



I-7018Z M-7018Z

10-ch Thermocouple Input Module

Features

- 10 Analog Inputs
- Provides Stable and Consistent Temperature Output
- Current, Voltage, and Thermocouple Inputs
- High Over-voltage Input Protection
- High Common Voltage Protection
- Individual Channel Configuration
- Open Thermocouple Detection
- Built-in Dual Watchdog

Introduction

The I-7018Z/M-7018Z is a 10-channel Analog Input module that measures thermocouples, voltage, and current inputs. It has an RS-485 interface and features automatic cold-junction compensation for each channel to ensure temperature output consistency and stable temperature output in the field. The enhanced design improves thermocouple measurement accuracy. The module provides overvoltage protection of up to 240 Vrms and per-channel open wire detection for the thermocouple and +4 ~ +20 mA input channels. The M-7018Z also supports both Modbus RTU and DCON protocols, while the hardware specifications are the same as the I-7018Z.

Applications

- Building Automation
- Factory Automation
- Machine Automation
- Remote Maintenance
- Remote Diagnosis
- Testing Equipment

System Specifications

Model		I-7018Z	M-7018Z
CPU Module			
Watchdog Timer		Module, Communication (Programmable)	
Isolation			
Intra-module Isolation		3000 VDC	
EMS Protection			
EFT (IEC 61000-4-4)		±4 kV for Power Line	
ESD (IEC 61000-4-2)		±4 kV Contact for Each Terminal	
Surge (IEC 61000-4-5)		±0.5 kV for Power Line	
LED Indicators			
Status		1 x Power and Communication	
COM Ports			
Ports		1 x RS-485	
Baud Rate		1200 ~ 115200 bps	
Data Format		(N, 8, 1), (N, 8, 2), (E, 8, 1), (O, 8, 1)	
Protocol		I-7000: DCON	
		M-7000: Modbus RTU, DCON	
Power			
Reverse Polarity Protection		Yes	
Input Range		+10 ~ +30 VDC	
Consumption		1.0 W	
Mechanical			
Dimensions (mm)	I-7018Z	73 x 116 x 35 (W x L x H)	
	DB-1820	65 x 78 x 22 (W x L x D)	
	DN-1822	103 x 96 x 27 (W x L x D)	
	DN-1823	103 x 100 x 27 (W x L x D)	
Installation		DIN-Rail Mounting	

I/O Specifications

Model		I-7018Z	M-7018Z
Analog Input			
Channels		10 Differential	
Type		Voltage, Current, Thermocouple	
Sensor Types	Thermocouple	J, K, T, E, R, S, B, N, C, L, M, LDIN43710	
Range	Voltage	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V	
	Current	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA (requires an optional external 125 Ω resistor)	
Resolution		16-bit	
Accuracy		0.1% of FSR	
Sampling Rate		10 Hz (Total)	
Input Impedance		> 400 kΩ	
Common Voltage Protection		±200 VDC	
Overvoltage Protection		240 Vrms	
Individual Channel Configuration		Yes	
Open Wire Detection		For Thermocouple (*Note1) and 4 ~ 20 mA	

Note1:
This feature is software selectable and requires firmware version B4.4 or later.

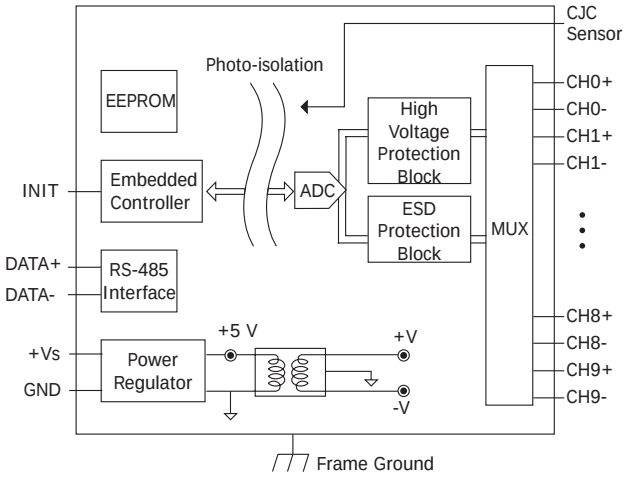
Environment	
Operating Temperature	-25 ~ +75 °C
Storage Temperature	-40 ~ +85 °C
Humidity	10 ~ 95% RH, Non-condensing

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Thermocouple Types

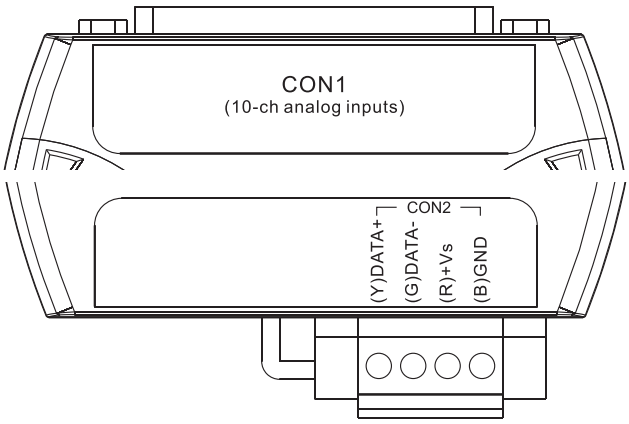
Type Code	Thermocouple Type	Temperature Range
0E	Type J	-210 to +760°C
0F	Type K	-270 to +1372°C
10	Type T	-270 to +400°C
11	Type E	-270 to +1000°C
12	Type R	0 to +1768°C
13	Type S	0 to +1768°C
14	Type B	0 to +1820°C
15	Type N	-270 to +1300°C
16	Type C	0 to +2320°C
17	Type L	-200 to +800°C
18	Type M	-200 to +100°C
19	Type LDIN43710	-200 to +900°C

Internal I/O Structure



Pin Assignments

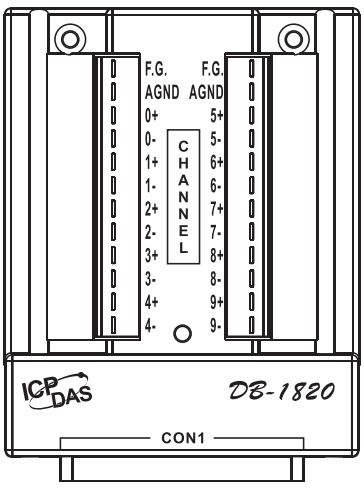
I-7018Z/M-7018Z



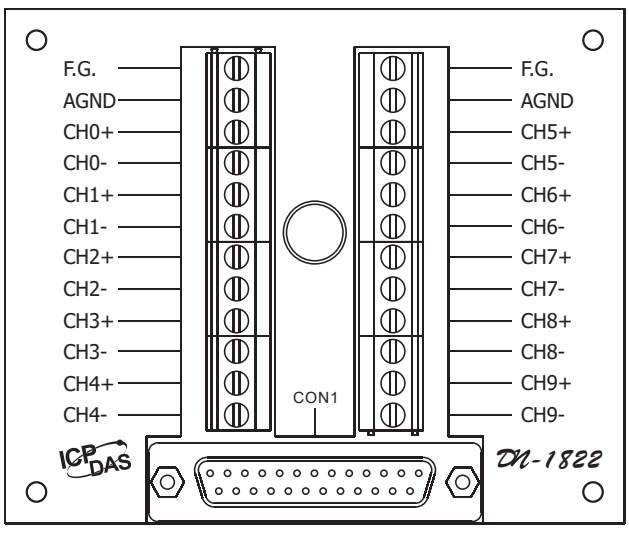
CON1			
Pin Assignment	Terminal No.		Pin Assignment
+5V	01	14	AGND
CJC	02	15	CH 0+
CH 0 -	03	16	CH 1+
CH 1 -	04	17	CH 2+
CH 2 -	05	18	CH 3+
CH 3 -	06	19	CH 4+
CH 4 -	07	20	CH 5+
CH 5 -	08	21	CH 6+
CH 6 -	09	22	CH 7+
CH 7 -	10	23	CH 8+
CH 8 -	11	24	CH 9+
CH 9 -	12	25	N.C.
N.C.	13	Shield	F.G.

25-pin Female D-Sub Connector

DB-1820

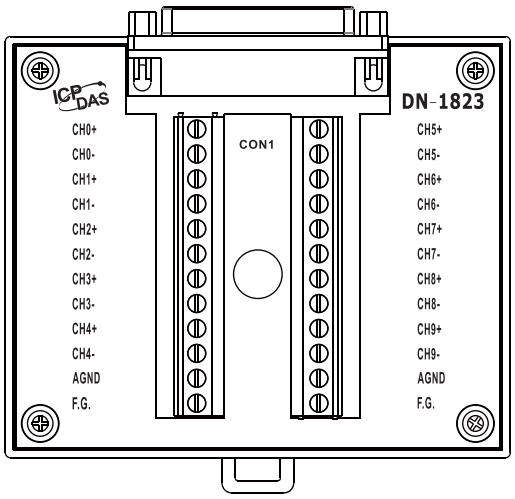


DN-1822



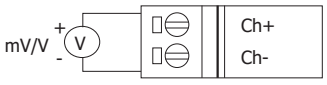
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DN-1823

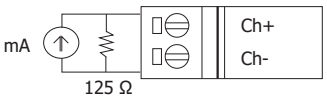


Wire Connections

Voltage Input

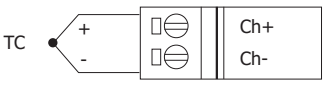


Current Input



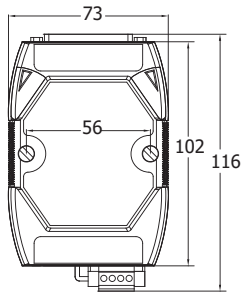
Requires an optional external 125 Ω resistor

Thermocouple

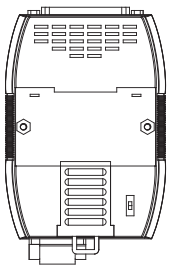


Dimensions (Units: mm)

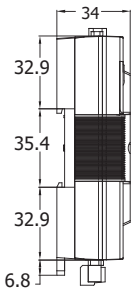
I- 7018Z/M-7018Z



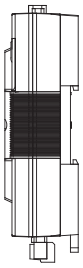
Front View



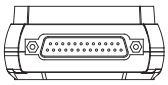
Rear View



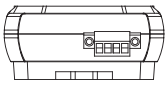
Left Side View



Right Side View

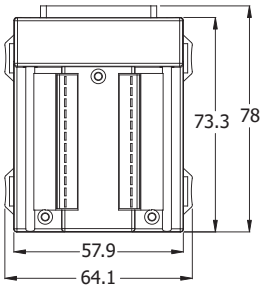


Top View

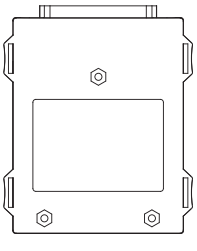


Bottom View

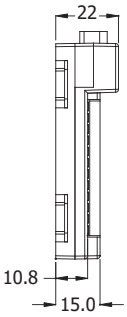
DB-1820



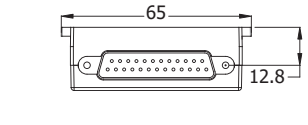
Front View



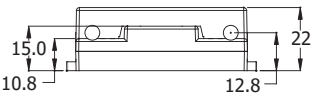
Rear View



Left Side View

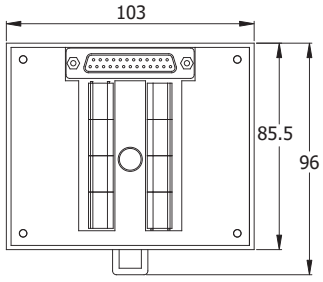


Top View

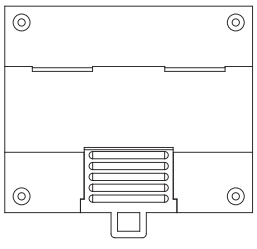


Bottom View

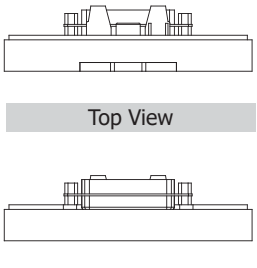
DN-1822



Front View

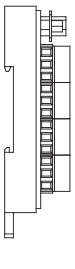


Rear View

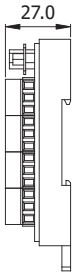


Top View

Bottom View



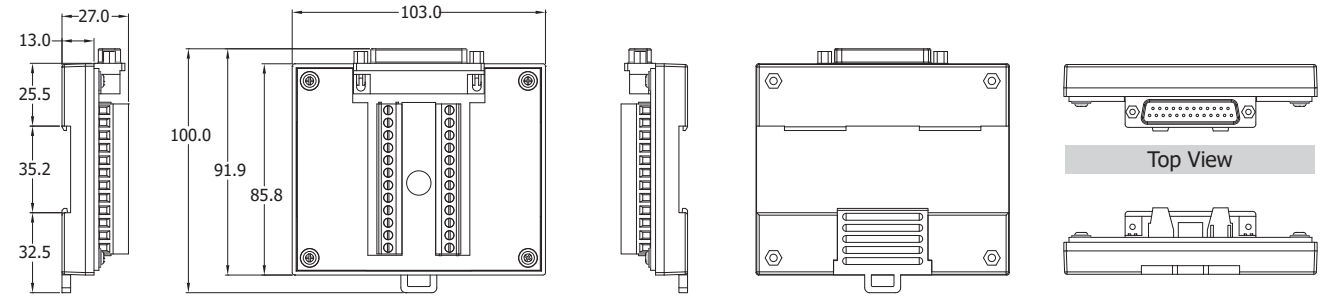
Left View



Right Side View

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DN-1823



Ordering Information

I-7018Z-G/S CR	10-ch Thermocouple Input Module using DCON Protocol (Gray Cover) (RoHS) Includes DB-1820 Daughter Board and Plastic DIN Rail (4PAPP-006-G)
I-7018Z-G/S2 CR	10-ch Thermocouple Input Module using DCON Protocol (Gray Cover) (RoHS) Includes DN-1822 Daughter Board, CA-252518D-1 1.8 m Cable and Plastic DIN Rail (4PAPP-006-G)
I-7018Z-G/S3 CR	10-ch Thermocouple Input Module using DCON Protocol (Gray Cover) (RoHS) Includes DN-1823 Daughter Board, CA-2525015D 15 cm Cable and Plastic DIN Rail (4PAPP-006-G)
M-7018Z-G/S CR	10-ch Thermocouple Input Module using DCON and Modbus Protocols (Gray Cover) (RoHS) Includes DB-1820 Daughter Board and Plastic DIN Rail (4PAPP-006-G)
M-7018Z-G/S2 CR	10-ch Thermocouple Input Module using DCON and Modbus Protocols (Gray Cover) (RoHS) Includes DN-1822 Daughter Board, CA-252518D-1 1.8 m Cable and Plastic DIN Rail (4PAPP-006-G)
M-7018Z-G/S3 CR	10-ch Thermocouple Input Module using the DCON and Modbus Protocols (Gray Cover) (RoHS) Includes DN-1823 Daughter Board, CA-2525015D 15 cm Cable and Plastic DIN Rail (4PAPP-006-G)

Front **Rear**



I-7018Z-G/S =
DB-1820 Connects to the I-7018Z Directly
M-7018Z-G/S =
DB-1820 Connects to the M-7018Z Directly



I-7018Z-G/S2 =
DN-1822 Connects to the I-7018Z Directly
M-7018Z-G/S2 =
DN-1822 Connects to the M-7018Z Directly



I-7018Z-G/S3 =
DN-1823 Connects to the I-7018Z Directly
M-7018Z-G/S3 =
DN-1823 Connects to the M-7018Z Directly

Accessories

2AB125R	DIP Resistor, 125 ohm, 0.1%, 1/4W, MF, 50 ppm/°C (1PCS) (RoHS)
CD-2518D CR	DB25 Male to Female 1.8 m Cable (180°) and DIN-Rail Mounting Mount for the DB-1820 (RoHS)
CD-25015 CR	DB25 Male to Female 15 cm Cable (90°) and DIN-Rail Mounting Mount for the DB-1820 (RoHS)





CD-25015



4PAPP-006-G

I-7018Z-G/S + CD-25015 + 4PAPP-006-G
M-7018Z-G/S + CD-25015 + 4PAPP-006-G





CD-2518D

I-7018Z-G/S + CD-2518D
M-7018Z-G/S + CD-2518D

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