

I-97019

8-channel Thermocouple Input Module

Features

- 8-channel Analog Input
- Current, Voltage and 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
- Wide Operating Temperature Range: -25 to +75°C



Introduction

The I-97019 is a 8-channel universal Analog Input module with an RS-485 interface that is especially 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-97019 also supports voltage and current input. The voltage input range can be from ± 15 mV to ± 10 V. Up to 8 different types of Analog Input 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 channels.

System Specifications

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 Indicators	Yes, 1 as Power/Communication Indicator	
I/O LED Indicators	-	
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	0.6 W	
Mechanical		
Dimensions (L x W x H)	I-97019	144 mm x 30.3 mm x 134 mm
	CN-1824M	80 mm x 36 mm x 28 mm
Environment		
Operating Temperature	-25 to +75°C	
Storage Temperature	-40 to +85°C	
Humidity	10 to 90% RH, non-condensing	

Applications

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

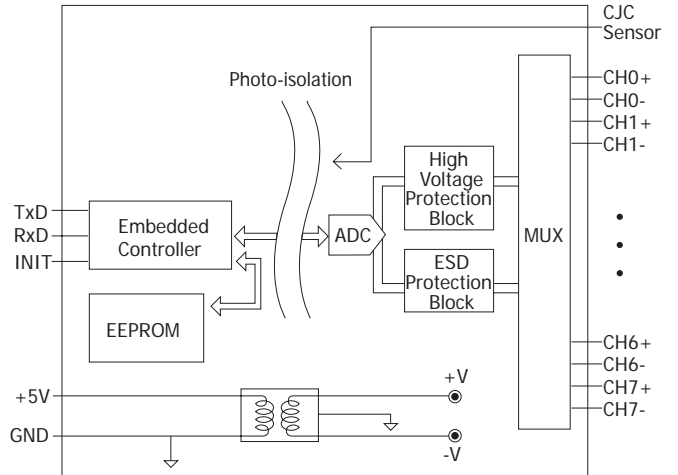
I/O Specifications

Analog Input		
Channels	8	
Wiring	Differential	
Sensor Type	Thermocouple	J, K, T, E, R, S, B, N, C, L, M, L _{DIN43710}
	Voltage	± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 1 V, ± 2.5 V, ± 5 V, ± 10 V
	Current	± 20 mA, 0 to 20 mA, 4 to 20 mA
Resolution	16-bit	
Accuracy	$\pm 0.1\%$ of FSR	
Sampling Rate	10 Hz (Total)	
Input Impedance	> 400 k Ω	
Common Voltage Protection	± 200 VDC	
Individual Channel Configuration	Yes	
Overvoltage Protection	240 Vrms	
Open Wire Detection (for thermocouple only)	Yes	
Temperature Output Consistency	Yes	
Stable Temperature Output in the Field	Yes	

Thermocouple type

Type Code	Type	Temperature Range
0E	J	-210 to +760°C
0F	K	-270 to +1372°C
10	T	-270 to +400°C
11	E	-270 to +1000°C
12	R	0 to +1768°C
13	S	0 to +1768°C
14	B	0 to +1820°C
15	N	-270 to +1300°C
16	C	0 to +2320°C
17	L	-200 to +800°C
18	M	-200 to +100°C
19	L-DIN43710	-200 to +900°C

Internal I/O Structure



Wire Connections

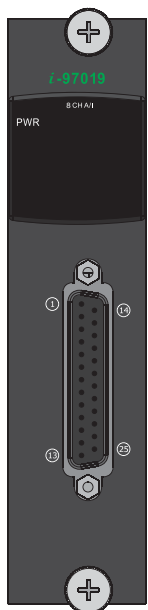
Voltage Input Wiring

Current Input Wiring

Thermocouple Input Wiring

Pin Assignments

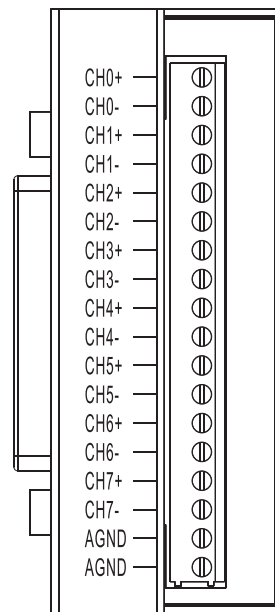
I-97019



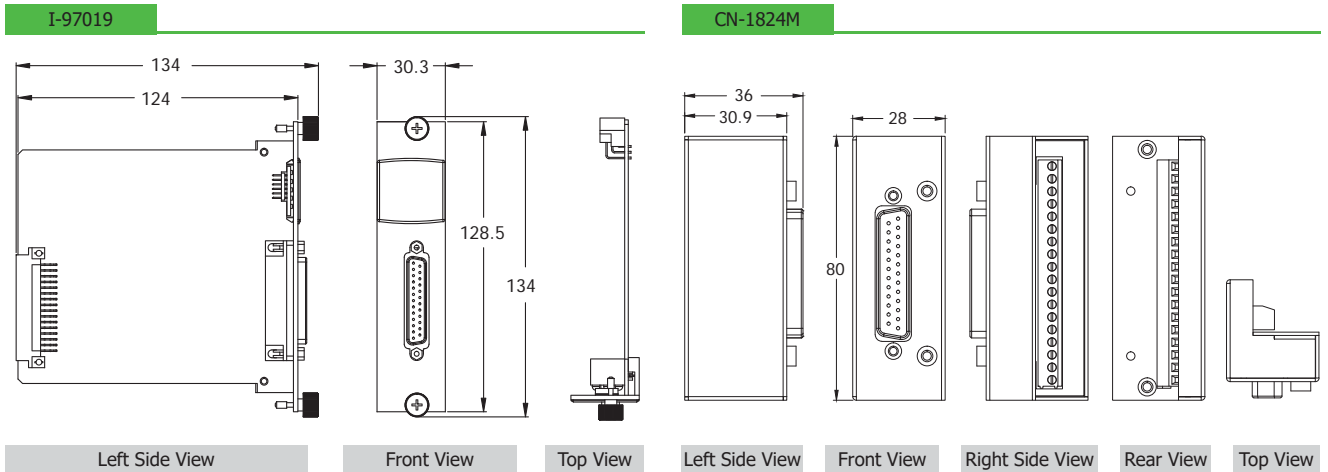
Pin Assignment	Terminal No.	Pin Assignment
+5V	01	14 AGND
CJC	02	15 CH 0+
CH 0-	03	16 CH 1+
CH 1-	04	17 CH 2+
CH 2-	05	18 CH 3+
CH 3-	06	19 CH 4+
CH 4-	07	20 CH 5+
CH 5-	08	21 CH 6+
CH 6-	09	22 CH 7+
CH 7-	10	23 N.C.
N.C.	11	24 N.C.
N.C.	12	25 AGND
AGND	13	Shield F.G.

25-pin Female D-Sub Connector

CN-1824M



■ Dimensions (Units: mm)



■ Ordering Information

I-97019/S CR	8-channel Thermocouple Input Module with High Voltage Protection (RoHS) Include CN-1824M
I-97019/S CR = I-97019 Connects CN-1824M Directly	

■ Accessories

	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 Inputs