



M-2018-16

16-channel Thermocouple Input Module

Features

- 16-channel Differential Analog Input
- ± 120 VDC Overvoltage Protection
- Current, Voltage or Thermocouple Input
- Adjustable CJC offset
- Open Thermocouple Detection
- Dual Watchdog



Introduction

The M-2018-16 is an analog input module that includes 16 differential input channels. The voltage input range can be from ± 15 mV to ± 2.5 V, the current input range can be either $+4$ to $+20$ mA, 0 to $+20$ mA, or ± 20 mA, and types J, K, T, E, R, S, B, N, C, L, M, $L_{DIN43710}$ thermocouple can be used for the thermocouple input. Overvoltage protection of up to 120 VDC is provided. The module also features per-channel open wire detection for the thermocouple input types, and provides 4 kV ESD protection as well as 3000 VDC intra-module isolation.

System Specifications

CPU Module	
Watchdog Timer	Module, Communication (Programmable)
Isolation	
Intra-module Isolation	3000 VDC
EMS Protection	
EFT (IEC 61000-4-4)	± 4 kV for Power Line
ESD (IEC 61000-4-2)	± 4 kV Contact for each Terminal ± 8 kV Air for Random Point
Surge (IEC 61000-4-5)	± 1 kV for Power Line
LED Indicators	
Status	1 x Power and Communication
COM Ports	
Ports	1 x RS-485
Baud Rate	1200 to 115200 bps
Data Format	(N, 8, 1) (N, 8, 2) (E, 8, 1) (O, 8, 1)
Protocol	Modbus RTU, DCON
Bias Resistor	10 k Ω (DIP switch selectable)
Power	
Reverse Polarity Protection	Yes
Input Range	$+10 \sim +48$ VDC
Consumption	0.5 W
Mechanical	
Dimensions (mm)	31 x 157 x 132 (W x L x H)
Installation	DIN-Rail mounting
Environment	
Operating Temperature	$-25 \sim +75$ °C
Storage Temperature	$-40 \sim +85$ °C
Humidity	10 ~ 95% RH, Non-condensing

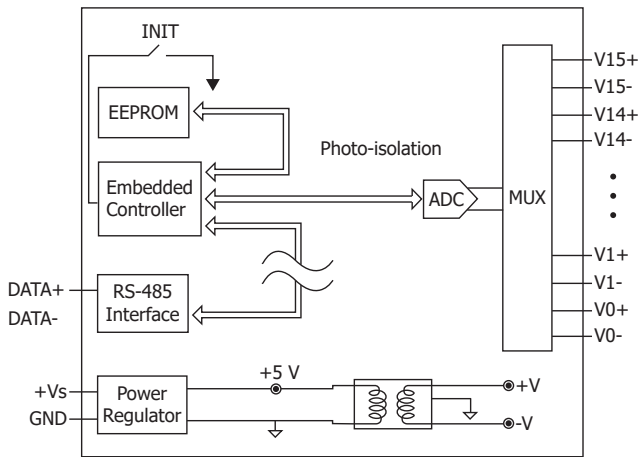
Applications

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

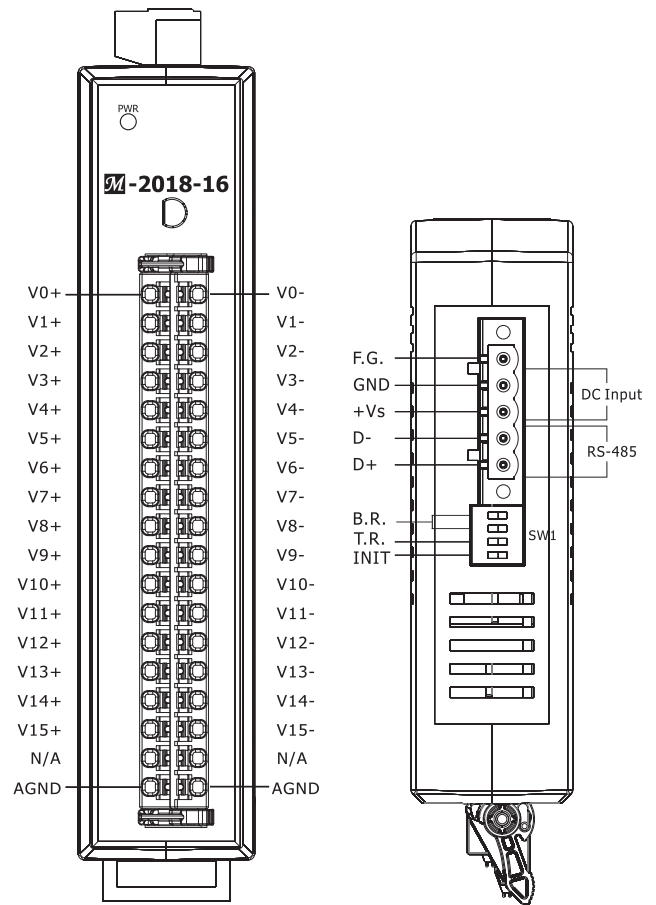
I/O Specifications

Analog Input		
Channels	16 Differential	
Sensor Types	Thermocouple	J, K, T, E, R, S, B, N, C
	Voltage	± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 1 V, ± 2.5 V
	Current	± 20 mA, $0 \sim +20$ mA, $+4 \sim +20$ mA (requires an optional external 125 Ω resistor)
Resolution	16-bit	
Accuracy	0.1% of FSR	
Sampling Rate	10 Hz (Total)	
Input Impedance	> 400 k Ω	
Common Voltage Protection	25 VDC	
Overvoltage Protection	120 VDC	
Open Wire Detection (for thermocouple only)	Yes	
Individual Channel Configuration	-	

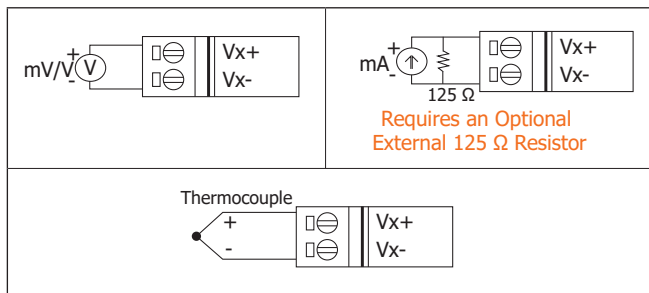
Internal I/O Structure



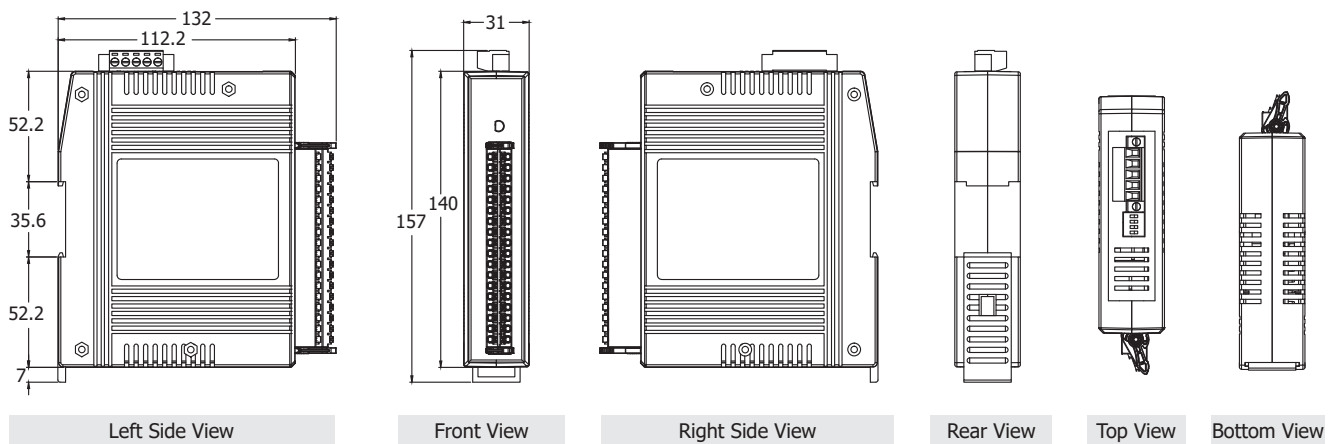
Pin Assignments



Wire Connections



Dimensions (Units: mm)



Ordering Information

M-2018-16 CR	16-channel Analog Input Module using the DCON and Modbus Protocols (RoHS)
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Accessories

2AB125R	125 Ω, 0.1% DIP Resistor used for Current Type Input Modules
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