

tM-AD4P2C2

4-channel Isolated AI, 2-channel Isolated DI and 2-channel Isolated DO Module

Features

- Multifunction (4 AI, 2 DI and 2 DO)
- 2 Voltage Input Channels and 2 Current Input Channels
- 2-channel DI Can be Used as 16-bit Counters
- 2-channel DO Can be Used as Voltage Input Limit Alarms
- Adjustable Sampling Rate
- Configurable Power-on Value and Safe Value Settings
- Dual Watchdog

Introduction

The tM-AD4P2C2 is a multifunction module that includes 4 analog input channels, 2 digital input channels, and 2 digital output channels. The module provides a programmable analog input range that includes 2 voltage input channels (±1 V, ±2.5 V, ±5 V, and ±10 V) and 2 current input channels (±20 mA, 0 ~ 20 mA, and 4 ~ 20 mA). The analog inputs provide high overvoltage protection of 120 VDC and an adjustable sampling rate.

The module supports sink-type digital output with short circuit protection and the digital outputs can be used as voltage input limit alarms. The digital inputs are source-type and all digital input channels can be used as 16-bit counters. There are options for configuring power-on and safe digital output values. 4 kV ESD protection and 2500 VDC intra-module isolation are also provided. The tM-AD4P2C2 supports the DCON, Modbus RTU, and Modbus ASCII protocols, which can be configured via software.

System Specifications

CPU Module	
Watchdog Timer	Module, Communication (Programmable)
Isolation	
Intra-module Isolation	2500 VDC
EMS Protection	
EFT (IEC 61000-4-4)	±4 kV for Power
ESD (IEC 61000-4-2)	±4 kV Contact for Each Terminal ±8 kV Air for Random Point
LED Indicators	
Status	1 x Power and Communication
COM Ports	
Ports	1 x RS-485
Baud Rate	1200 ~ 115200 bps
Data Format	(N, 8, 1), (N, 8, 2), (O, 8, 1), (E, 8, 1)
Protocol	DCON, Modbus RTU, Modbus ASCII
Power	
Reverse Polarity Protection	Yes
Consumption	1 W max.
Powered from Terminal Block	10 ~ 30 VDC
Mechanical	
Dimensions (mm)	52 x 98 x 27 (W x L x H)
Installation	DIN-Rail Mounting
Environmental	
Operating Temperature	-25 ~ +75 °C
Storage Temperature	-30 ~ +75 °C
Humidity	10 ~ 95% RH, Non-condensing

I/O Specifications

Analog Input		
Channels	Voltage	2 Single-ended
	Current	2 Single-ended
Range	Voltage	±1 V, ±2.5 V, ±5 V, ±10 V
	Current	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA
Resolution	Normal Mode	14-bit
	Fast Mode	12-bit
Accuracy	Normal Mode	±0.1%
	Fast Mode	±0.5%
Sampling Rate	Normal Mode	10 Hz
	Fast Mode	200 Hz
Input Impedance	Voltage	10 MΩ
	Current	136 Ω
Overvoltage Protection		120 VDC
Overcurrent Protection		50 mA at 110 VDC
Individual Channel Configuration		Yes

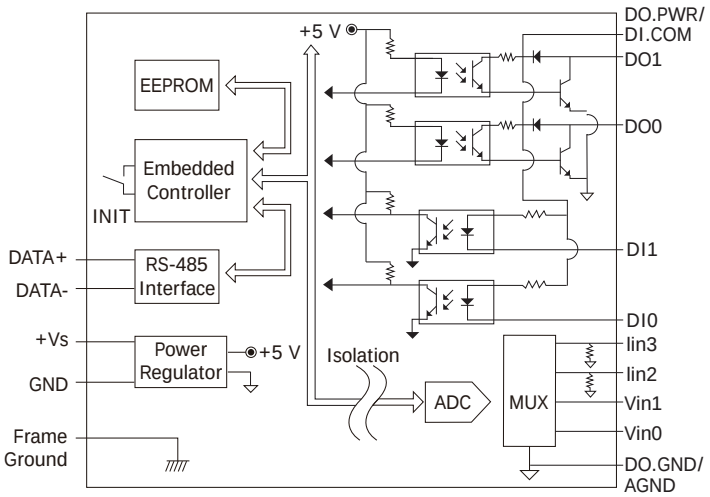
Digital Input/Counter	
Channels	2
Type	Wet Contact
Sink/Source (NPN/PNP)	Source
ON Voltage Level	+3.5 ~ +50 VDC
OFF Voltage Level	+1 VDC max.
Max. Counts	65535 (16-bit)
Frequency	50 Hz
Min. Pulse Width	10 ms
Input Impedance	10 KΩ, 0.5 W
Overvoltage Protection	70 VDC

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I/O Specifications

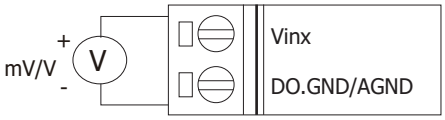
Digital Output	
Channels	2
Type	Isolated Open Collector
Sink/Source (NPN/PNP)	Sink
Load Voltage	+3.5 ~ +50 VDC
Max. Load Current	700 mA/channel
Overvoltage Protection	60 VDC
Overload Protection	1.4 A
Short-Circuit Protection	Yes
Power on Value	Programmable
Safe Value	Programmable

Internal I/O Structure

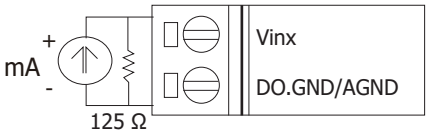


Wire Connections

Voltage Input (Vin0, Vin1)

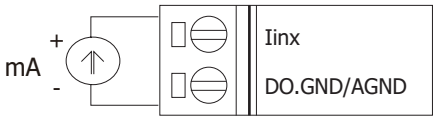


Current Input (Vin0, Vin1)

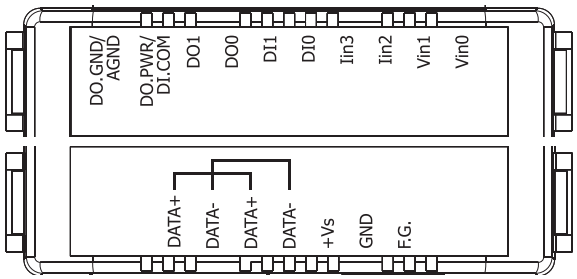


Requires Optional External 125 Ω Resistor

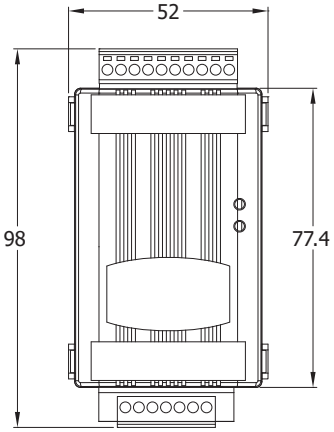
Current Input (Iin2, Iin3)



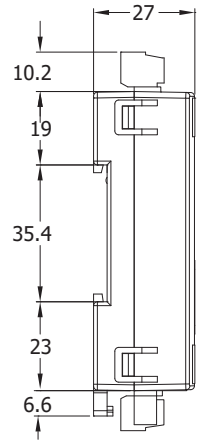
Pin Assignments



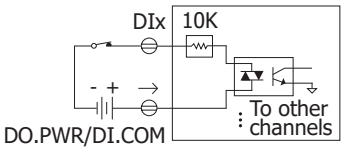
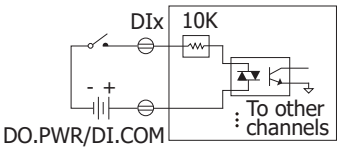
Dimensions (Units: mm)



Front View



Left Side View

Digital Input /Counter	ON State, Readback as 1	OFF State, Readback as 0
	+3.5 ~ +50 VDC	OPEN or <1 VDC
Source		

Output Type	ON State, Readback as 1	OFF State, Readback as 0
	Relay ON	Relay OFF
Drive Relay		
Resistance Load		

Ordering Information

tM-AD4P2C2 CR	4-channel Isolated AI, 2-channel Isolated DI (Wet) and 2-channel Isolated DO (Sink, NPN) Module (RoHS)

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