▲ I-87018ZW-G/S ▲ I-87018ZW-G/S2

10-ch Thermocouple Input Module

Features

- Current Input, Voltage Input and Thermocouple Input
- 240 Vrms Overvoltage Protection
- Individual Channel Configuration
- Open Thermocouple Detection
- Temperature Output Consistency
- Stable temperature output in the field
- 4 kV ESD Protection
- 3000 VDC Intra-module Isolation
- 3750 Vrms Photo Isolation

Introduction

The "Z" version is another milestone in the development of I-87018 and a testament to excellence by ICP DAS R&D team. I-87018ZW is specifically designed for extremely accurate thermocouple measurement. It features automatic compensation for each channel. Current input and voltage input are supported. Another feature is that ten of its input channels can individually be configured with different kinds of analog input. I-87018ZW also got open thermocouple detection and many protection mechanisms.

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 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		1.3 W
Mechanical		
Dimensions (W × L × H)	I-87018ZW	31 mm × 114 mm × 86 mm
	DB-1820	65 mm × 78 mm × 22 mm
	DN-1822	103 mm × 96 mm × 27 mm
Environment		
Operating Temperature		-25 to +75°C
Storage Temperature		-40 to +85°C
Humidity		10 to 95% RH, Non-condensing
DB-1820		
Wire strip length		4 ~ 5 mm
Wire Range		16 ~ 24 AWG

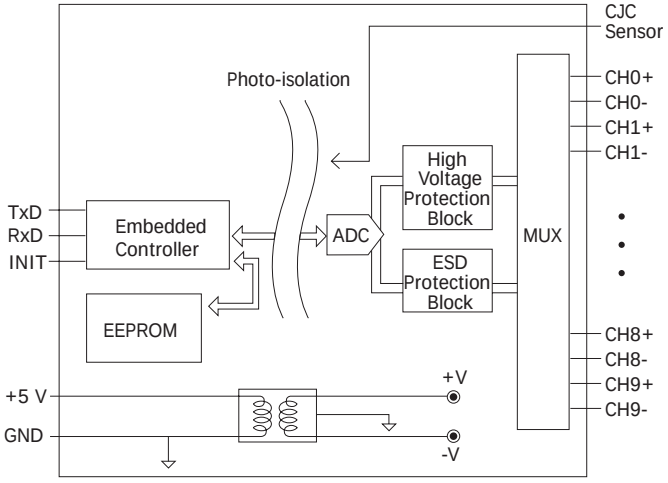
I/O Specifications

Analog Input	
Channels	10
Wiring	Differential
Sensor Type	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 VDC, ±2.5 VDC
	±20 mA, 0 ~ +20 mA, +4 ~ +20 mA (Requires Optional External 125 Ω Resistor)
	Thermocouple (J, K, T, E, R, S, B, N, C, L, M, LDIN43710)
Temperature Output Consistency	Yes
Stable Temperature Output in the Field	Yes
Resolution	16-bit
Accuracy	±0.1% of FSR
Sampling Rate	10 Hz (Total)
-3dB Bandwidth	15.7 Hz
Zero Drift	±0.5 μV/°C
Span Drift	±25 ppm/°C
Common Mode Rejection	150 dB
Normal Mode Rejection	100 dB
Input Impedance	>400 kΩ
Individual Channel Configuration	Yes
Open Wire Detection	Yes
Overvoltage Protection	240 Vrms

Thermocouple Type

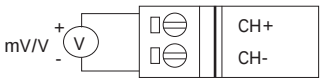
Type	Temperature Range
J	-210 to +760°C
K	-270 to +1372°C
T	-270 to +400°C
E	-270 to +1000°C
R	0 to +1768°C
S	0 to +1768°C
B	0 to +1820°C
N	-270 to 1300°C
C	0 to +2320°C
L	-200 to +800°C
M	-200 to +100°C
LDIN43710	-200 to +900°C

Internal I/O Structure

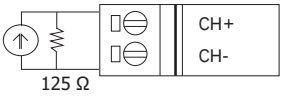


Wire Connections

Voltage Input Wiring

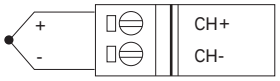


Current Input Wiring



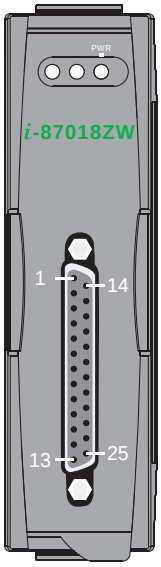
Note: When connecting to a current source, an optional external 125 Ω resistor is required.

Thermocouple Input Wiring



Pin Assignments

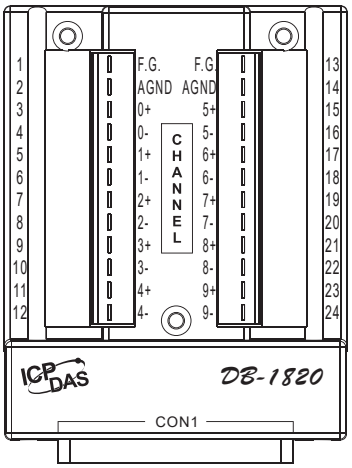
I-87018ZW



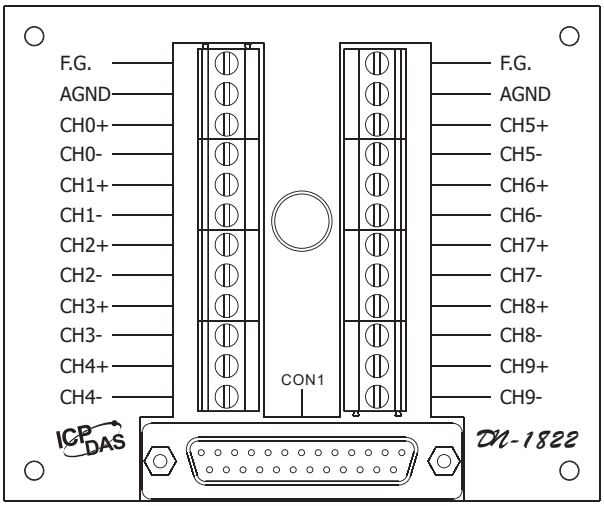
Pin Assignment	Terminal No.		Pin Assignment
+5V	01	14	AGND
CJC	02	15	CH 0+
CH 0-	03	16	CH 1+
CH 1-	04	17	CH 2+
CH 2-	05	18	CH 3+
CH 3-	06	19	CH 4+
CH 4-	07	20	CH 5+
CH 5-	08	21	CH 6+
CH 6-	09	22	CH 7+
CH 7-	10	23	CH 8+
CH 8-	11	24	CH 9+
CH 9-	12	25	N.C.
N.C.	13	Shield	F.G.

25-pin Female D-Sub Connector

DB-1820

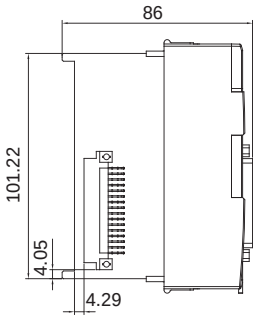


DN-1822

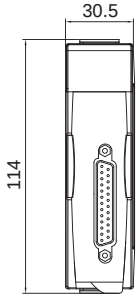


Dimensions (Units: mm)

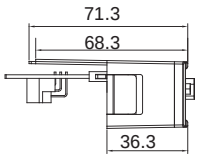
I-87018ZW



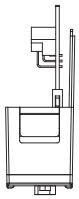
Left View



Front View

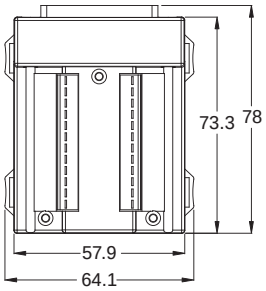


Top View

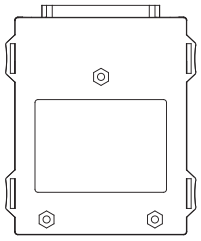


Top View

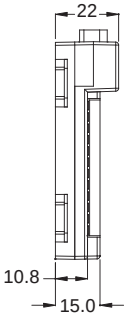
DB-1820



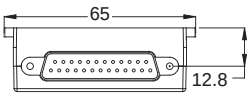
Front View



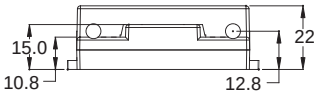
Rear View



Left View

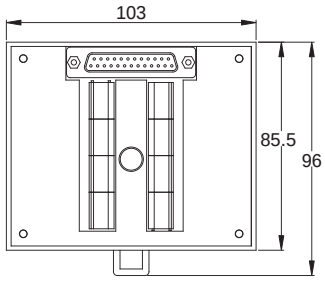


Top View

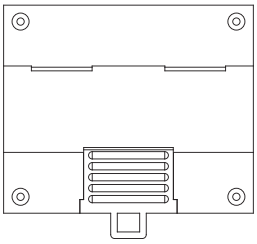


Bottom View

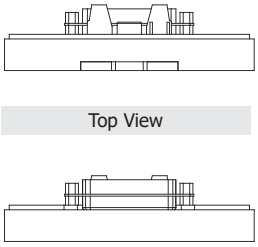
DN-1822



Front View

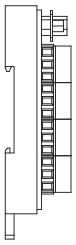


Rear View

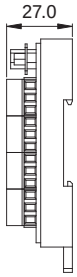


Top View

Bottom View



Left View



Right Side View

Ordering Information

I-87018ZW-G/S CR	10-ch Thermocouple Input Module with High Overvoltage Protection (RoHS) Includes DB-1820 Daughter Board
I-87018ZW-G/S2 CR	10-ch Thermocouple Input Module with High Overvoltage Protection (RoHS) Includes DN-1822 Daughter Board and CA-252518D-1 1.8 m Cable

I-87018ZW-G/S CR = I-87018ZW Connects DB-1820 Directly

I-87018ZW-G/S2 CR = I-87018ZW Connect DN-1822 Directly

Accessories

I-87018ZW-G/S & I-87018ZW-G/S2	
2AB125R	125 Ω, 0.1% DIP Resistor used for Current Type Input Modules
I-87018ZW-G/S	
CD-2518D CR	DB25 Male to Female 1.8 m Cable (180°) and DIN-Rail Mount for the DB-1820 (RoHS)
CD-25015 CR	DB25 Male to Female 15 cm Cable (90°) and DIN-Rail Mount for the DB-1820 (RoHS)

I-87018ZW-G/S CR + CD-2518D

CD-2518D