I-7019R   M-7019R

8-channel Universal Analog Input Module

Features

- 8-channel Universal Analog Input
- 240 V$_{rms}$ Overvoltage Protection
- Individual Channel Configuration
- Jumper Selectable Voltage, Current or Thermocouple Input
- Open Thermocouple Detection
- 4 kV ESD Protection
- 3000 V$_{DC}$ Intra-module Isolation
- Dual Watchdog
- Wide Operating Temperature Range: -25 to +75°C

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 V$_{DC}$ 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.

System Specifications

| Model	I-7019R	M-7019R
Communication		
Interface	RS-485	
Bias Resistor	No (Usually supplied by the RS-485 Master. Alternatively, add a tM-SG4 or SG-785.)	
Format	(N, 8, 1) (N, 8, 2) (E, 8, 1) (O, 8, 1)	
Baud Rate	1200 to 115200 bps	
Protocol	DCON	Modbus RTU, DCON
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)	
LED Indicators/Display		
System LED Indicator	Yes, 1 as Power/Communication Indicator	
I/O LED Indicators	-	
7-segment LED Display	-	
Isolation		
Intra-module Isolation, Field-to-Logic	3000 V$_{DC}$	
EMS Protection		
ESD (IEC 61000-4-2)	±4 kV	
EFT (IEC 61000-4-4)	±4 kV	
Power		
Reverse Polarity Protection	Yes	
Input Range	+10 ~ +30 V$_{DC}$	
Consumption	1.2 W	
Mechanical		
Dimensions (L x W x H)	123 mm x 72 mm x 35 mm	
Installation	DIN-Rail or Wall Mounting	
Environment		
Operating Temperature	-25 to +75°C	
Storage Temperature	-40 to +85°C	
Humidity	10 to 95% RH, Non-condensing	

Applications

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

I/O Specifications

Model		I-7019R	M-7019R
Analog Input			
Channels		8	
Wiring		Differential	
Sensor Types	Thermocouple	J, K, T, E, R, S, B, N, C, L, M, L$_{DIN43710}$	
	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 MΩ	
	Current	125 Ω	
	Thermocouple	> 400 kΩ	
Common Voltage Protection		±200 V$_{DC}$	
Individual Channel Configuration		Yes	
Overvoltage Protection		240 V$_{rms}$	
Open Wire Detection (for thermocouple only)		Yes	
Temperature Outputs Consistency		-	
Stable Temperature Output in the Field		-	

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

Internal I/O Structure
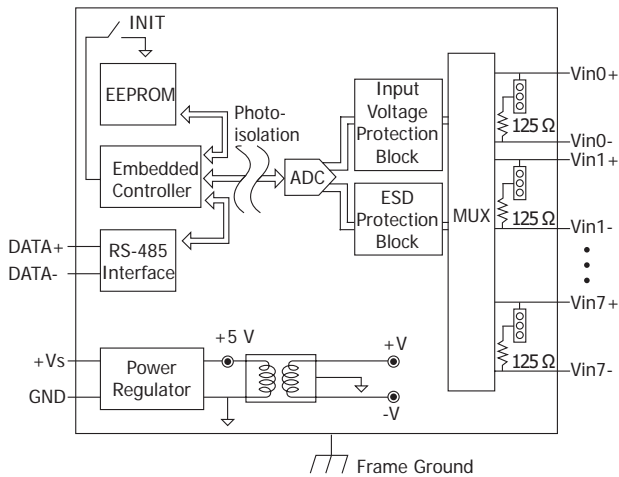
Pin Assignments
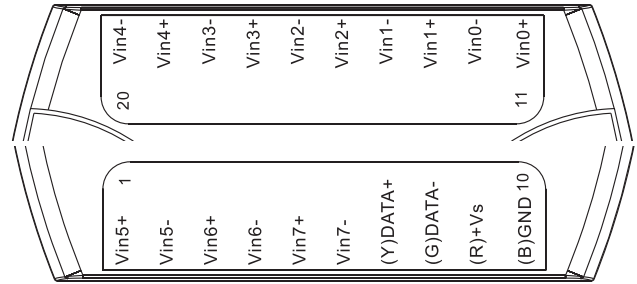
Wire Connections

Voltage Input

Current Input

Thermocouple Input

Ordering Information

I-7019R CR	8-channel Universal Analog Input Module using the DCON Protocol (Blue Cover) (RoHS)
I-7019R-G CR	8-channel Universal Analog Input Module using the DCON Protocol (Gray Cover) (RoHS)
M-7019R-G CR	8-channel Universal Analog Input Module using the DCON and Modbus Protocols (Gray Cover)

Accessories

	tM-7520U CR	RS-232 to RS-485 Converter (RoHS)
	tM-7561 CR	USB to RS-485 Converter (RoHS)
	tM-SG4 CR	RS-485 Bias and Termination Resistor Module (RoHS)
	I-7514U CR	4-channel RS-485 Hub (RoHS)
	SG-770 CR	7-channel Differential or 14-channel Single-ended Surge Protector (RoHS)
	SG-3000 Series	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Input Transformers

I-7019R/M-7019R