



## I-87018ZW

10-channel Thermocouple Input Module with High Overvoltage Protection

### 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 ~ 115200 bps
Protocol	DCON
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicator/Display	
System LED Indicator	1 LED as Power/Communication Indicator
I/O LED Indicator	-
Isolation	
Intra-Module Isolation, Field-to-Logic	3000 V <sub>DC</sub>
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 x L x H)	I-87019ZW 30 mm x 85 mm x 114 mm
	DB-1820 22 mm x 78 mm x 65 mm
	DN-1822 27 mm x 96 mm x 103 mm
Environment	
Operating Temperature	-25 ~ +75°C
Storage Temperature	-40 ~ +85°C
Humidity	10 ~ 95% RH, Non-condensing
DB-1820	
Wire strip length	4 ~ 5 mm
Wire Range	16 ~ 24 AWG

### Features

- Current Input, Voltage Input and Thermocouple Input
- 240 V<sub>rms</sub> Overvoltage Protection
- Individual Channel Configuration
- Open Thermocouple Detection
- Temperature outputs consistency
- Stable temperature output in the field
- 4 kV ESD Protection
- 3000 V<sub>DC</sub> Intra-module Isolation
- 3750 V<sub>rms</sub> Photo Isolation
- RoHS Compliant
- Wide Operating Temperature Range: -25 ~ +75°C



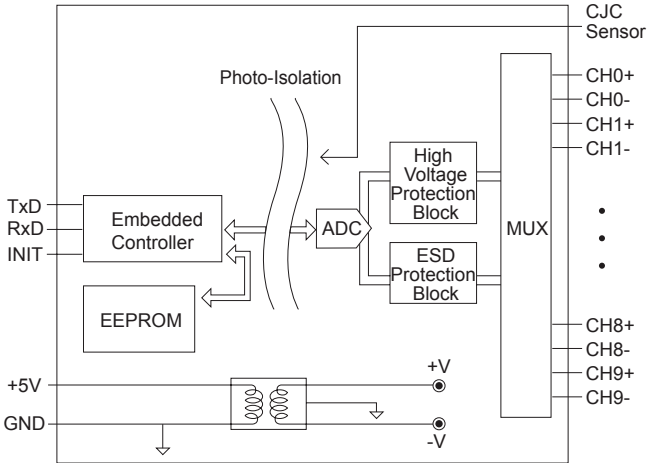
### I/O Specifications

Analog Input	
Channels	10
Wiring	Differential
Sensor Type	+/- 15 mV, +/- 50 mV, +/- 100 mV, +/- 500 mV, +/- 1 V <sub>DC</sub> , +/- 2.5 V <sub>DC</sub>
	+/-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, L <sub>DIN43710</sub> )
Temperature outputs 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 V <sub>rms</sub>

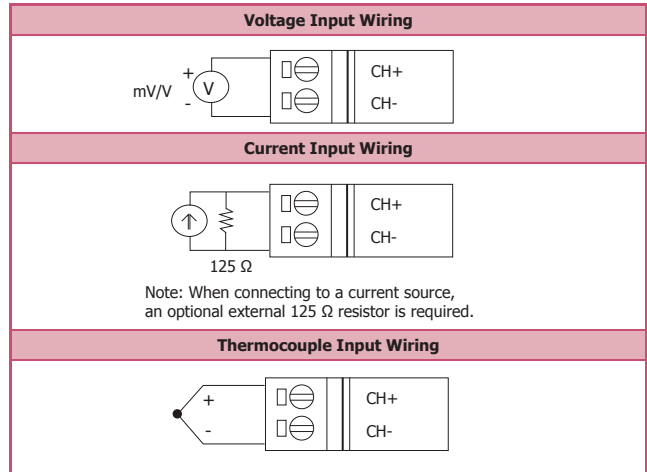
### Thermocouple type

Type	Range°C
J	-210 ~ +760
K	-270 ~ +1372
T	-270 ~ +400
E	-270 ~ +1000
R	0 ~ +1768
S	0 ~ +1768
B	0 ~ +1820
N	-270 ~ 1300
C	0 ~ 2320
L	-200 ~ +800
M	-200 ~ +100
L <sub>DIN43710</sub>	-200 ~ +900

### Internal I/O Structure

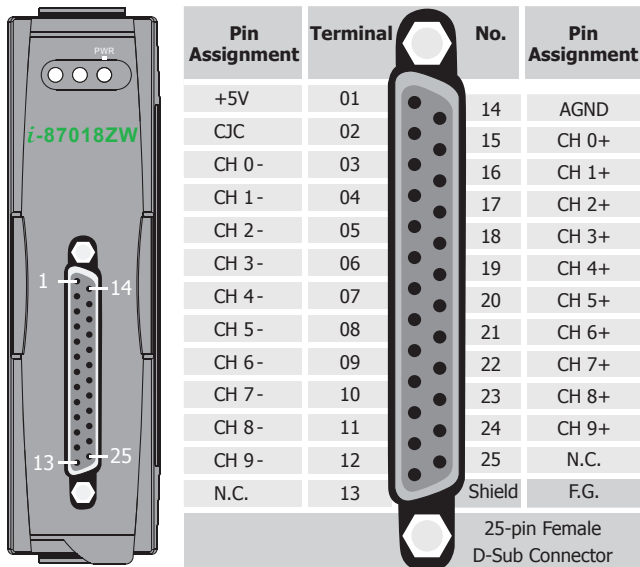


### Wire Connections

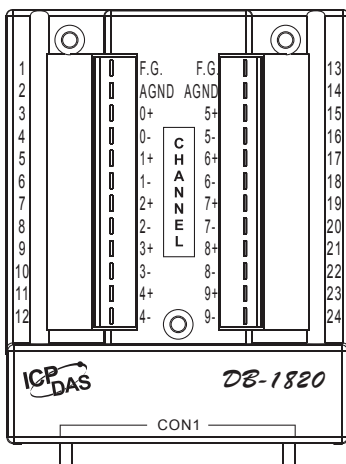


### Pin Assignments

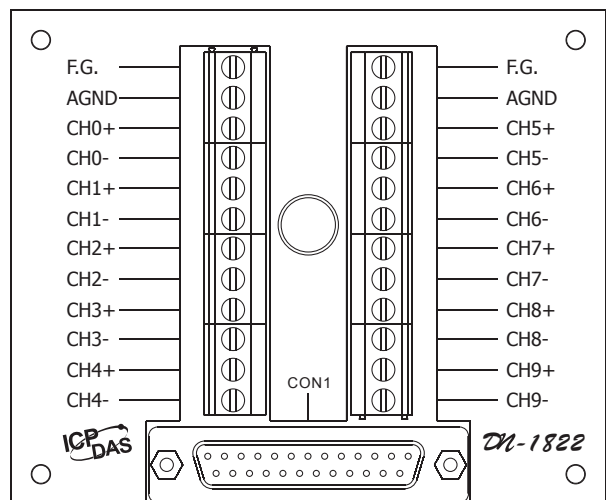
I-87018ZW



DB-1820



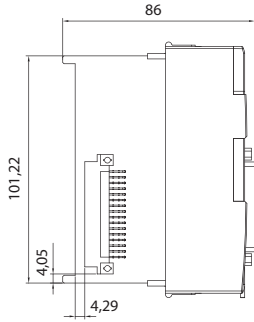
DN-1822



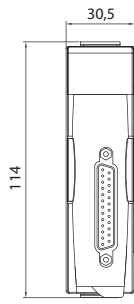
Dimensions (Units: mm)

RS-485 Remote I/O Modules

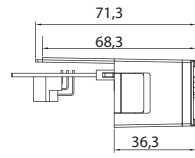
I-87018ZW



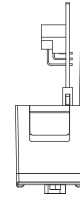
Left Side View



Front View

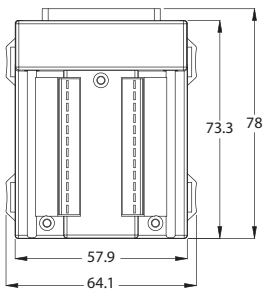


Top View

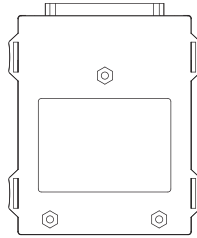


Top View

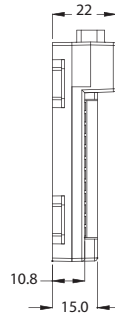
DB-1820



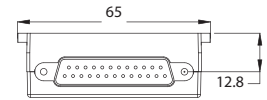
Front View



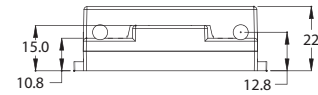
Rear View



Left Side View

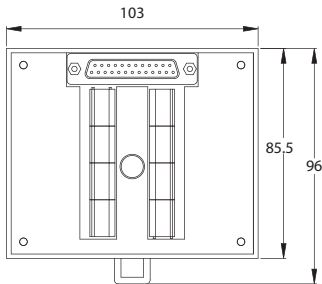


Top View

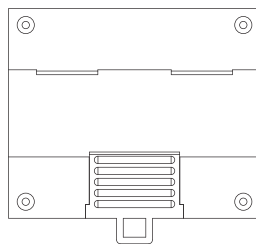


Bottom View

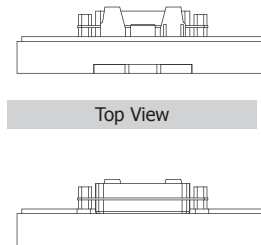
DN-1822



Front View

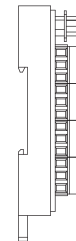


Rear View

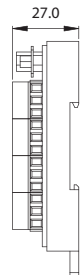


Top View

Bottom View




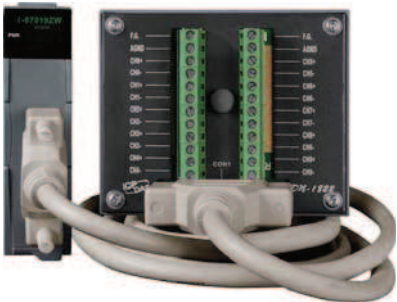
Left Side View



Right Side View

I-87KW Series




### Ordering Information

<b>I-87018ZW-G/S CR</b>	10-channel Thermocouple Input Module (Gray Cover) (RoHS) Include I-87018Z Module and DB-1820 Daughter Board
<b>I-87018ZW-G/S2 CR</b>	10-channel Thermocouple Input Module (Gray Cover) (RoHS) Include I-87018Z Module ,DN-1822 Daughter Board and 1.8 m Cable
 <p data-bbox="242 689 703 712"><b>I-87018ZW-G/S CR</b> = I-87018ZW Connects DB-1820 Directly</p>	 <p data-bbox="903 689 1364 712"><b>I-87018ZW-G/S2 CR</b> = I-87018ZW Connect DN-1822 Directly</p>

### Suggested Accessories

<b>CD-2518D</b>	25F-25M 1.8 m Cable with DIN-Rail Mounting for the DB-1820 (RoHS)
 <p data-bbox="242 1249 695 1272"><b>CD-2518D</b> = 25F-25M 1.8 m Cable + DIN-Rail Mounting</p>	 <p data-bbox="999 1193 1264 1216"><b>I-87018ZW-G/S CR + CD-2518D</b></p>

### Accessories

 <p data-bbox="236 1438 354 1482">125Ω, 0.1% DIP Resistors</p>	use for current type of I-87017/I-87018 series
 <p data-bbox="236 1527 322 1550">SG-770 CR</p>	7 channel differential or 14 channel single-ended surge protector (RoHS)
 <p data-bbox="236 1617 347 1639">SG-3000 series</p>	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Inputs