



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 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 (L × W × H)	I-87018ZW	114 mm × 30.5 mm × 86 mm
	DB-1820	78 mm × 65 mm × 22 mm
	DN-1822	96 mm × 103 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 outputs consistency
- Stable temperature output in the field
- 4 kV ESD Protection
- 3000 VDC Intra-module Isolation
- 3750 Vrms Photo Isolation
- RoHS Compliant
- Wide Operating Temperature Range: -25 to +75°C



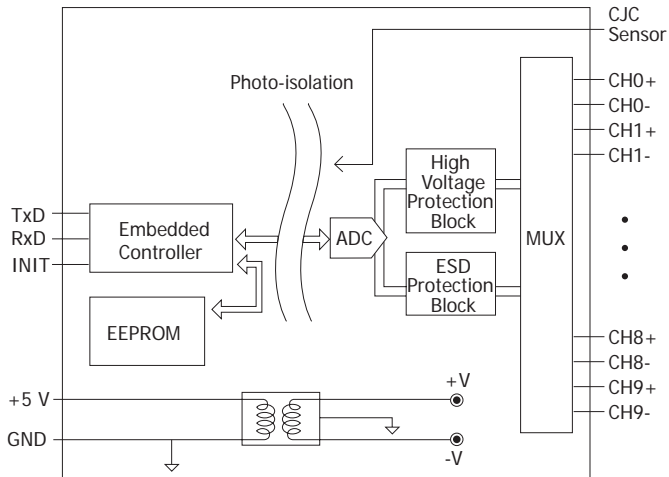
I/O Specifications

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, L _{DIN43710})
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 Vrms

Thermocouple type

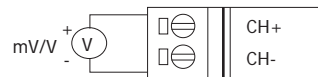
Type	Temperature Range
J	-210 to +760°C
K	-270 to +1372°C
T	-270 to +400°C
E	-270 to +1000°C
R	0 to +1768°C
S	0 to +1768°C
B	0 to +1820°C
N	-270 to 1300°C
C	0 to +2320°C
L	-200 to +800°C
M	-200 to +100°C
L _{DIN43710}	-200 to +900°C

Internal I/O Structure

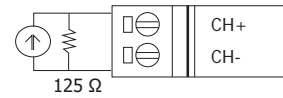


Wire Connections

Voltage Input Wiring

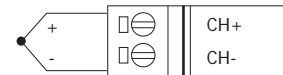


Current Input Wiring



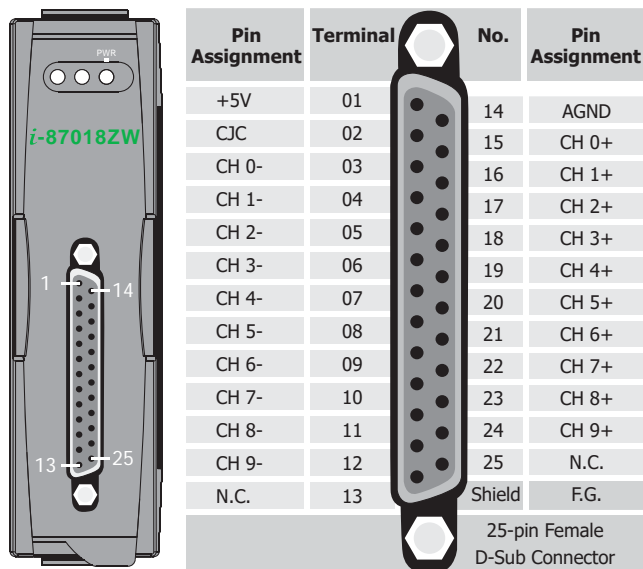
Note: When connecting to a current source, an optional external 125 Ω resistor is required.

Thermocouple Input Wiring

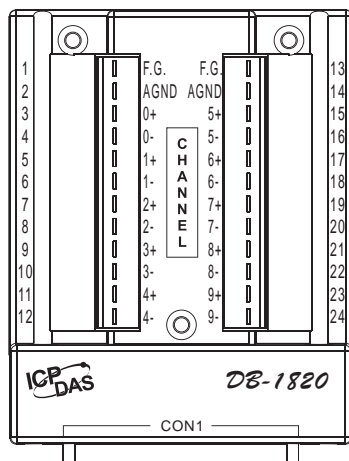


Pin Assignments

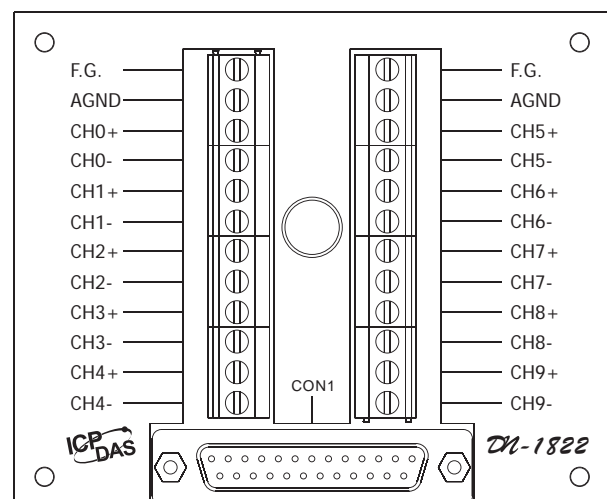
I-87018ZW



DB-1820

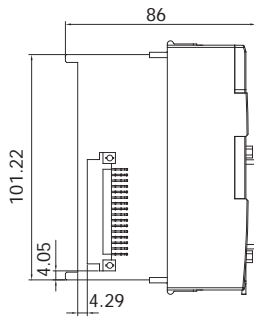


DN-1822

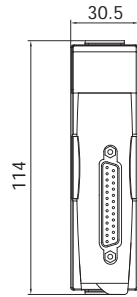


■ Dimensions (Units: mm)

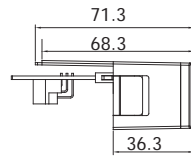
I-87018ZW



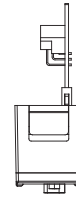
Left View



Front View

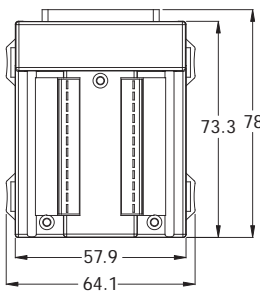


Top View

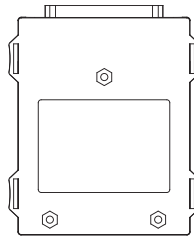


Top View

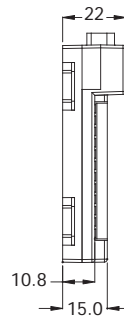
DB-1820



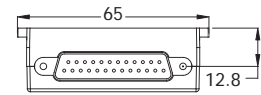
Front View



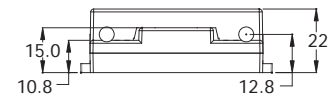
Rear View



Left View

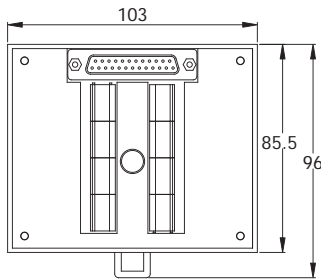


Top View

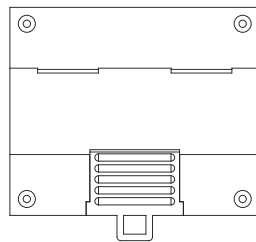


Bottom View

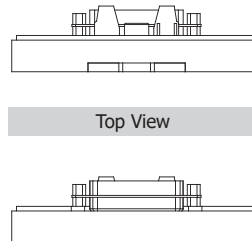
DN-1822



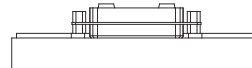
Front View



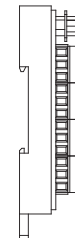
Rear View



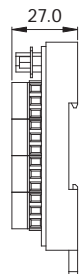
Top View



Bottom View





Left View




Right Side View




Ordering Information

I-87018ZW-G/S CR	10-channel Thermocouple Input Module (Gray Cover) (RoHS) Include I-87018Z Module and DB-1820 Daughter Board
I-87018ZW-G/S2 CR	10-channel Thermocouple Input Module (Gray Cover) (RoHS) Include I-87018Z Module ,DN-1822 Daughter Board and 1.8 m Cable
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>I-87018ZW-G/S CR = I-87018ZW Connects DB-1820 Directly</p> </div> <div style="text-align: center;">  <p>I-87018ZW-G/S2 CR = I-87018ZW Connect DN-1822 Directly</p> </div> </div>	

Suggested Accessories

CD-2518D	25F-25M 1.8 m Cable with DIN-Rail Mounting for the DB-1820 (RoHS)
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>CD-2518D = 25F-25M 1.8 m Cable + DIN-Rail Mounting</p> </div> <div style="text-align: center;">  <p>I-87018ZW-G/S CR + CD-2518D</p> </div> </div>	

Accessories

 125Ω, 0.1% DIP Resistors	Resistor used for Current Type I-87017/I-87018 Series Modules
 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 Input