



**I-87018ZW-G/S**    **I-87018ZW-G/S2**

10-ch Thermocouple Input Module

### 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 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<br>±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   |

### 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



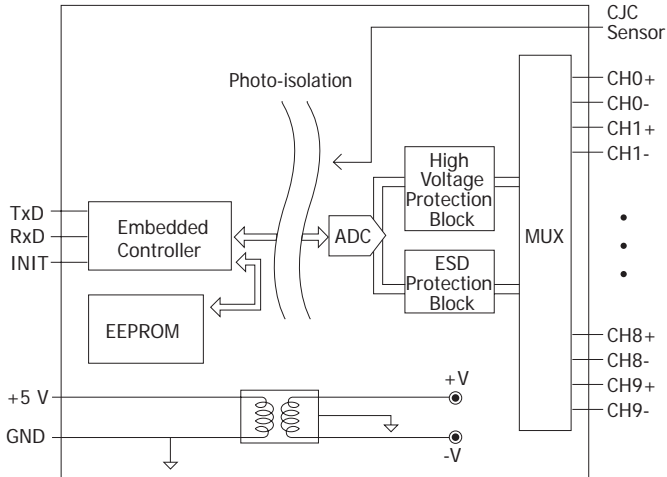
### I/O Specifications

| 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  |

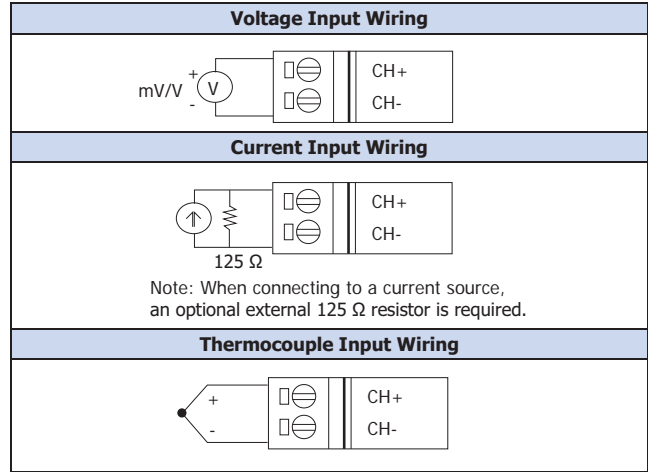
### Thermocouple Type

| 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

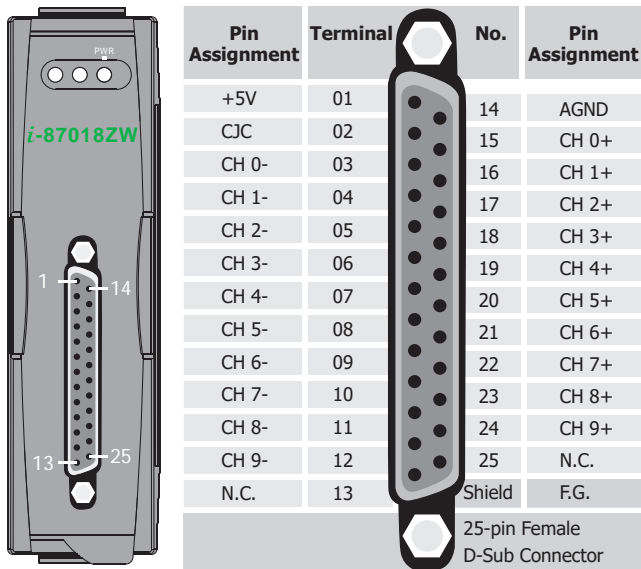


## Wire Connections

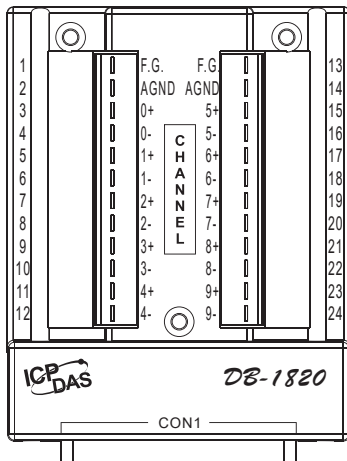


## Pin Assignments

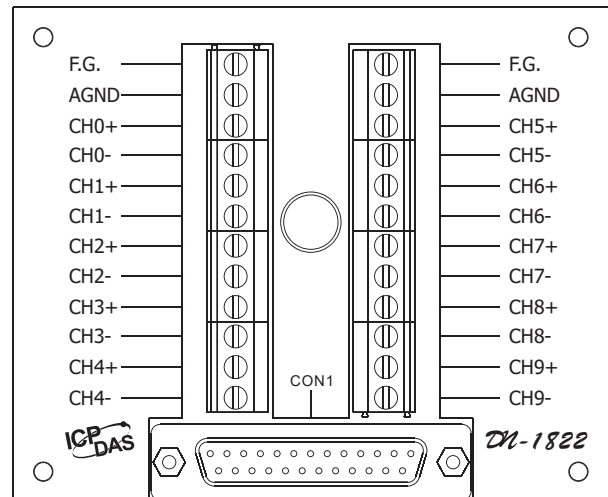
I-87018ZW



DB-1820

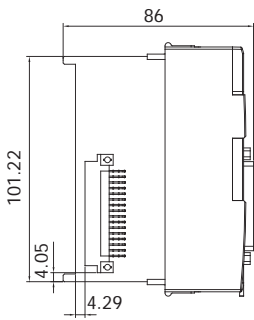


DN-1822

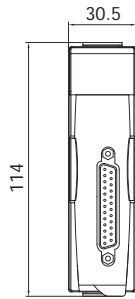


## ■ Dimensions (Units: mm)

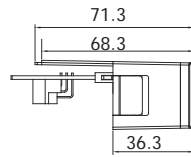
### I-87018ZW



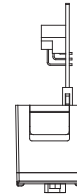
Left View



Front View

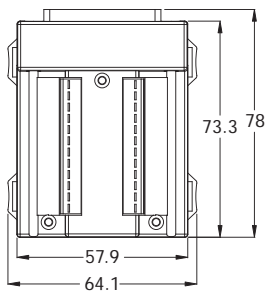


Top View

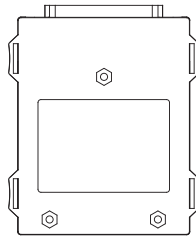


Top View

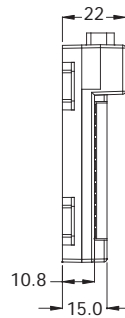
### DB-1820



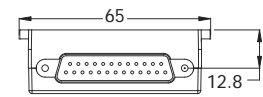
Front View



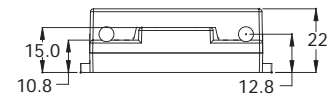
Rear View



Left View

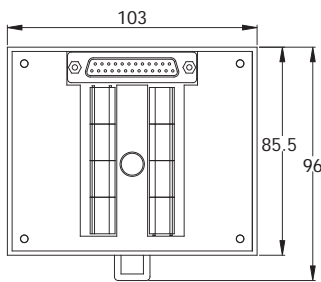


Top View

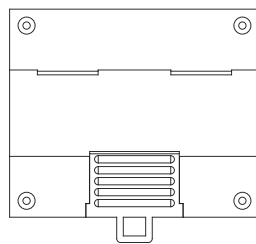


Bottom View

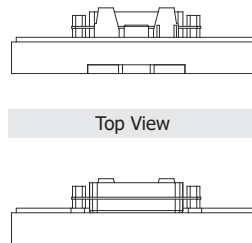
### DN-1822



Front View

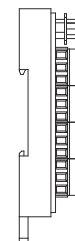


Rear View

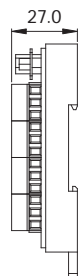


Top View

Bottom View





Left View








Right Side View

## Ordering Information

|  |   |
|--|---|
| <b>I-87018ZW-G/S CR</b>  | 10-ch Thermocouple Input Module with High Overvoltage Protection (RoHS)<br>Includes DB-1820 Daughter Board  |
| <b>I-87018ZW-G/S2 CR</b>   | 10-ch Thermocouple Input Module with High Overvoltage Protection (RoHS)<br>Includes DN-1822 Daughter Board and CA-252518D-1 1.8 m Cable                 |
|  <p><b>I-87018ZW-G/S CR</b> = I-87018ZW Connects DB-1820 Directly</p> |  <p><b>I-87018ZW-G/S2 CR</b> = I-87018ZW Connect DN-1822 Directly</p> |

## Accessories

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