



**ET-7019Z**  
**PET-7019Z**

**ET-7219Z**  
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Ethernet I/O Module with 10-channel universal AI,  
6/3-channel 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
- Wide Operating Temperature Range: -25 to +75°C
- I/O Pair Connection
- Built-in I/O
  - AI: 10 Channels with 240 Vrms Overvoltage Protection
  - 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-7019Z/PET-7019Z/ET-7219Z/PET-7219Z 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-7019Z	PET-7019Z	ET-7219Z	PET-7219Z
<b>Software</b>				
Built-in Web Server			Yes	
Web HMI			Yes	
I/O Pair Connection			Yes	
<b>Communication</b>				
Ethernet Port	1 x RJ-45, 10/100 Base-TX		2 x RJ-45, 10/100 Base-TX, Swtich Ports	
PoE	-	Yes	-	Yes
Protocol	Modbus TCP, Modbus UDP			
Security	ID, Password and IP Filter			
Dual Watchdog	Yes, Module (0.8 seconds), Communication (Programmable)			
<b>LED Indicators</b>				
for System Running			Yes	
for Ethernet Link/Act			Yes	
for DI/DO status	-			Yes
for PoE Power	-	Yes	-	Yes
<b>2-Way Isolation</b>				
Ethernet	1500 Vdc	-	1500 Vdc	-
I/O	2500 Vdc			
<b>EMS Protection</b>				
ESD (IEC 61000-4-2)	±4 kV Contact for Each Terminal and ±8 kV Air for Random Point			
EFT (IEC 61000-4-4)	±4 kV for Power Line		±2 kV for Power Line	
Surge (IEC 61000-4-5)	±0.5 kV for Power Line		±2 kV for Power Line	
<b>Power</b>				
Reverse Polarity Protection	Yes			
Powered from Terminal Block	10 ~ 30 VDC	12 ~ 48 VDC	12 ~ 48 VDC	12 ~ 48 VDC
Powered from PoE	-	Yes, IEEE 802.3af, Class1	-	Yes, IEEE 802.3af, Class1
Consumption	2.6 W (Max.)	2.9 W (Max.)	3.4 W (Max.)	3.6 W (Max.)
<b>Mechanical</b>				
Dimensions (L x W x H)	123 mm x 72 mm x 35 mm		120 mm x 76 mm x 38 mm	
Installation	DIN-Rail or Wall 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-7019Z	PET-7019Z	ET-7219Z	PET-7219Z
<b>Thermocouple Input</b>				
Channels	10 (Differential)			
Sensor Type	+/-15 mV, +/-50 mV, +/-100 mV, +/-150 mV, +/-500 mV, +/-1 V, +/-2.5 V, +/-5 V, +/-10 V,			
	+/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA (Jumper Selectable)			
	Thermocouple (J, K, T, E, R, S, B, N, C, L, M, and L <sub>DIN43710</sub> )			
Individual Channel Configuration	Yes			
Resolution	16-bit			
Sampling Rate	10 Samples/Second (Total)			
Accuracy	+/-0.1% of FSR or better			
Zero Drift	+/-0.5 $\mu$ V/ $^{\circ}$ C			
Span Drift	+/-25 ppm/ $^{\circ}$ C			
Over Voltage Protection	240 Vrms			
Input Impedance	>300 k $\Omega$			
Common Mode Rejection	86 dB Min.			
Normal Mode Rejection	100 dB			
Temperature Output Consistency	Yes			
Stable Temperature Output in the Field	Yes			
Open Wire Detection	Yes			
Virtual Channel to Channel Isolation	+/-400 Vdc			
<b>Digital Output</b>				
Channels	6		3	
Type	Isolated Open Collector			
Sink/Source (NPN/PNP)	Sink			
Max. Load Current	700 mA/Channel		650 mA/Channel	
Load Voltage	5 Vdc ~ 50 Vdc			
Overvoltage Protection	60 Vdc			
Overload Protection	1.4 A			
Short-circuit Protection	Yes			
Power-on Value	Yes, Programmable			
Safe Value	Yes, Programmable			

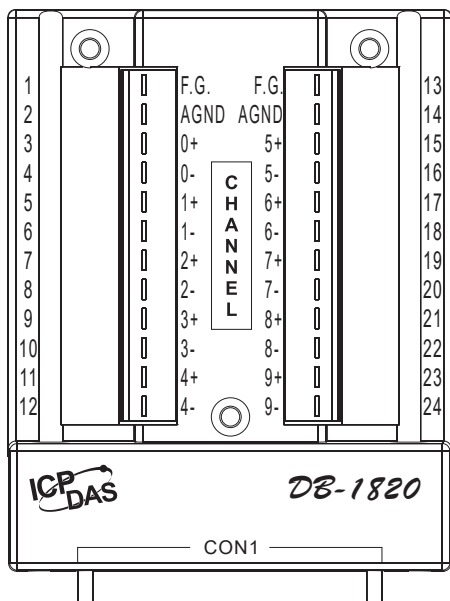
## Wire Connections

<b>Voltage Input (Default)</b>	
<b>Thermocouple Input (Default)</b>	
<b>Current Input</b>	

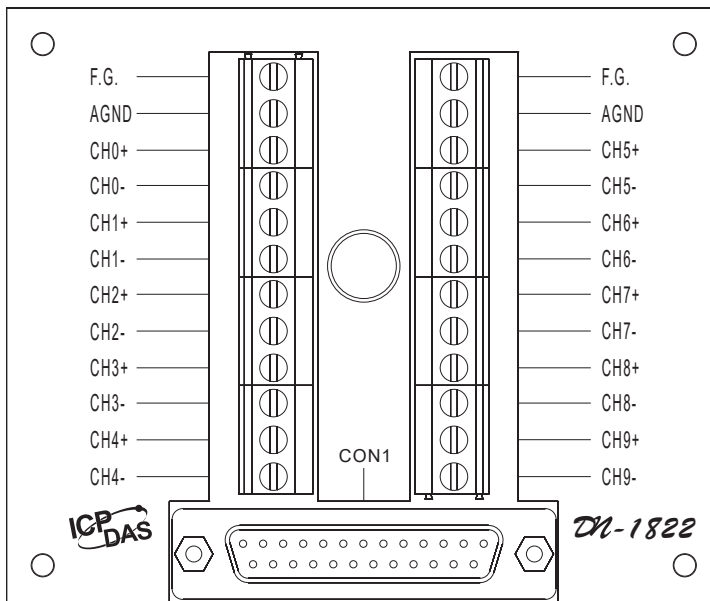
Digital Output	ON State Readback as 1	OFF State Readback as 0
Open Collector (Sink)		

## Pin Assignments

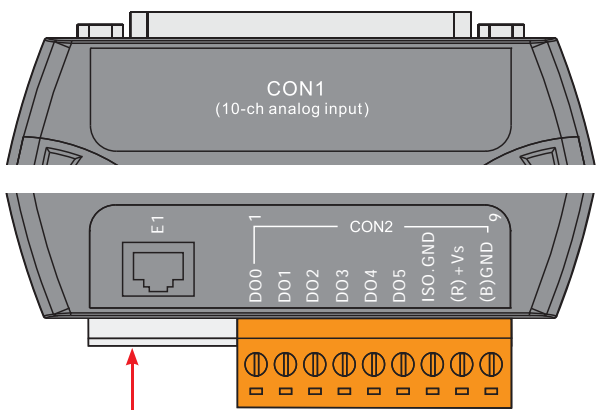
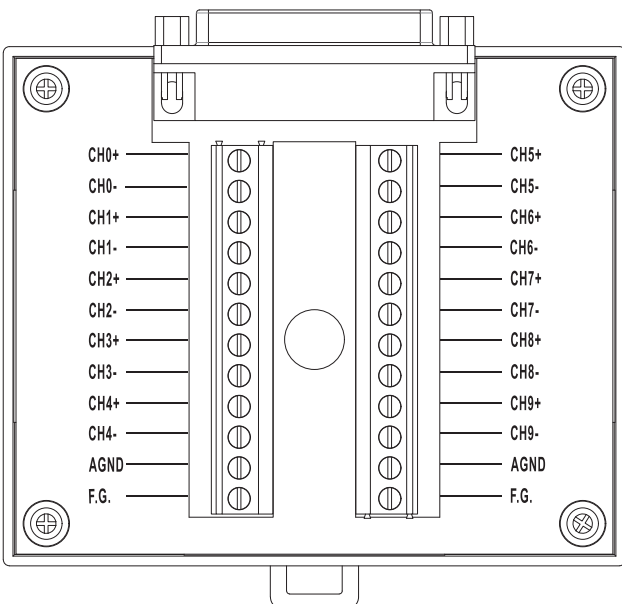
DB-1820



DN-1822

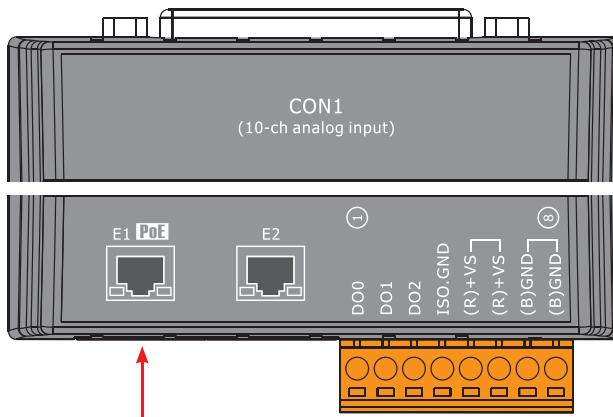


DN-1823



PET-7019Z: PoE

PET-7019Z: +10 ~ +30 Vdc  
 PET-7019Z: +12 ~ +48 Vdc

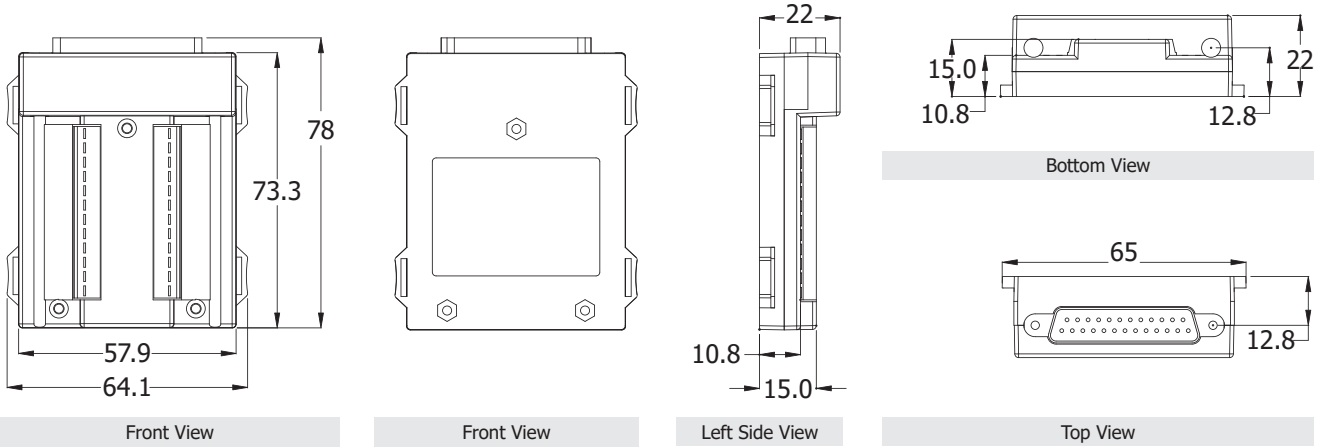


PET-7219: PoE

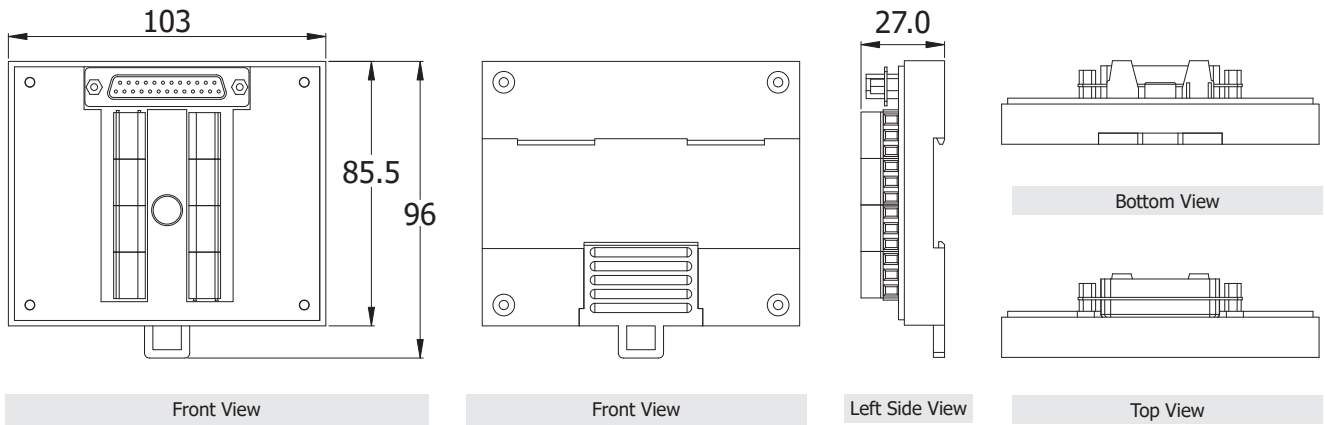
PET-7219: +10 ~ +30 Vdc  
 PET-7219: +12 ~ +48 Vdc

## Dimensions (Units: mm)

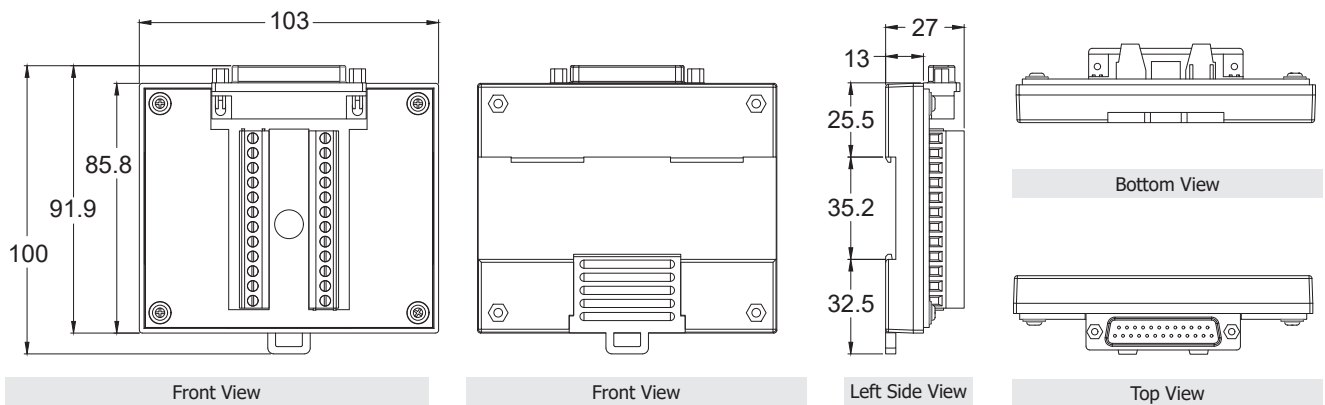
### DB-1820



### DN-1822



### DN-1823



## Ordering Information

<b>ET-7019Z/S CR</b>	Ethernet I/O Module with 10-channel universal Analog Input, 6-channel Digital Output with DB-1820 Daughter Board (RoHS)
<b>PET-7019Z/S CR</b>	PoE Ethernet I/O Module with 10-channel universal Analog Input, 6-channel Digital Output with DB-1820 Daughter Board (RoHS)
<b>ET-7219Z/S CR</b>	Ethernet I/O Module with 2-port Ethernet Switch with 10-channel universal Analog Input, 3-channel Digital Output with DB-1820 Daughter Board (RoHS)
<b>PET-7219Z/S CR</b>	PoE Ethernet I/O Module with 2-port Ethernet Switch with 10-channel universal Analog Input, 3-channel Digital Output with DB-1820 Daughter Board (RoHS)
<b>ET-7019Z/S2 CR</b>	Ethernet I/O Module with 10-channel universal Analog Input, 6-channel Digital Output with DN-1822 Daughter Board and a 1.8 m Cable (RoHS)
<b>PET-7019Z/S2 CR</b>	PoE Ethernet I/O Module with 10-channel universal Analog Input, 6-channel Digital Output with DN-1822 Daughter Board and a 1.8 m Cable with PoE (RoHS)
<b>ET-7219Z/S2 CR</b>	Ethernet I/O Module with 2-port Ethernet Switch with 10-channel universal Analog Input, 3-channel Digital Output with DN-1822 Daughter Board and a 1.8 m Cable (RoHS)
<b>PET-7219Z/S2 CR</b>	PoE Ethernet I/O Module with 2-port Ethernet Switch with 10-channel universal Analog Input, 3-channel Digital Output with DN-1822 Daughter Board and a 1.8 m Cable with PoE (RoHS)
<b>ET-7019Z/S3 CR</b>	Ethernet I/O Module with 10-channel universal AI, 6-channel DO with DN-1823 Daughter Board and a 15 cm Cable (RoHS)
<b>PET-7019Z/S3 CR</b>	PoE Ethernet I/O Module with 10-channel universal AI, 6-channel DO with DN-1823 Daughter Board and a 15 cm Cable with PoE (RoHS)
<b>ET-7219Z/S3 CR</b>	Ethernet I/O Module with 2-port Ethernet Switch with 10-channel universal AI, 3-channel DO with DN-1823 Daughter Board and a 15 cm Cable (RoHS)
<b>PET-7219Z/S3 CR</b>	PoE Ethernet I/O Module with 2-port Ethernet Switch with 10-channel universal AI, 3-channel DO with DN-1823 Daughter Board and a 15 cm Cable with PoE (RoHS)

<p>Front                  Rear</p>	
<p><b>ET-7019Z/S</b> = DB-1820 Connects to the ET-7019Z Directly  <b>PET-7019Z/S</b> = DB-1820 Connects to the PET-7019Z Directly  <b>ET-7219Z/S</b> = DB-1820 Connects to the ET-7219Z Directly  <b>PET-7219Z/S</b> = DB-1820 Connects to the PET-7219Z Directly</p>	<p><b>ET-7019Z/S2</b> = DN-1822 Connects to the ET-7019Z Directly  <b>PET-7019Z/S2</b> = DN-1822 Connects to the PET-7019Z Directly  <b>ET-7219Z/S2</b> = DN-1822 Connects to the ET-7219Z Directly  <b>PET-7219Z/S2</b> = DN-1822 Connects to the PET-7219Z Directly</p>

<p><b>ET-7018Z/S3</b> = DN-1823 Connects to the ET-7018Z Directly  <b>PET-7018Z/S3</b> = DN-1823 Connects to the PET-7018Z Directly</p>	<p><b>ET-7218Z/S3</b> = DN-1823 Connects to the ET-7218Z Directly  <b>PET-7218Z/S3</b> = DN-1823 Connects to the PET-7218Z Directly</p>

## Accessories

<p><b>PET-7019Z/S + CD-25015 + 4PAPP-006-G</b></p>	<p><b>CD-25015</b> 15 cm Cable +DB-1820</p> <p><b>4PAPP-006-G</b></p>	<p><b>PET-7019Z/S + CD-2518D</b> <b>PET-7219Z/S + CD-2518D</b></p>	<p><b>CD-2518D</b> 1.8 m Cable +DB-1820</p>
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