



Analog Input

RS-485 Remote I/O Modules



I-87KW Series

I-87018W/I-87018RW

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 Indicator	1 LED as Power/Communication Indicator		
I/O LED Indicator	-	16 LEDs 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 (W x L x H)	30 mm x 102 mm x 115 mm		
Environment			
Operating Temperature	-25 to +75°C		
Storage Temperature	-40 to +85°C		
Humidity	10 to 95% RH, Non-condensing		

I/O Specifications

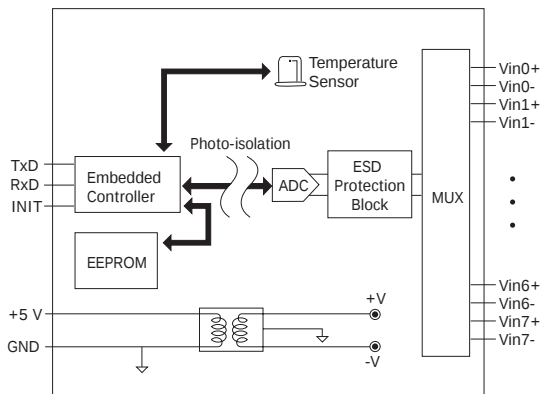
Model	I-87018W	I-87018RW
Analog Input		
Channels	8	
Wiring	Differential	
Sensor Type	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 Vdc, ±2.5 Vdc	
	-20 mA ~ +20 mA (Requires Optional External 125 Ω Resistor)	
Resolution	16-bit	
	Thermocouple (J, K, T, E, R, S, B, N, C, L, M, L _{DIN43710})	
Accuracy	±0.1% of FSR	
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: ICPDAS recommends selecting the I-87018RW 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..

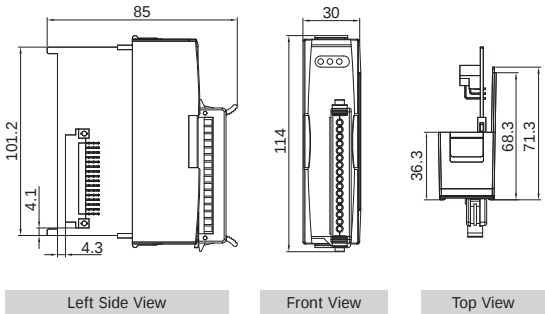
Thermocouple Type

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
L _{DIN43710}	-200 to +900°C

Internal I/O Structure



Dimensions (Units: mm)



RS-485 Remote I/O Modules

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-

I-87KW Series

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

I-87018W/I-87018RW