



I-87019PW

8-channel Universal Analog Input Module with High Overvoltage Protection

Introduction

The I-87019PW is a 8-channel universal analog input module with an RS-485 interface that is a specially designed for extremely accurate thermocouple measurement and features automatic cold-junction compensation for each channel to ensure temperature output consistency and stable temperature output in the field. The innovative design of the enhanced model ensures that thermocouple measurement is more accurate than with the earlier design. Besides the thermocouple inputs, the I-87019PW also supports voltage and current inputs. The voltage input range can be form ± 15 mV to ± 10 V, and the current input range can be either $4 \sim 20$ mA, $0 \sim 20$ mA, or ± 20 mA. Up to 10 analog inputs of different 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 thermocouple and $4 \sim 20$ mA inputs.

I/O Specifications

Analog Input	
Input Channels	8 Differential
Input Type	± 15 mV, ± 50 mV, ± 100 mV, ± 150 mV ± 500 mV, ± 1 V, ± 2.5 V, ± 5 V, ± 10 V -20 mA \sim $+20$ mA, $0 \sim 20$ mA, $4 \sim 20$ mA (Jumper Selectable) Thermocouple Type: (J, K, T, E, R, S, B, N, C, L, M, and $L_{DIN43710}$)
Resolution	16-bit
Sampling Rate	10 Samples/Second (Total)
Accuracy	$\pm 0.1\%$
Zero Drift	± 20 μ V/ $^{\circ}$ C
Span Drift	± 25 ppm/ $^{\circ}$ C
Common Mode Rejection	86 dB
Normal Mode Rejection	100 dB
Input Impedance	Voltage Input: >400 k Ω , Current Input: 125 Ω
Individual Channel Configuration	Yes
Overvoltage Protection	240 Vrms
Open Thermocouple Detection	Yes, (Software Selectable)
ESD Protection	± 4 kV, Contact for Each Terminal
Intra-module Isolation, Field-to-Logic	3000 Vdc

Thermocouple type

Type Code	Type	Temperature Range $^{\circ}$ C
0E	J	$-210 \sim +760$
0F	K	$-270 \sim +1372$
10	T	$-270 \sim +400$
11	E	$-270 \sim +1000$
12	R	$0 \sim +1768$
13	S	$0 \sim +1768$

Analog Input

Features

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



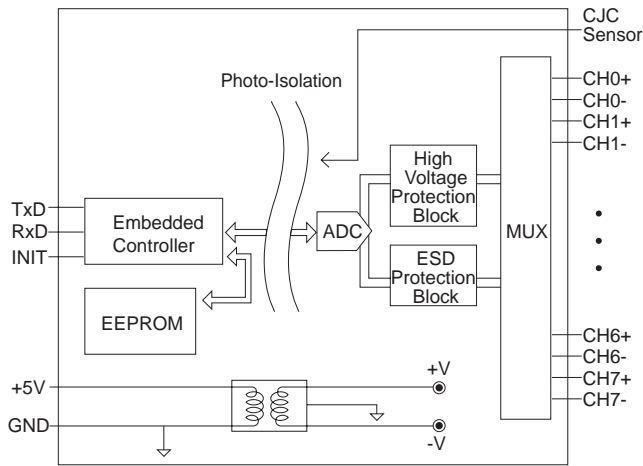
Applications

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

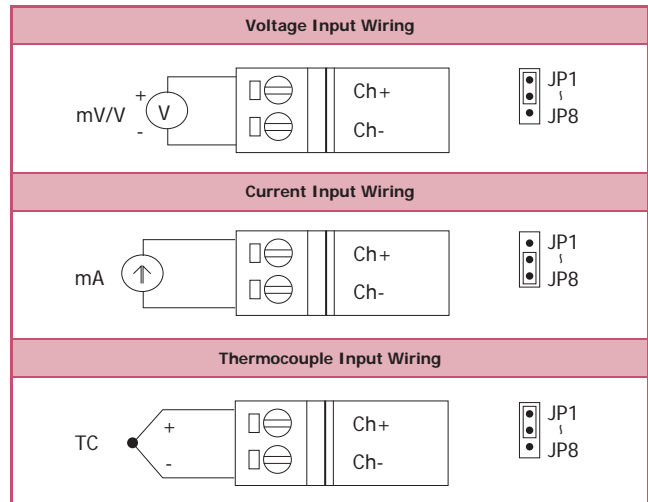
System Specifications

Interface		
Interface	RS-485	
Format	N, 8, 1; N, 8, 2; E, 8, 1; O, 8, 1	
Baud Rate	1200 \sim 115200 bps	
Watchdog		
Dual Watchdog	Yes, Module (1.6 seconds) and Communication (Programmable)	
LED Display	1 LED as Power/Communication Indicator	
Power		
Power Consumption	Maximum: 1.3 W	
Environment		
Operating Temperature	-25 $^{\circ}$ C \sim $+75$ $^{\circ}$ C	
Storage Temperature	-40 $^{\circ}$ C \sim $+85$ $^{\circ}$ C	
Humidity	$10 \sim 90\%$ RH, Non-condensing	
Dimensions	I-87019PW	30 mm x 86 mm x 114 mm (W x L x H)
	CN-1824	29 mm x 43 mm x 83 mm (W x L x H)

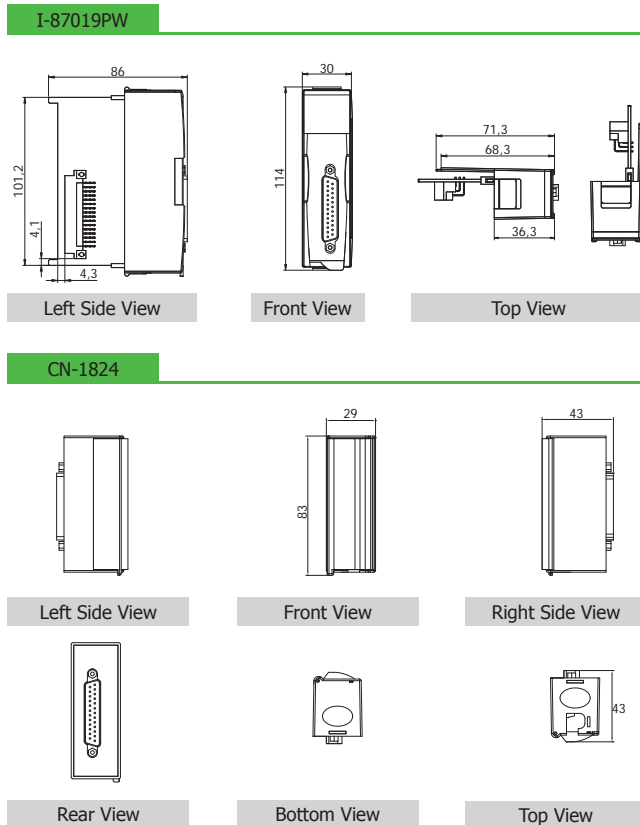
Internal I/O Structure



Wire Connections



Dimensions (Units: mm)



Pin Assignments

Pin Assignment	Terminal	No.	Pin Assignment
+5V	01	14	AGND
CJC	02	15	CH 0+
CH 0-	03	16	CH 1+
CH 1-	04	17	CH 2+
CH 2-	05	18	CH 3+
CH 3-	06	19	CH 4+
CH 4-	07	20	CH 5+
CH 5-	08	21	CH 6+
CH 6-	09	22	CH 7+
CH 7-	10	23	N.C.
N.C.	11	24	N.C.
N.C.	12	25	N.C.
N.C.	13	Shield	F.G.

25-pin Female D-Sub Connector

Pin Assignment Name
CH0+
CH0-
CH1+
CH1-
CH2+
CH2-
CH3+
CH3-
CH4+
CH4-
CH5+
CH5-
CH6+
CH6-
CH7+
CH7-
AGND
AGND

Ordering Information

I-87019PW-G CR	8-channel Universal Analog Input Module (Gray Cover) (RoHS) Includes the I-87019PW Module and a CN-1824 Daughter Board.
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Related Products

Converters	USB, RS-232, Fiber Optical to RS-485 Converters and Repeaters
Power Supply	24 V _{dc} Power Supply
Relay Module	External Relay Modules for 87000 DO Modules
Learning Kit	Beginner Learning Kit
Application Books	Application Books Designed for Our Products
Data Logger Software	User Friendly Data Logger Software (free)