



I-87018PW

8-channel Thermocouple Input Module with High Overvoltage Protection

Introduction

The I-87018PW is an 8-channel thermocouple input module. The analog input range is software selectable and supports ± 15 mV, ± 100 mV, ± 500 mV, ± 1 V, ± 2.5 V, $0 \sim +20$ mA, $+4 \sim +20$ mA or ± 20 mA, and thermocouples of type J, K, T, E, R, S, B, N, C, L, M, and DIN43710. It features automatic cold-junction compensation for each channel, and supports open thermocouple detection.

Applications

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

System Specifications

Communication		
Interface	RS-485	
Format	N, 8, 1	
Baud Rate	1200 ~ 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	0.7 W	
Mechanical		
Dimensions (W x L x H)	I-87018PW	30 mm x 85 mm x 115 mm
	CN-1824	29 mm x 43 mm x 83 mm
Environment		
Operating Temperature	-25 ~ +75°C	
Storage Temperature	-40 ~ +85°C	
Humidity	10 ~ 95% RH, Non-condensing	

Features

- 8-channel Thermocouple Input
- Individual Channel Configuration
- Open Thermocouple Detection
- Temperature Output Consistency
- Stable Temperature Output in the Field
- 240 Vrms Overvoltage Protection
- 4 kV ESD Protection
- Dual Watchdog
- 3000 Vdc Intra-module Isolation, Field-to-Logic
- RoHS Compliant
- Wide Operating Temperature Range: $-25 \sim +75^{\circ}\text{C}$



I/O Specifications

Analog Input	
Channels	8
Wiring	Differential
Sensor Type	± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 1 Vdc, ± 2.5 Vdc
	± 20 mA, $0 \sim +20$ mA, $+4 \sim +20$ mA (Requires Optional External 125 Ω Resistor)
	Thermocouple Type: (J, K, T, E, R, S, B, N, C, L, M, and DIN43710)
Temperature Output Consistency	Yes
Stable Temperature Output in the Field	Yes
Resolution	16-bit
Accuracy	$\pm 0.1\%$ of FSR
Sampling Rate	10 Hz (Total)
-3dB Bandwidth	15.7 Hz
Zero Drift	± 0.5 $\mu\text{V}/^{\circ}\text{C}$
Span Drift	± 25 ppm/ $^{\circ}\text{C}$
Common Mode Rejection	150 dB
Normal Mode Rejection	100 dB
Input Impedance	>400 k Ω
Individual Channel Configurable	Yes
Open Wire Detection	Yes
Overvoltage Protection	240 Vrms
CN-1824	
Wire Strip Length	4 ~ 5 mm
Wire Range	16 ~ 24 AWG

Thermocouple type

Type	Range $^{\circ}\text{C}$
J	$-210 \sim +760$
K	$-270 \sim +1372$
T	$-270 \sim +400$
E	$-270 \sim +1000$
R	$0 \sim +1768$
S	$0 \sim +1768$
B	$0 \sim +1820$
N	$-270 \sim +1300$
C	$0 \sim 2320$
L	$-200 \sim +800$
M	$-200 \sim +100$
L DIN43710	$-200 \sim +900$

