



M-7018-16

16-channel Analog Input Module

Features

- 16-channel Differential Analog Input
- Current, Voltage or Thermocouple Input
- Adjustable CJC offset
- Open Thermocouple Detection
- Dual Watchdog



Introduction

The M-7018-16 is an analog input module that includes 16 differential analog input channels. The voltage input range can be from ± 15 V 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, LDIN43710 thermocouple can be used for the thermocouple input. Overvoltage protection of up to 30 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 | Yes, Module (1.6 Seconds), Communication (Programmable) |
| Isolation | |
| Intra-module Isolation | 3000 VDC |
| EMS Protection | |
| EFT (IEC 61000-4-4) | ± 4 kV to Power |
| ESD (IEC 61000-4-2) | ± 4 kV Contact for each Terminal |
| Surge (IEC 61000-4-5) | ± 2 kV for Power Line |
| LED Indicatorson | |
| Status | 1 x Power and Communication |
| COM Ports | |
| ESD (IEC 61000-4-2) | 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 |
| Power | |
| Reverse Polarity Protection | Yes |
| Input Range | +10 ~ +30 VDC |
| Consumption | 0.5 W |
| Mechanical | |
| Dimensions (mm) | 120 x 76 x 42 (W x L x H) |
| Installation | DIN-Rail |
| Environment | |
| Operating Temperature | -25 ~ +75 °C |
| Storage Temperature | -40 ~ +85 °C |
| Humidity | 10 ~ 95% RH, Non-condensing |

Applications

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

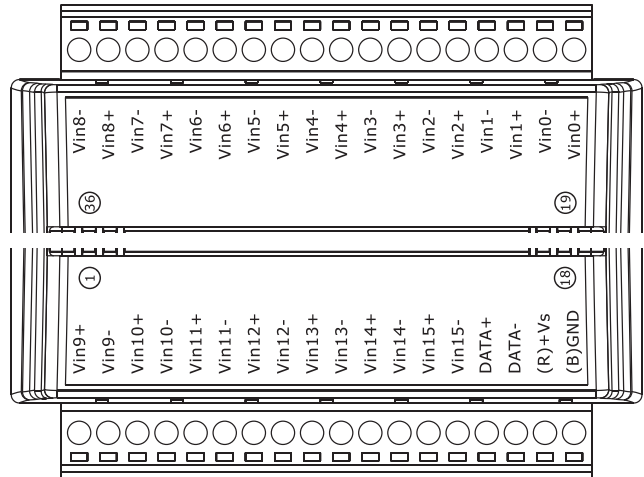
I/O Specifications

| Analog Input | | |
|---------------------------|------------------------------------|--|
| Channels | 16 Differential | |
| Type | Voltage Current Thermocouple | |
| Sensor Type | Thermocouple | J, K, T, E, R, S, B, N, C |
| Range | Voltage | ± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 1 V, ± 2.5 V |
| | Current | ± 20 mA, 0 ~ +20 mA, +4 ~ +20 mA (requires an optional external 125 Ω resistor) |
| Resolution | 16-bit | |
| Accuracy | $\pm 0.1\%$ of FSR | |
| Sampling Rate | 10 Hz (Total) | |
| Input Impedance | > 400 k Ω | |
| Common Voltage Protection | 25 VDC | |
| Overvoltage Protection | ± 30 VDC | |
| Open Wire Detection | Yes | |

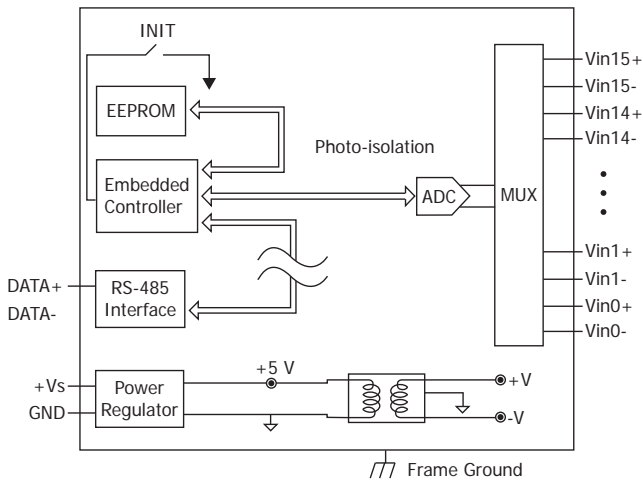
Thermocouple Type

| Type Code | Thermocouple Type | Temperature Range |
|-----------|-------------------|-------------------|
| 0E | J | -210 to +760°C |
| 0F | K | -270 to +1372°C |
| 10 | T | -270 to +400°C |
| 11 | E | -270 to +1000°C |
| 12 | R | 0 to +1768°C |
| 13 | S | 0 to +1768°C |
| 14 | B | 0 to +1820°C |
| 15 | N | -270 to +1300°C |
| 16 | C | 0 to +2320°C |

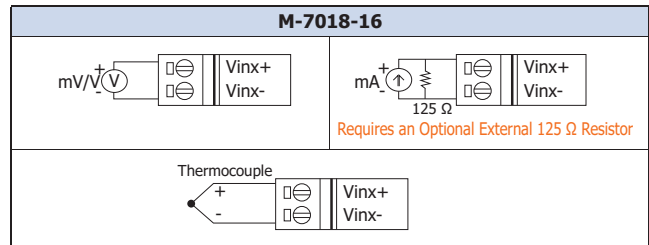
Pin Assignments



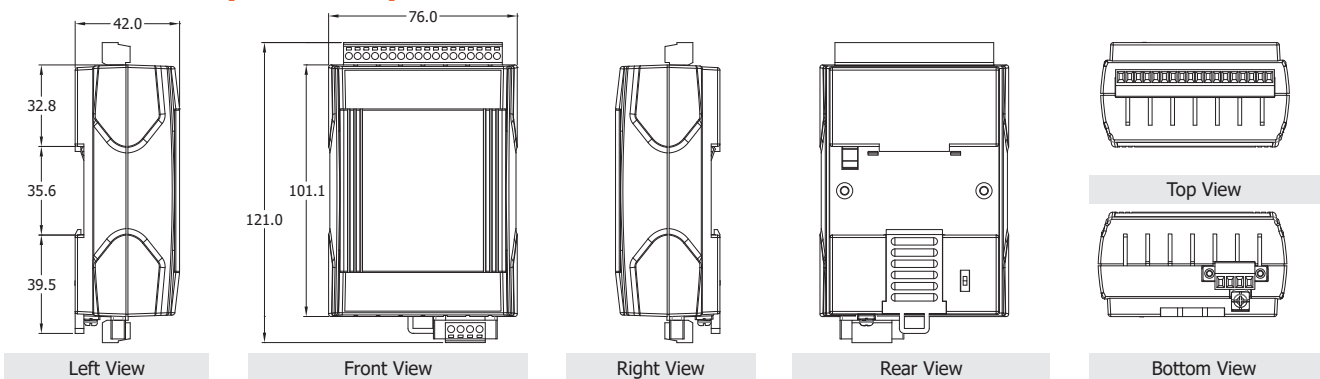
Internal I/O Structure



Wire Connections



Dimensions (Units: mm)



Ordering Information

| | |
|-----------------------|---|
| M-7018-16-G CR | 16-ch Thermocouple Input Module using DCON and Modbus Protocols (Gray Cover) (RoHS) |
|-----------------------|---|

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 |
| 2AB125R CR | IP Resistor, 125 ohm, 0.1%, 1/4W, MF, 50 ppm/°C (1PCS) (RoHS) |