/RTU
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
<b>LED Indicator/Display</b>	
System LED Indicator	Yes, 1 LED as Power/Communication Indicator
I/O LED Indicator	-
7-Segment LED Display	Yes
<b>Isolation</b>	
Intra-Module Isolation, Field-to-Logic	2500 V <sub>dc</sub>
<b>EMS Protection</b>	
ESD (IEC 61000-4-2)	$\pm 4 kV$
EFT (IEC 61000-4-4)	$\pm 4 kV$
Surge (IEC 61000-4-5)	$\pm 3 kV$
<b>Power</b>	
Reverse Polarity Protection	Yes
Input Range	10 ~ 30 V <sub>dc</sub>
Consumption	1.8 W
<b>Mechanical</b>	
Dimensions (W x L x H)	72 mm x 123 mm x 35 mm
Installation	DIN-Rail or Wall Mounting
<b>Environment</b>	
Operating Temperature	-25 ~ +75°C
Storage Temperature	-40 ~ +85°C
Humidity	10 ~ 95% RH, Non-condensing

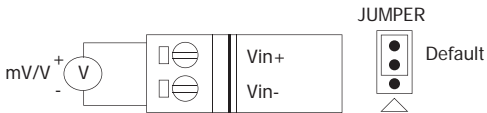
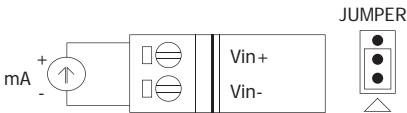
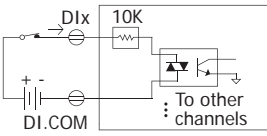
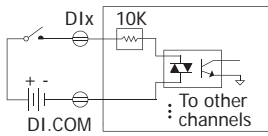
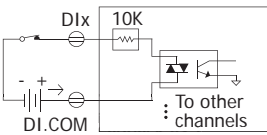
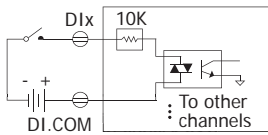
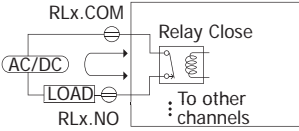
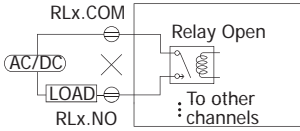
## Internal I/O Structure



## Pin Assignments







## Wire Connections

Voltage Input Wire Connection		Current Input Wire Connection	
			
Digital Input/Counter	Readback as 1	Readback as 0	
	+10 ~ +50 V <sub>DC</sub>	OPEN or <4 V <sub>DC</sub>	
Sink			
Source			
Power Relay	ON State Readback as 1	OFF State Readback as 0	
Relay Output			

## Ordering Information

M-7002 CR	4-channel AI, 5-channel DI and 4-channels Relay Output Module with DCON and Modbus Protocol (Gray Cover) (RoHS)	Art. No. 128482
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	tM-7520U CR	RS-232 to RS-485 converter (RoHS)
	tM-7561 CR	USB to RS-485 converter (RoHS)
	I-7514U CR	4-channel RS-485 Hub (RoHS)
	SG-3000 series	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Inputs