



M-7002

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

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 (± 150 mV, ± 500 mV, ± 1 V, ± 5 V, ± 10 V, ± 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 Vrms 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 Vdc intra-module isolation.

Specifications

CPU Module	
Watchdog Timer	Yes, Module (1.6 Seconds), 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
ESD (IEC 61000-4-2)	± 4 kV
Surge (IEC 61000-4-5)	± 3 kV
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, $0 \sim 20$ 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: 2 M Current: 139 Ω
Common Voltage Protection	± 200 VDC
Overvoltage Protection	240 Vrms
Individual Channel Configuration	Yes

Features

- Voltage and Current Inputs
- High Resolution: 16 bit
- Sink and Source Type Digital Inputs
- Photocouple Isolation
- Support Relay Outputs
- Dual Watchdog

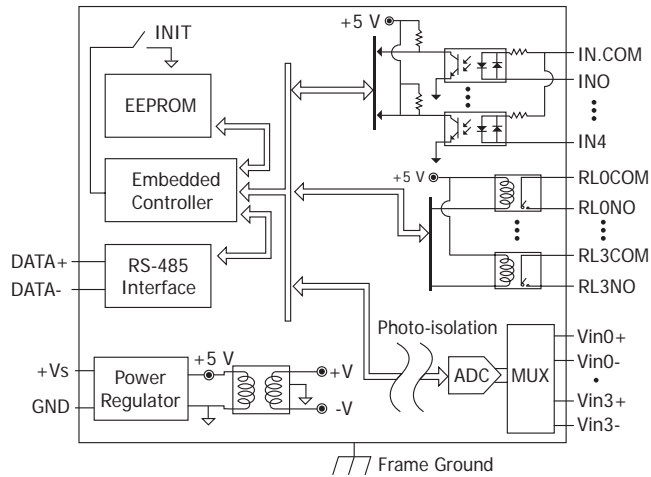


Applications

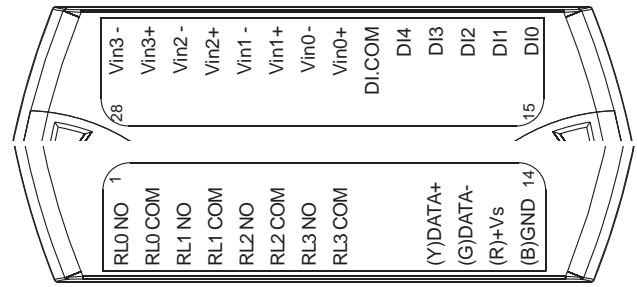
- Building Automation
- Machine Automation
- Remote Diagnosis
- Factory Automation
- Remote Maintenance
- Testing Equipment

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.
Max. Counts	16-bit
Frequency	50 Hz
Isolation	3750 VDC
Input Impedance	10 k Ω
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	2×10^7 ops.
Surge Strength	3000 VDC
Power on Value	Yes
Safe Value	Yes
COM Ports	
Ports	1 x RS-485
Baud Rate	1200 ~ 115200 bps
Data Format	N, 8, 1 (details)
Protocol	Modbus RTU, DCON
Power	
Reverse Polarity Protection	Yes
Input Range	+10 ~ +30 VDC
Consumption	1.8 W
Mechanical	
Dimensions (mm)	123 x 72 x 35 (W x L x H)
Installation	DIN-Rail
Environment	
Operating Temperature	-25 ~ +75 $^{\circ}$ C
Storage Temperature	-40 ~ +85 $^{\circ}$ C
Humidity	10 ~ 95% RH, Non-condensing

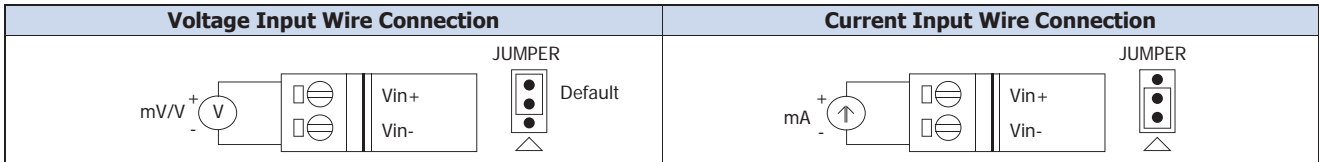
Internal I/O Structure



Pin Assignments



Wire Connections



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

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

Ordering Information

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