



I-7019R

M-7019R

8-ch Universal AI Module with High Voltage Protection

Features

- 8 Universal Analog Inputs
- Individual Channel Configuration
- Jumper Selectable Voltage, Current or Thermocouple Input
- High Over-voltage Input Protection
- High Common Voltage Protection
- Open Thermocouple Detection
- Built-in Dual Watchdog



Introduction

The I-7019R is an Analog Input module that includes 8 differential Analog Input channels. Voltage, current or thermocouple input can be selected for all Analog Input channels via a jumper and each channel can be configured for an individual range. The voltage input range can be from ± 15 mV to 10 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 can be used for the thermocouple input. Up to 8 different Analog Input types can be connected to a single module. Overvoltage protection of up to 240 Vrms is provided. The module also features per-channel open wire detection for the thermocouple and +4 to +20 mA input types, and provides 4 kV ESD protection as well as 3000 Vdc intra-module isolation. The M-7019R supports both the Modbus RTU and DCON protocols, which can be configured via software, and all hardware specifications are the same as the I-7019R.

Applications

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

System Specifications

Model	I-7019R	M-7019R
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	
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), (E, 8, 1), (O, 8, 1)	
Protocol	DCON	Modbus RTU, DCON
Power		
Reverse Polarity Protection	Yes	
Input Range	+10 ~ +30 VDC	
Consumption	1.2 W	
Mechanical		
Dimensions (mm)	72 x 123 x 35 (W x L x H)	
Installation	DIN-Rail Mounting	
Environment		
Operating Temperature	-25 ~ +75 °C	
Storage Temperature	-40 ~ +85 °C	
Humidity	10 ~ 95% RH, Non-condensing	

I/O Specifications

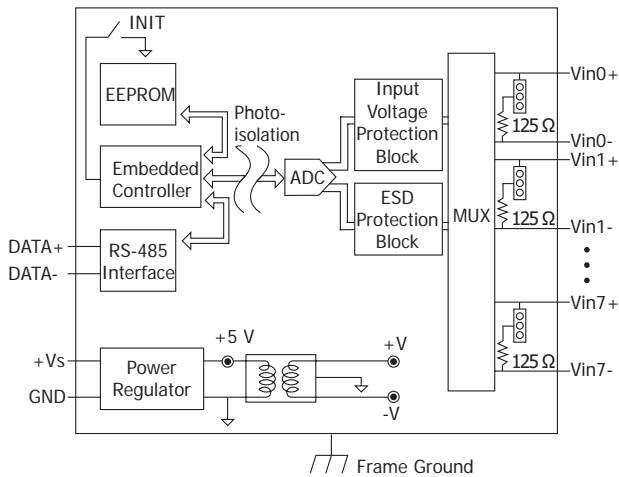
Model	I-7019R	M-7019R
Analog Input		
Channels	8 Differential	
Type	Voltage, Current, Thermocouple	
Sensor Types	Thermocouple	J, K, T, E, R, S, B, N, C, L, M, LDIN43710
Range	Voltage	± 15 mV, ± 50 mV, ± 100 mV, ± 150 mV, ± 500 mV, ± 1 V, ± 2.5 V, ± 5 V, ± 10 V
	Current	± 20 mA, 0 ~ +20 mA, +4 ~ +20 mA (Jumper selectable)
Resolution	16-bit	
Accuracy	0.1% of FSR	
Sampling Rate	8 Hz (Total)	
Input Impedance	Voltage	2 M Ω
	Current	125 Ω
	Thermocouple	> 400 k Ω
Common Voltage Protection	± 200 VDC	
Overvoltage Protection	240 Vrms	
Individual Channel Configuration	Yes	
Open Wire Detection	For Thermocouple (*Note1) and 4 ~ 20 mA	

Note:

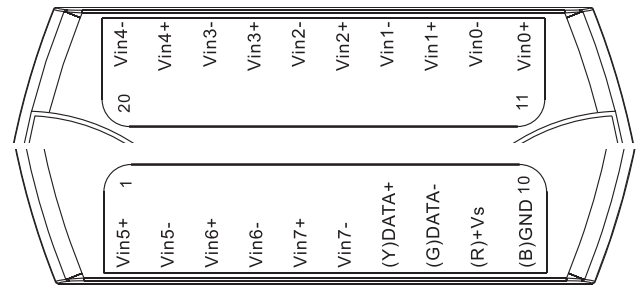
ICP DAS recommends using the I-7018Z/I-7019Z module for highly-accurate thermocouple measurement, which features automatic cold-junction compensation for each channel, ensuring consistent and stable temperature output.

Note1: Firmware version B3.7 or later.

Internal I/O Structure



Pin Assignments



Wire Connections

Voltage Input	
	J1 ~ J8 (Default)
Current Input	
	J1 ~ J8 (Default)
Thermocouple Input	
	J1 ~ J8

Ordering Information

I-7019R CR	8-ch Universal AI Module with High Voltage Protection, using DCON Protocol (Blue Cover) (RoHS)
I-7019R-G CR	8-ch Universal AI Module with High Voltage Protection, using DCON Protocol (Gray Cover) (RoHS)
M-7019R-G CR	8-ch Universal AI Module with High Voltage Protection, using DCON and Modbus Protocols (Gray Cover) (RoHS)

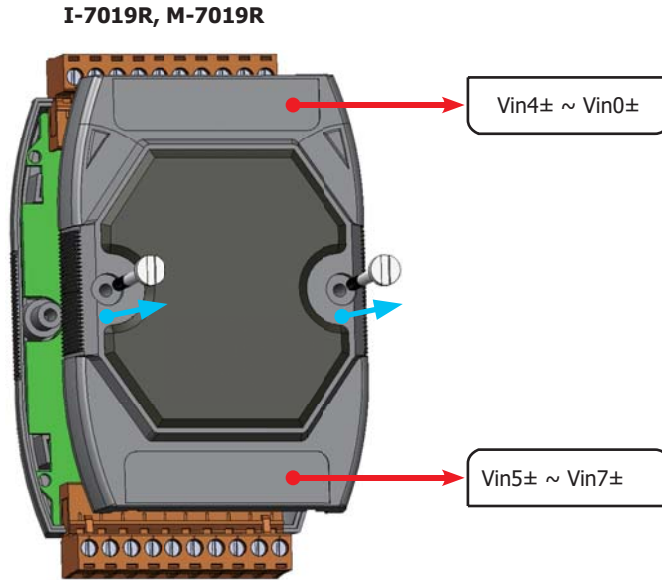
Accessories

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

Jumper

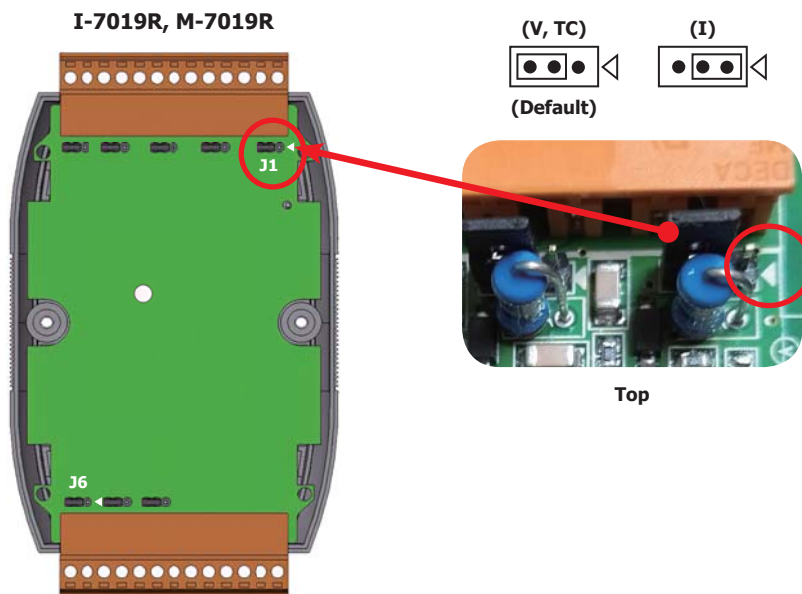
Notice:

1. Remove the top cover of the module before adjusting the jumper. Additionally, some modules may have two screws on the back cover.



2. Users can locate the Jx/JPx jumpers on the board by checking the I/O labels on the cover.

Channel	Vin4±	Vin3±	Vin2±	Vin1±	Vin0±
Jumper	J5	J4	J3	J2	J1



Channel	Vin5±	Vin6±	Vin7±
Jumper	J6	J7	J8