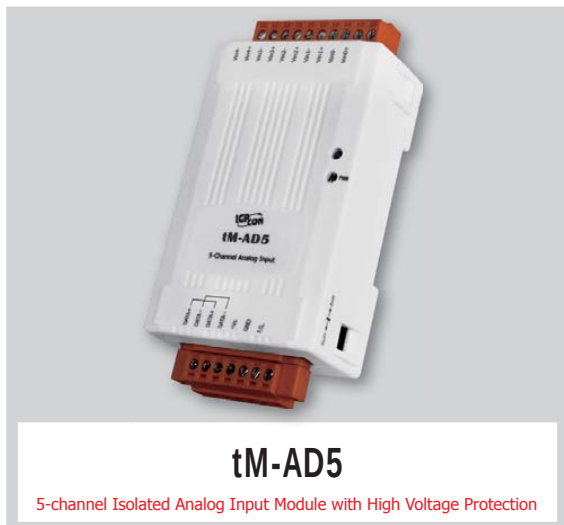




Tiny RS-485 Remote I/O Modules



Introduction

The tM-AD5 is an analog input module that includes 5 differential analog input channels and provides a programmable input range on all analog inputs (+/- 500 mV, +/- 1 V, +/- 2.5 V, +/- 5 V, +/- 10 V). It provides a high overvoltage protection of 120 V_{oc}. The sampling rate of the tM-AD5 is adjustable and is available in either fast or normal mode and it also provides 4 kV ESD protection as well as 2500 V_{rms} intra-module isolation.

Applications

- Industrial Automation
- Industrial Machinery
- Building Automation
- Food and Beverage Systems
- Semiconductor Fabrication
- Control Systems

System Specifications

Communication	
Interface	RS-485
Format	(N, 8, 1), (N, 8, 2), (O, 8, 1), (E, 8, 1)
Baud Rate	1200 ~ 115200 bps
Protocol	DON, Modbus/RTU, Modbus/ASCII
Dual Watchdog	Yes, Module (2.3 seconds), Communication (Programmable)
LED Indicators	
Power	1 LED as Power Indicator
Isolation	
Intra-module Isolation, Field-to-Logic	2500 V _{oc}
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for Each Terminal ±8 kV Air for Random Point
EFT (IEC 61000-4-4)	±4 kV for Power

Power Requirements	
Reverse Polarity Protection	Yes
Powered from Terminal Block	Yes, 10 ~ 30 V _{oc}
Consumption	1 W Max.
Mechanical	
Dimensions (W x L x H)	52 mm x 98 mm x 27 mm
Installation	DIN-Rail Mounting
Environment	
Operating Temperature	-25 ~ +75 °C
Storage Temperature	-30 ~ +75 °C
Humidity	10 ~ 95% RH, Non-condensing

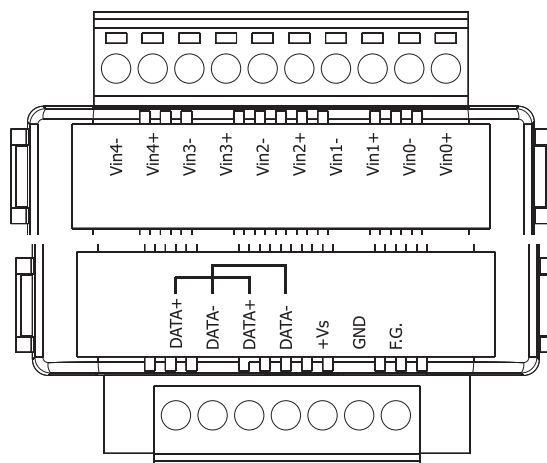
Analog Input

Features

- 5-channel Differential Inputs
- Voltage Inputs
- 120 V_{oc} Overvoltage Protection
- Resolution: 14/12 bits
- Adjustable Sampling Rate
- 4 kV ESD and EFT Protection
- 3 kV Surge Protection
- Dual Watchdog
- 2500 V_{oc} Intra-module Isolation
- Cost-effective
- Wide Operating Temperature Range: -25 °C ~ +75 °C



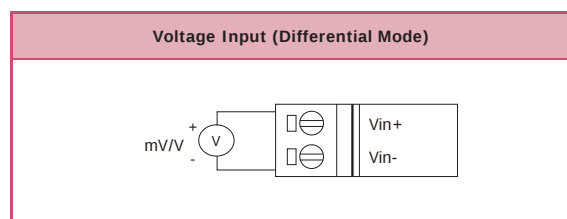
Pin Assignments



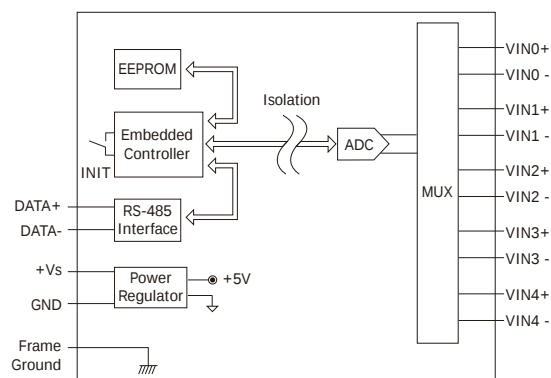
I/O Specifications

Analog Input		
Input Channels		5 Differential
Type		+/- 500 mV, +/- 1 V, +/- 2.5 V, +/- 5 V, +/- 10 V
Resolution	Normal Mode	14-bit
	Fast Mode	12-bit
Sampling Rate	Normal Mode	10 Hz total
	Fast Mode	200 Hz total
Accuracy	Normal Mode	+/-0.1%
	Fast Mode	+/-0.5%
Zero Drift		+/-20 uV/°C
Span Drift		+/-25 ppm/°C
Input Impedance		20 MΩ
Overvoltage Protection		120 V _{oc}

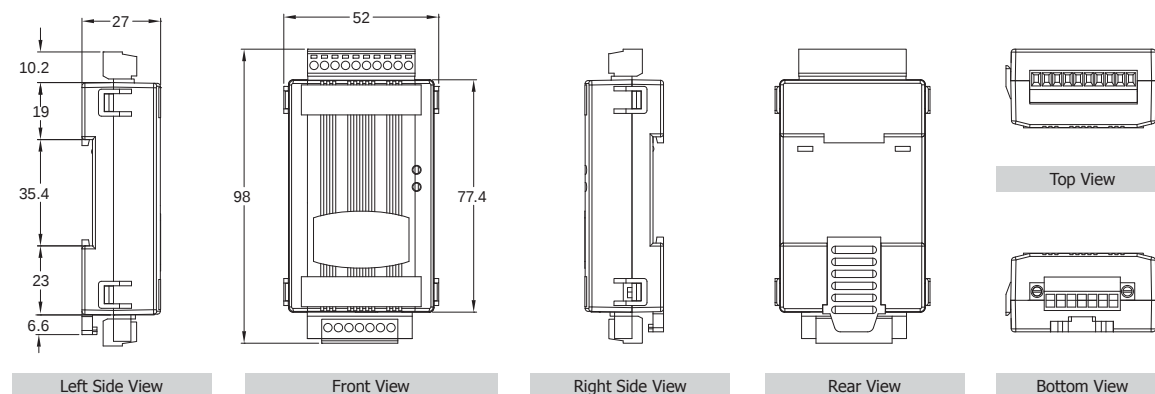
Wire Connections



Block Diagram



Dimensions (Units: mm)



Ordering Information

tm-AD5 CR	5-channel Isolation Analog Input Module with High Voltage Protection (RoHS)
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Related Products

	tm-7561 CR	Isolated USB to RS-485 Converter (RoHS)
	tm-7520U CR	Isolated RS-232 to RS-485 Converter (RoHS)
	tm-7510U CR	Isolated RS-485 Repeater (RoHS)
	MDR-20-24 CR	24W Single Output Industrial DIN Rail Power Supply (RoHS)