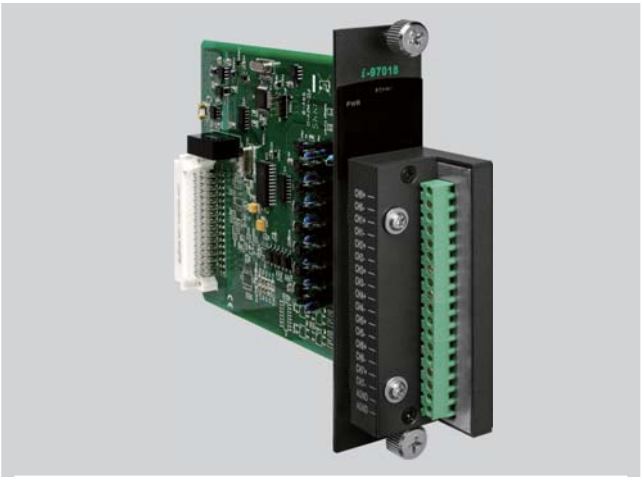


I-97018

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-97018 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-97018 also supports voltage and current input. The voltage input range can be from ±15 mV to ±2.5 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 Indictors		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-97018	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

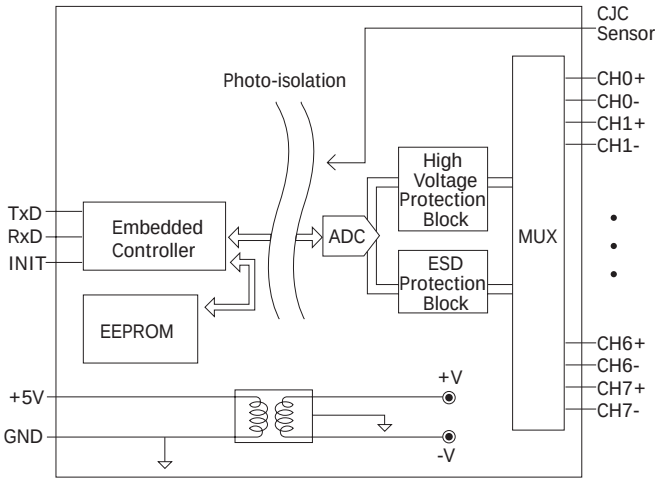
I/O Specifications

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
	Current	±20 mA, 0 to 20 mA, 4 to 20 mA
Resolution		16-bit
Accuracy		±0.1% of FSR
Sampling Rate		10 Hz (Total)
Input Impedance		> 400 kΩ
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

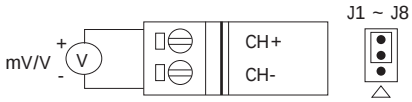
Type Code	Type	Temperature Range
0E	J	-210 to +760°C
0F	K	-270 to +1372°C
10	T	-270 to +400°C
11	E	-270 to +1000°C
12	R	0 to +1768°C
13	S	0 to +1768°C
14	B	0 to +1820°C
15	N	-270 to +1300°C
16	C	0 to +2320°C
17	L	-200 to +800°C
18	M	-200 to +100°C
19	$L_{DIN43710}$	-200 to +900°C

Internal I/O Structure

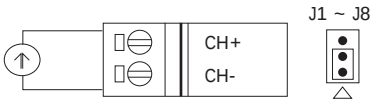


Wire Connections

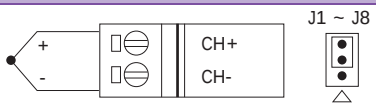
Voltage Input Wiring



Current Input Wiring

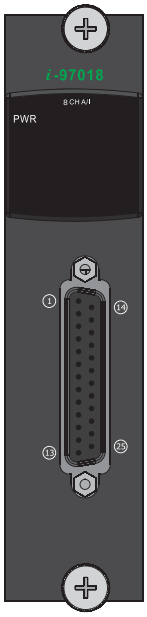


Thermocouple Input Wiring



Pin Assignments

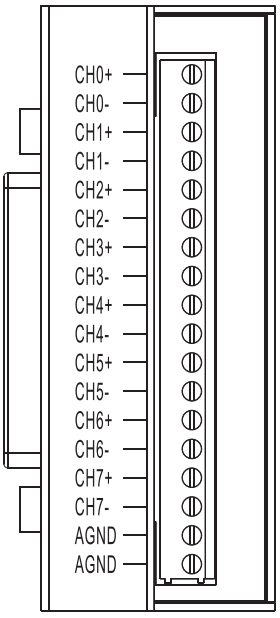
I-97018



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.

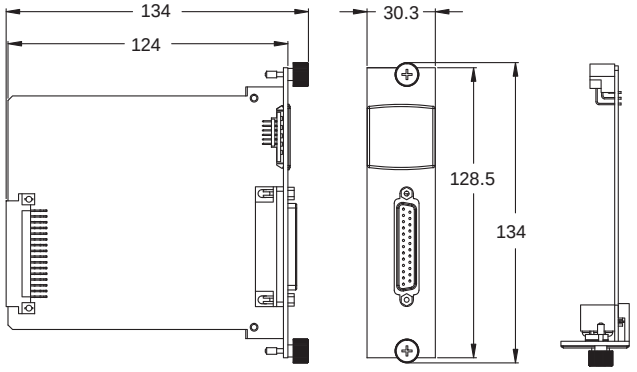
25-pin Fmale D-Sub Connector

CN-1824M



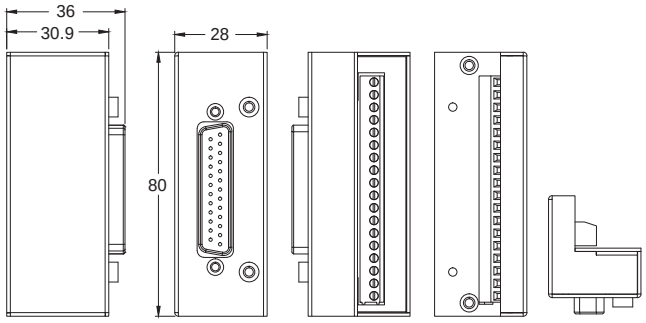
Dimensions (Units: mm)

I-97018



Left Side View | Front View | Top View

CN-1824M



Left Side View | Front View | Right Side View | Rear View | Top View

Ordering Information

I-97018/S CR	8-channel Thermocouple Input Module with High Voltage Protection (RoHS) Include CN-1824M



I-97018/S CR = I-97018 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