



**ET-7018Z**  
**PET-7018Z**

**ET-7218Z**  
**PET-7218Z**

Ethernet I/O Module with 10-ch Thermocouple Inputs,  
6/3-ch DO

## Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- 2-port Ethernet Switch for Daisy-Chain Topology
- Dual Watchdog
- I/O Pair Connection
- Built-in I/O
  - Thermocouple Input: 10 Channels
  - DO: 6/3 Channels



## Introduction

The "Z" version is another milestone in the development of the thermocouple series and is a testament to the excellence of ICP DAS products. The ET-7018Z/PET-7018Z/ET-7218Z/PET-7218Z is specifically designed for extremely accurate thermocouple measurement and features automatic cold-junction compensation for each channel to ensure temperature output consistency and stable temperature output in the field. Current input and voltage input are both supported. Another feature is that its ten input channels can be individually configured for different kinds of analog input. Open thermocouple detection and ESD/EFT/Surge protection mechanisms are also included. The six/five digital output channels can be set as alarm outputs with short-circuit protection and overload protection.

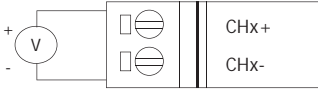
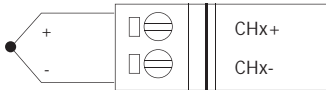
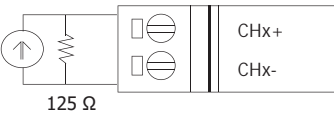
## System Specifications

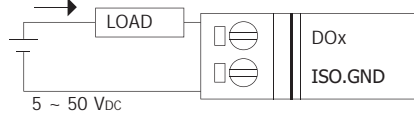
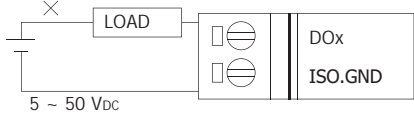
Model	ET-7018Z	PET-7018Z	ET-7218Z	PET-7218Z
<b>Software</b>				
Built-in Web Server	Yes			
<b>CPU Module</b>				
Watchdog Timer	Module, Communication (Programmable)			
<b>2-Way Isolation</b>				
Ethernet	1500 Vdc	-	1500 Vdc	-
I/O	2500 Vdc			
<b>EMS Protection</b>				
EFT (IEC 61000-4-4)	±4 kV for Power Line		±2 kV for Power Line	
ESD (IEC 61000-4-2)	±4 kV Contact for Each Terminal ±8 kV Air for Random Point			
Surge (IEC 61000-4-5)	±0.5 kV for Power Line		±2 kV for Power Line	
<b>LED Indicators</b>				
Status	Run, Ethernet	Run, Ethernet, PoE	Run, Ethernet, I/O	Run, Ethernet, I/O, PoE
<b>Ethernet</b>				
Ports	1 x RJ-45, 10/100 Base-TX		2 x RJ-45, 10/100 Base-TX, Switch Ports	
PoE	-	Yes	-	Yes
Security	ID, Password and IP Filter			
Protocol	Modbus TCP, Modbus UDP			
<b>Power</b>				
Reverse Polarity Protection	Yes			
Consumption	2.0 W (max.)	3.0 W (max.)	3.1 W (max.)	3.3 W (max.)
Powered from PoE	-	IEEE 802.3af, Class1	-	IEEE 802.3af, Class1
Powered from Terminal Block	+10 to +30 VDC	+12 to +48 VDC	+12 to +48 VDC	+12 to +48 VDC
<b>Mechanical</b>				
Dimensions (mm)	72 x 123 x 35 (W x L x H)		76 x 120 x 38 (W x L x H)	
Installation	DIN-Rail mounting			
<b>Environment</b>				
Operating Temperature	-25 to +75°C			
Storage Temperature	-30 to +80°C			
Humidity	10 to 90% RH, Non-condensing			

## I/O Specifications

Model	ET-7018Z	PET-7018Z	ET-7218Z	PET-7218Z
<b>Analog Input</b>				
Channels	10 (Differential)			
Type	Voltage, Current, Thermocouple			
Temperature Output Consistency	Yes			
Stable Temperature Output in the Field	Yes			
Range	$\pm 15 \text{ mV}$ , $\pm 50 \text{ mV}$ , $\pm 100 \text{ mV}$ , $\pm 500 \text{ mV}$ , $\pm 1 \text{ V}$ , $\pm 2.5 \text{ V}$			
	$\pm 20 \text{ mA}$ , $0$ to $20 \text{ mA}$ , $4$ to $20 \text{ mA}$ (Requires Optional External $125 \Omega$ Resistor)			
	Thermocouple (J, K, T, E, R, S, B, N, C, L, M, and $\text{LDIN43710}$ )			
Resolution	16-bit			
Accuracy	$\pm 0.1\%$ of FSR or better			
Sampling Rate	10 samples/second (Total)			
Input Impedance	$>300 \text{ k}\Omega$			
Common Mode Rejection	150 dB (min.)			
Normal Mode Rejection	100 dB			
Over Voltage Protection	240 Vrms			
Individual Channel Configuration	Yes			
Open Wire Detection	Yes			
Zero Drift	$\pm 0.5 \mu\text{V}/^\circ\text{C}$			
Span Drift	$\pm 25 \text{ ppm}/^\circ\text{C}$			
Virtual Channel to Channel Isolation	$\pm 400 \text{ VDC}$			
<b>Digital Output</b>				
Channels	6		3	
Type	Isolated Open Collector			
Sink/Source (NPN/PNP)	Sink			
Load Voltage	$+5$ to $+50 \text{ VDC}$			
Load Current	700 mA/channel		650 mA/channel	
Overvoltage Protection	$+60 \text{ VDC}$			
Overload Protection	1.4 A			
Short-circuit Protection	Yes			
Power on Value	Programmable			
Safe Value	Programmable			

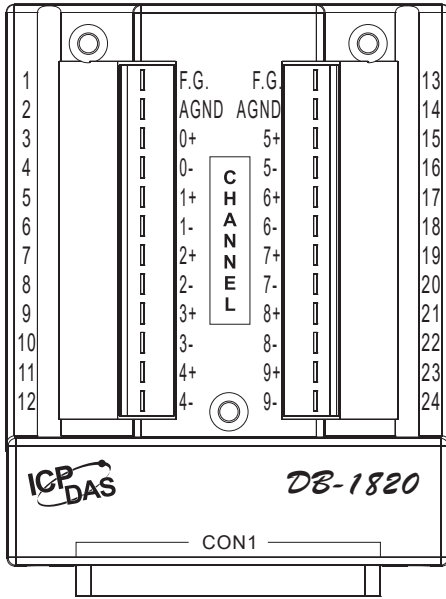
## Wire Connections

<b>Voltage Input (Default)</b>	
	
<b>Thermocouple Input (Default)</b>	
	
<b>Current Input</b>	
	
<p>Note: When connecting to a current source, an optional external <math>125 \Omega</math> resistor is required.</p>	

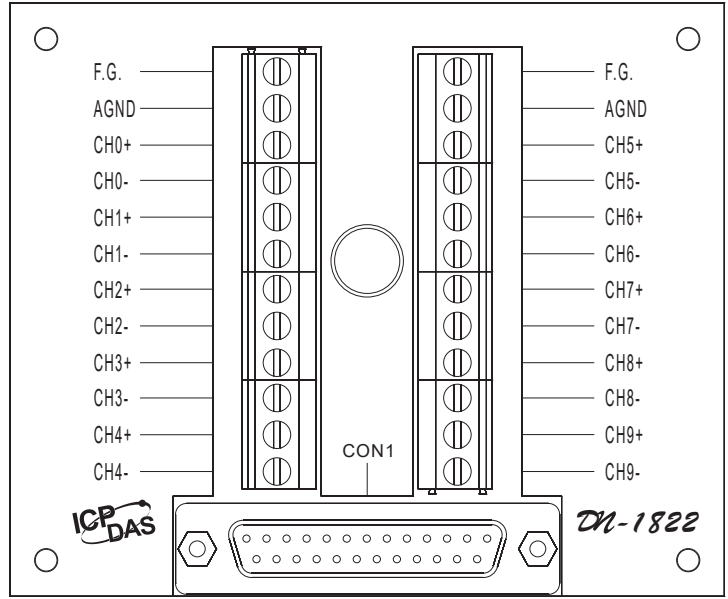
Digital Output	ON State Readback as 1	OFF State Readback as 0
Open Collector (Sink)		

## Pin Assignments

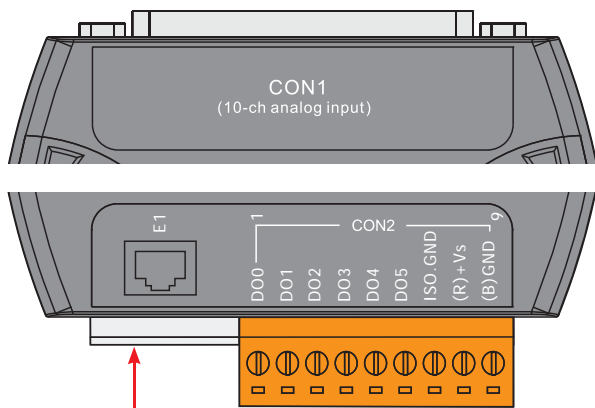
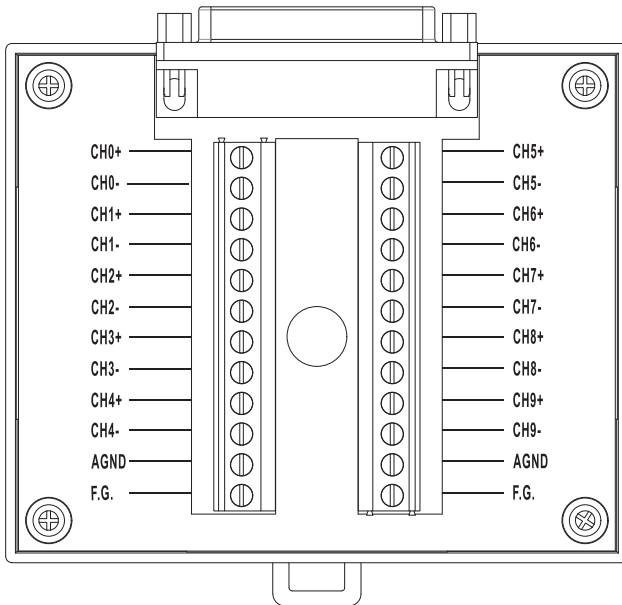
**DB-1820**



**DN-1822**

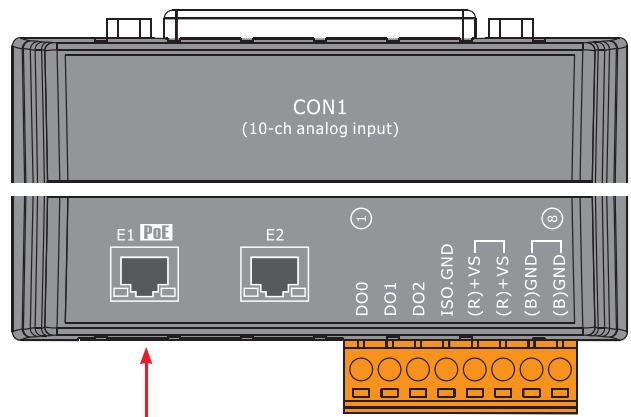


**DN-1823**



**PET-7018Z: PoE**

**ET-7018Z: +10 to +30 VDC**  
**PET-7018Z: +12 to +48 VDC**

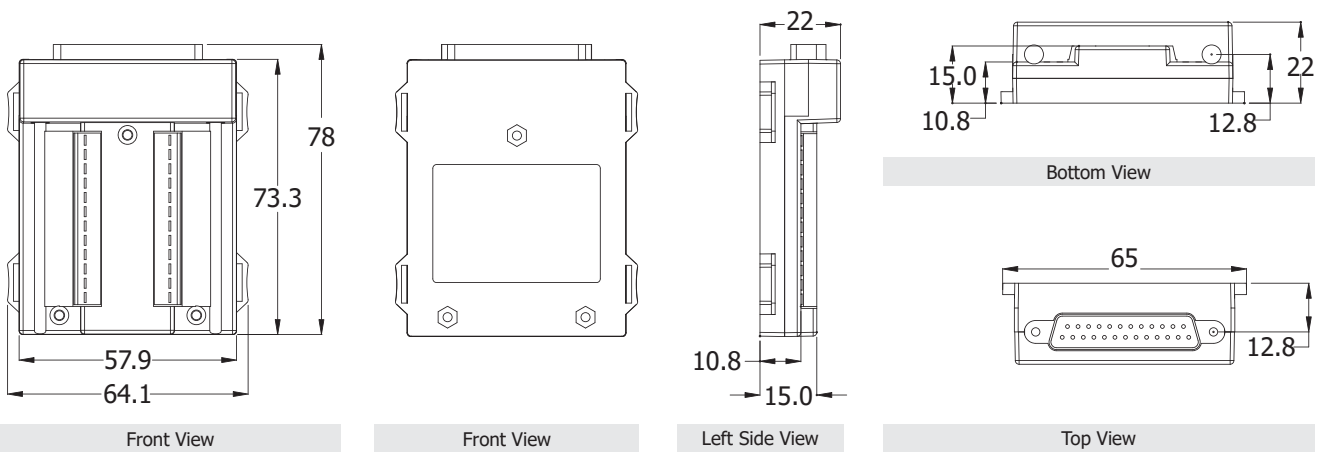


**PET-7218: PoE**

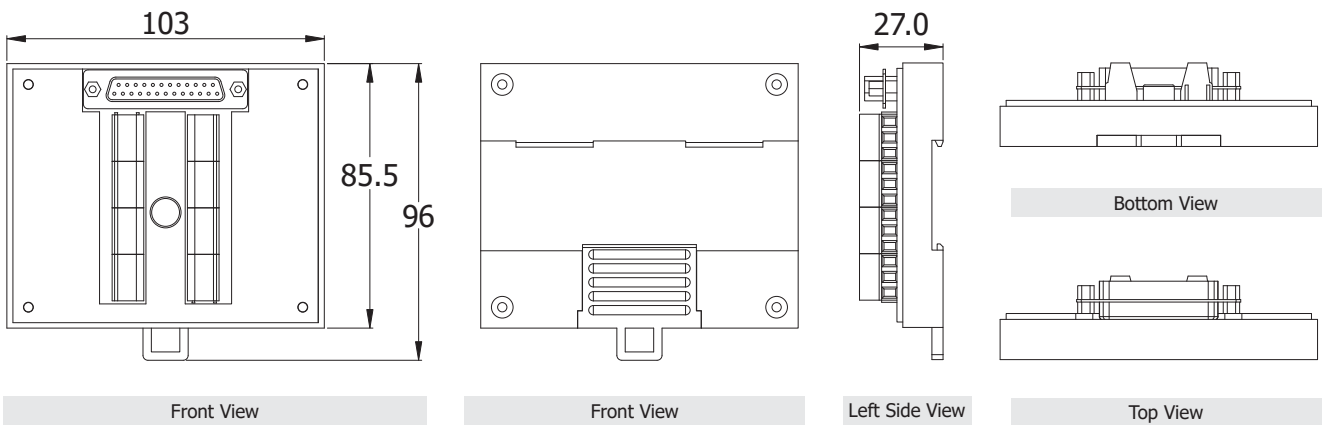
**ET-7218: +10 to +30 VDC**  
**PET-7218: +12 to +48 VDC**

## Dimensions (Units: mm)

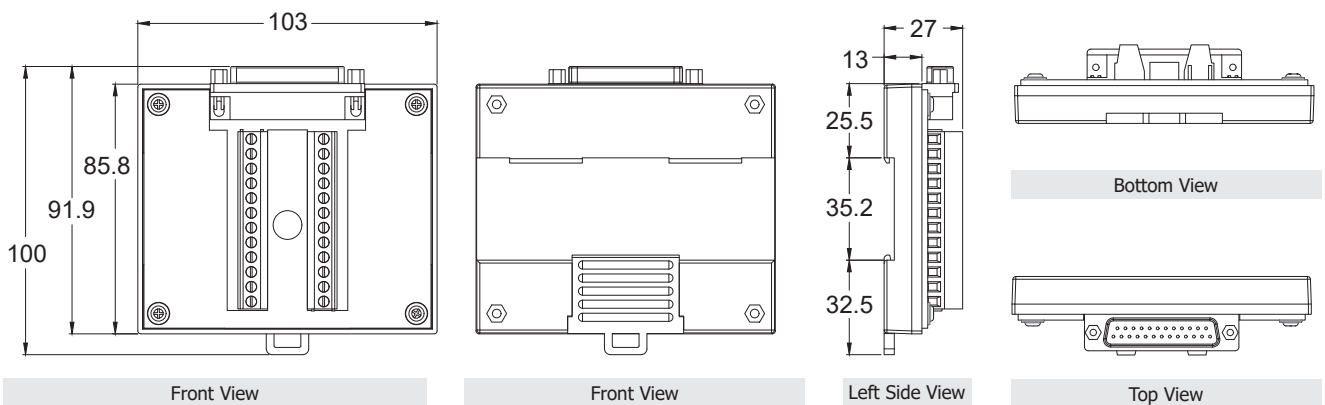
### DB-1820



### DN-1822



### DN-1823



## Ordering Information

<b>ET-7018Z/S CR</b>	Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS) Includes DB-1820 Daughter Board
<b>PET-7018Z/S CR</b>	PoE Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS) Includes DB-1820 Daughter Board
<b>ET-7218Z/S CR</b>	Ethernet I/O Module with 2-port Ethernet Switch, with 10-ch Thermocouple Inputs, 3-ch DO (RoHS) Includes DB-1820 Daughter Board
<b>PET-7218Z/S CR</b>	PoE Ethernet I/O Module with 2-port Ethernet Switch, with 10-ch Thermocouple Inputs, 3-ch DO (RoHS) Includes DB-1820 Daughter Board
<b>ET-7018Z/S2 CR</b>	Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS) Includes DN-1822 Daughter Board, CA-252518D-1 1.8 m Cable and 4PAPP-006-G
<b>PET-7018Z/S2 CR</b>	PoE Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS) Includes DN-1822 Daughter Board, CA-252518D-1 1.8 m Cable and 4PAPP-006-G
<b>ET-7218Z/S2 CR</b>	Ethernet I/O Module with 2-port Ethernet Switch with 10-ch Thermocouple Inputs, 3-ch DO (RoHS) Includes DN-1822 Daughter Board, CA-252518D-1 1.8 m Cable and 4PAPP-006-G
<b>PET-7218Z/S2 CR</b>	PoE Ethernet I/O Module with 2-port Ethernet Switch with 10-ch Thermocouple Inputs, 3-ch DO (RoHS) Includes DN-1822 Daughter Board, CA-252518D-1 1.8 m Cable and 4PAPP-006-G
<b>ET-7018Z/S3 CR</b>	Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS) Includes DN-1823 Daughter Board, CA-2525015D 15 cm Cable and 4PAPP-006-G
<b>PET-7018Z/S3 CR</b>	PoE Ethernet I/O Module with 10-ch Thermocouple Inputs, 6-ch DO (RoHS) Includes DN-1823 Daughter Board, CA-2525015D 15 cm Cable and 4PAPP-006-G
<b>ET-7218Z/S3 CR</b>	Ethernet I/O Module with 2-port Ethernet Switch with 10-ch Thermocouple Inputs, 3-ch DO (RoHS) Includes DN-1823 Daughter Board, CA-2525015D 15 cm Cable and 4PAPP-006-G
<b>PET-7218Z/S3 CR</b>	PoE Ethernet I/O Module with 2-port Ethernet Switch with 10-ch Thermocouple Inputs, 3-ch DO (RoHS) Includes DN-1823 Daughter Board, CA-2525015D 15 cm Cable and 4PAPP-006-G

<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Front</p> </div> <div style="text-align: center;"> <p>Rear</p> </div> </div> <p><b>ET-7018Z/S</b> = DB-1820 Connects to the ET-7018Z Directly  <b>PET-7018Z/S</b> = DB-1820 Connects to the PET-7018Z Directly  <b>ET-7218Z/S</b> = DB-1820 Connects to the ET-7218Z Directly  <b>PET-7218Z/S</b> = DB-1820 Connects to the PET-7218Z Directly</p>	<p><b>ET-7018Z/S2</b> = DN-1822 connects to the ET-7018Z/S2 via a 1.8 m long flex cable  <b>PET-7018Z/S2</b> = DN-1822 connects to the PET-7018Z/S2 via a 1.8 m long flex cable  <b>ET-7218Z/S2</b> = DN-1822 connects to the ET-7218Z/S2 via a 1.8 m long flex cable  <b>PET-7218Z/S2</b> = DN-1822 connects to the PET-7218Z/S2 via a 1.8 m long flex cable</p>
<p><b>ET-7018Z/S3</b> = DN-1823 connects to the ET-7018Z/S3 via a 15 cm long flex cable  <b>PET-7018Z/S3</b> = DN-1823 connects to the PET-7018Z/S3 via a 15 cm long flex cable</p>	<p><b>ET-7218Z/S3</b> = DN-1823 connects to the ET-7218Z/S3 via a 15 cm long flex cable  <b>PET-7218Z/S3</b> = DN-1823 connects to the PET-7218Z/S3 via a 15 cm long flex cable</p>

## Accessories

<p><b>PET-7018Z/S + CD-25015 + 4PAPP-006-G</b></p>	<p><b>CD-25015</b></p> <p><b>4PAPP-006-G</b></p>	<p><b>PET-7018Z/S + CD-2518D</b>  <b>PET-7218Z/S + CD-2518D</b></p>	<p><b>CD-2518D</b></p>
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