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 (±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±20 mA, 0 ~ 20 mA and 4 ~ 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
- Factory Automation
- Machine Automation
- Remote Maintenance
- Remote Diagnosis
- Testing Equipment

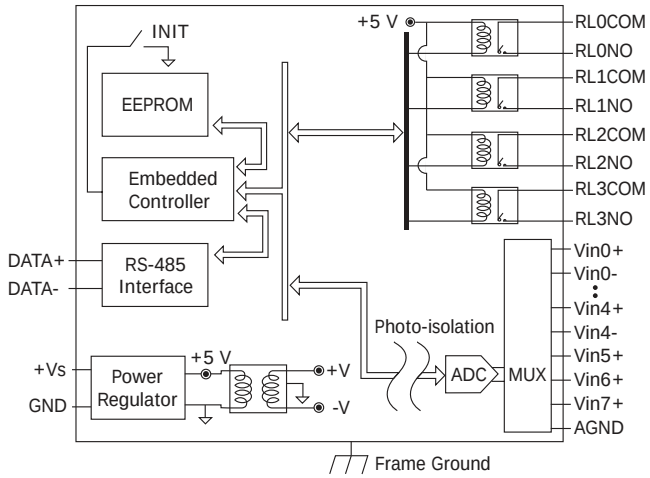
System Specifications

Model	M-7003
Communication	
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)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
7-segment LED Display	Yes
Isolation	
Intra-module Isolation, Field-to-Logic	2500 VDC
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal
EFT (IEC 61000-4-4)	±4 kV for Power Line
Surge (IEC 61000-4-5)	±3 kV for Power Line
Power	
Reverse Polarity Protection	Yes
Input Range	+10 ~ +30 VDC
Consumption	1.8 W
Mechanical	
Dimensions (L x W x H)	123 mm x 72 mm x 35 mm
Installation	DIN-Rail or Wall Mounting
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

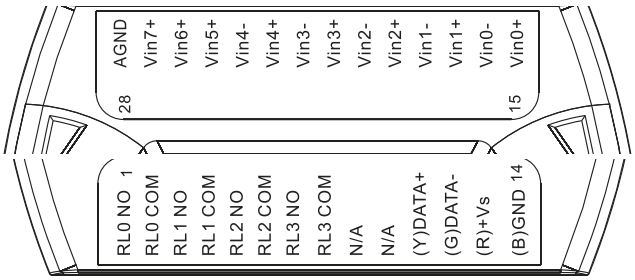
I/O Specifications

Model		M-7003
Analog Input		
Channels		8
Wiring		5-channel differential and 3-channel single-ended
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	20 M (Differential)
	Currnet	10 M (Single-ended)
Common Voltage Protection		±15 VDC
Individual Channel Configuration		Yes
Overvoltage Protection		120 VDC
Relay Output		
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		2×10^7 ops.
Electrical Endurance		10^5 ops.
Power-on Value		Yes
Safe Value		Yes

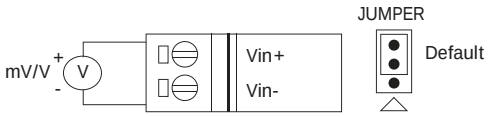
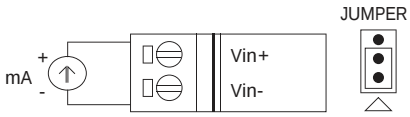
Internal I/O Structure

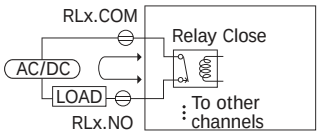
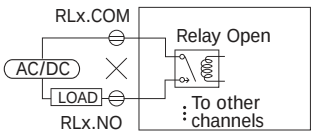


Pin Assignments



Wire Connections

Voltage Input Wire Connection	Current Input Wire Connection
	

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

Ordering Information

M-7003 CR	8-channel AI and 4-channel Relay Output Module using the DCON and Modbus Protocol (Gray Cover) (RoHS)

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