


I-87018W-G I-87018RW-G

8-channel Thermocouple Input Module

Features

- 8-channel Analog Input
- Current Input, Voltage Input and Thermocouple Input
- High Resolution: 16-bit
- 3000 VDC Intra-module Isolation
- Open Thermocouple Detection
- 240 Vrms Overvoltage Protection
- 4 kV ESD Protection
- RoHS Compliant
- Wide Operating Temperature Range: -25 to +75°C

Introduction

The I-87018W is an 8-channel analog input module that provides current input and voltage input, as well as thermocouple input.
The I-87018RW is an upgraded version of I-87018W with an extremely high-quality protection mechanism where the overvoltage protection can be as high as 240 Vrms. The input type can be set to either current or voltage, as well as thermocouple. The only difference between the two modules is that the I-87018RW is more suitable for critically harsh environments. Moreover, the newly-added open thermocouple detection feature makes the I-87018RW more attractive than ever. Both the I-87018W and the I-87018RW also features 4 kV ESD protection and 3000 VDC intra-module isolation.

Applications

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

System Specifications

Model	I-87018W	I-87018RW
Communication		
Interface	RS-485	
Format	N, 8, 1	
Baud Rate	1200 to 115200 bps	
Protocol	DCON	
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)	
LED Indicators/Display		
System LED Indictors	Yes, 1 as Power/Communication Indicator	
I/O LED Indicators	-	16 as High/ Low Alarm Signals
Isolation		
Intra-module Isolation, Field-to-Logic	3000 VDC	
EMS Protection		
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal	
	±8 kV Air for Random Point	
Power		
Power Consumption	0.8 W Max.	0.6 W Max.
Mechanical		
Dimensions (L × W × H)	115 mm × 30 mm × 102 mm	
Environment		
Operating Temperature	-25 to +75°C	
Storage Temperature	-40 to +85°C	
Humidity	10 to 95% RH, Non-condensing	

I/O Specifications

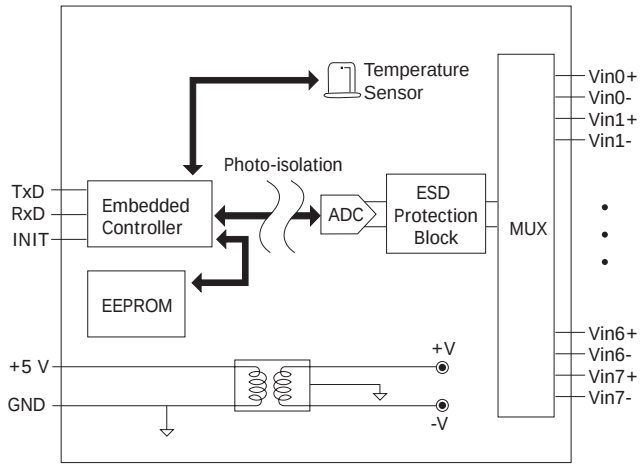
Model	I-87018W	I-87018RW
Analog Input		
Channels	8	
Wiring	Differential	
Sensor Type	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 VDC, ±2.5 VDC	
	-20 mA ~ +20 mA (Requires Optional External 125 Ω Resistor)	
	Thermocouple (J, K, T, E, R, S, B, N, C, L, M, LDIN43710)	
Resolution	16-bit	
Accuracy	±0.1% of FSR	
Sampling Rate	10 Hz (Total)	
-3dB Bandwidth	15.7 Hz	
Zero Drift	±0.5 μV/°C	±10 μV/°C
Span Drift	±25 ppm/°C	
Common Mode Rejection	150 dB	
Normal Mode Rejection	100 dB	
Input Impedance	>400 kΩ	
Open Wire Detection	-	Yes (Thermocouple)
Overvoltage Protection	-35 VDC ~ +35 VDC	240 Vrms

Note: ICP DAS recommends selecting the I-87018ZW module for high accurate thermocouple measurement that features automatic cold-junction compensation for each channel to ensure temperature output consistency and stable temperature output in the field.

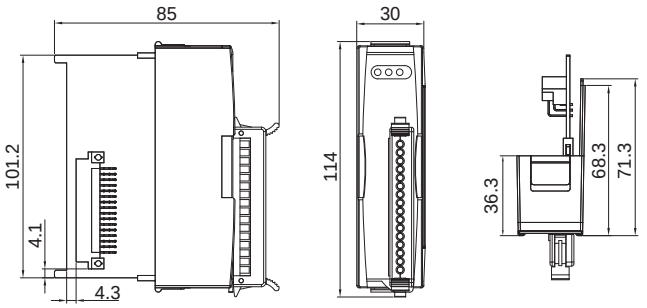
Thermocouple Type

Type	Temperature Range
J	-210 to +760°C
K	-270 to +1372°C
T	-270 to +400°C
E	-270 to +1000°C
R	0 to +1768°C
S	0 to +1768°C
B	0 to +1820°C
N	-270 to 1300°C
C	0 to 2320°C
L	-200 to +800°C
M	-200 to +100°C
LDIN43710	-200 to +900°C

Internal I/O Structure



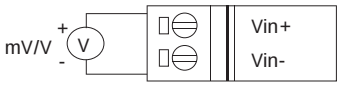
Dimensions (Units: mm)



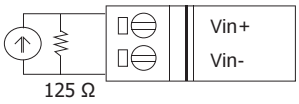
Left View | Front View | Top View

Wire Connections

Voltage Input Wire Connection

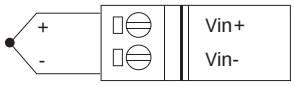


Current Input Wire Connection

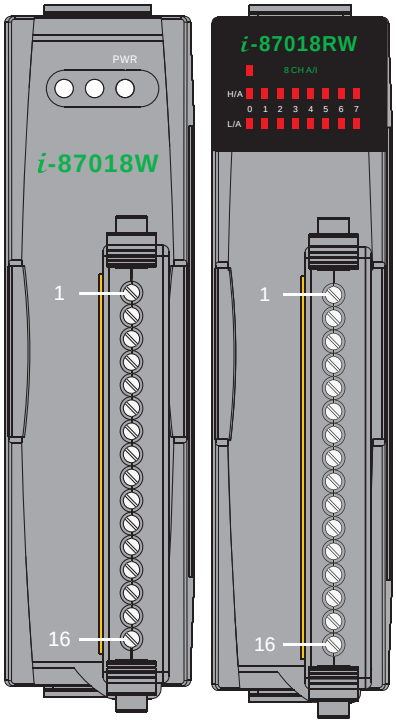


Note: When connecting to a current source, an optional external 125 Ω resistor is required.

Thermocouple Input Wire Connection



Pin Assignments



Terminal No.	Pin Assignment
01	Vin0+
02	Vin0-
03	Vin1+
04	Vin1-
05	Vin2+
06	Vin2-
07	Vin3+
08	Vin3-
09	Vin4+
10	Vin4-
11	Vin5+
12	Vin5-
13	Vin6+
14	Vin6-
15	Vin7+
16	Vin7-

Ordering Information

I-87018W-G CR	8-channel Thermocouple Input Module (Gray Cover) (RoHS)
I-87018RW-G CR	8-channel Thermocouple Input Module with High Overvoltage Protection(Gray Cover) (RoHS)

Accessories

 125Ω, 0.1% DIP Resistors	Resistor used for Current Type I-87017/I-87018 Series Modules
 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