



### Thermocouple Input and DO Module

#### Features

- PoE and Regular Ethernet Options
- Built-In Web Server
- Web HMI
- Modbus/TCP, Modbus/UDP Protocol
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 °C ~ +75 °C
- I/O Pair Connection
- Built-In I/O
  - AI: 10 Channels
  - DO: 6 Channels

## Introduction

The ET-7000/PET-7000, a web-based Ethernet I/O module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a regular web browser. Remote control is as easy as surfing the Internet.

Besides, with the web HMI function, no more programming or HTML skills are required; creating dynamic and attractive web pages for I/O monitoring and I/O control would be fun to engineers ever after. The ET-7000/PET-7000 offers easy and safe access for users from anytime and anywhere! In addition, the ET-7000/PET-7000 also supports Modbus/TCP protocol that makes perfect integration to SCADA software.

Furthermore, PET-7000 features "PoE" that not only data but also power is carried through an Ethernet cable. This feature makes installation of PET-7000 a piece of cake. Imagine that no more unnecessary wires, only an Ethernet cable takes care of everything in the field.

The "Z" version is another milestone in the development of thermocouple series and a testament to excellence by ICP DAS. ET-7019Z/PET-7019Z is specifically designed for extremely accurate thermocouple measurement. It features automatic cold-junction compensation for each channel to get temperature outputs consistency and stable temperature output in the field. 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. Also got open thermocouple detection and many protection mechanisms. The 6 digital output can be set alarm output with Short-circuit protection and overload protection.

## Applications

Building Automation, Factory Automation, Machine Automation, Remote Maintenance, Remote Diagnosis, Testing Equipment.

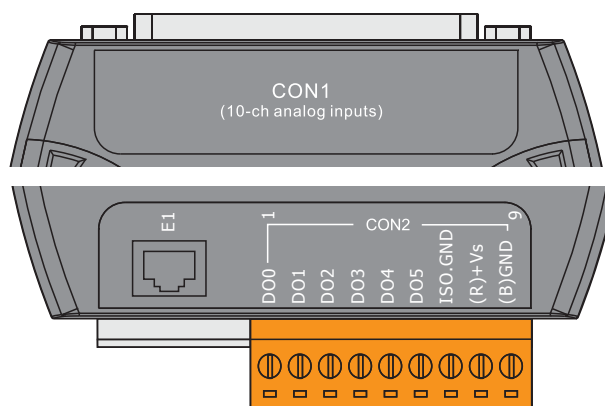
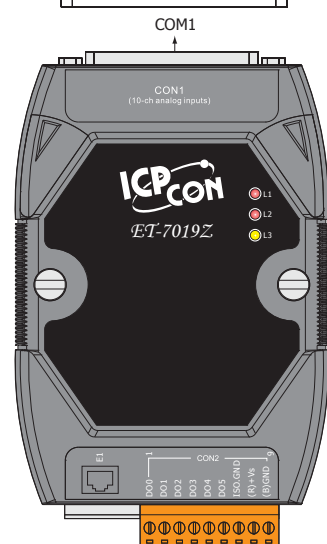
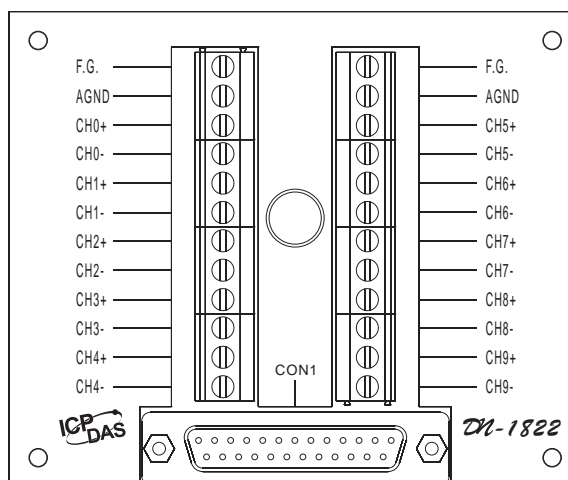
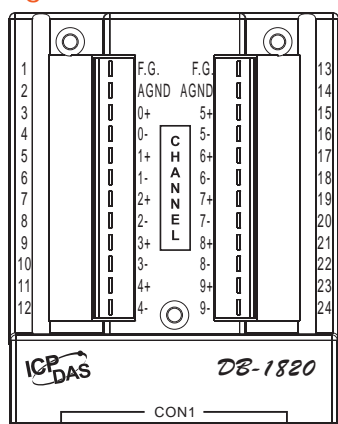
## System Specifications

Models	ET-7019Z	PET-7019Z
<b>Software</b>		
Built-In Web Server	Yes	
Web HMI	Yes	
I/O Pair Connection	Yes	
<b>Communication</b>		
Ethernet Port	10/100 Base-TX with Auto MDI/MDI-X	
Protocol	Modbus/TCP, Modbus/UDP	
Security	ID, Password and IP Filter	
Dual Watchdog	Yes, Module (0.8 seconds), Communication (Programmable)	
<b>LED Indicators</b>		
L1 (System Running)	Yes	
L2 (Ethernet Link/Act)	Yes	
L3 (Ethernet 10/100 M Speed)	Yes	
PoE Power	-	Yes
<b>2 Way Isolation</b>		
Ethernet	1500 V <sub>DC</sub>	-
I/O	2500 V <sub>DC</sub>	2500 V <sub>DC</sub>
<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	
<b>Power Requirements</b>		
Reverse Polarity Protection	Yes	
Powered from Terminal Block	Yes, 10 ~ 30 V <sub>DC</sub>	Yes, 12 ~ 48 V <sub>DC</sub>
Powered from PoE	-	Yes, IEEE 802.3af, Class1
Consumption	2.5 W	3.5 W
<b>Mechanical</b>		
Dimensions (W x L x H)	72 mm x 116 mm x 35 mm	
Installation	DIN-Rail or Wall Mounting	
<b>Environment</b>		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-30 °C ~ +80 °C	
Humidity	10 ~ 90% RH, Non-condensing	

## I/O Specifications

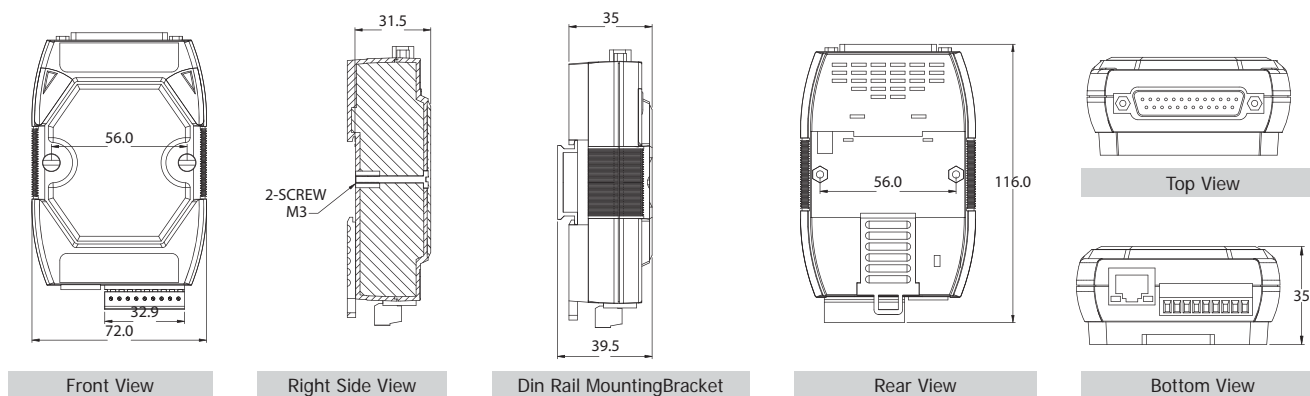
Analog Input	
Input Channels	10 (Differential)
Sensor Type	+/-15 mV, +/-50 mV, +/-100 mV, +/-150 mV, +/-500 mV, +/-1 V, +/-2.5 V, +/-5 V, +/-10 V, +/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA (Jumper Selectable) Thermocouple (J, K, T, E, R, S, B, N, C, L, M, LDIN43710)
Individual Channel Configuration	Yes
Resolution	16-bit
Sampling Rate	10 Samples/Sec. (Total)
Accuracy	+/-0.1% or better
Zero Drift	+/-0.5 $\mu$ V/ $^{\circ}$ C
Span Drift	+/-25 ppm/ $^{\circ}$ C
Over Voltage Protection	240 V <sub>rms</sub>
Input Impedance	>300 k $\Omega$
Common Mode Rejection	86 dB Min.
Normal Mode Rejection	100 dB
Temperature Outputs Consistency	Yes
Stable Temperature Output in the Field	Yes
Open Wire Detection	Yes
Digital Output	
Output Channels	6
Type	Isolated Open Collector (Sink)
Max. Load Current	700 mA/Channel
Load Voltage	5 V <sub>DC</sub> ~ 50 V <sub>DC</sub>
Overvoltage Protection	60 V <sub>DC</sub>
Overload Protection	1.4 A
Short-circuit Protection	Yes
Power-on Value	Yes, Programmable
Safe Value	Yes, Programmable

## Pin Assignments

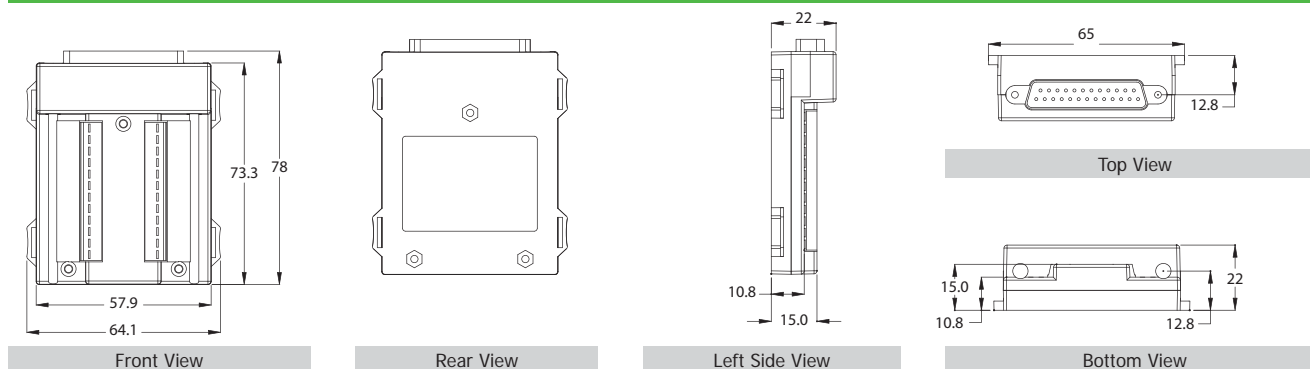


## Wire Connections

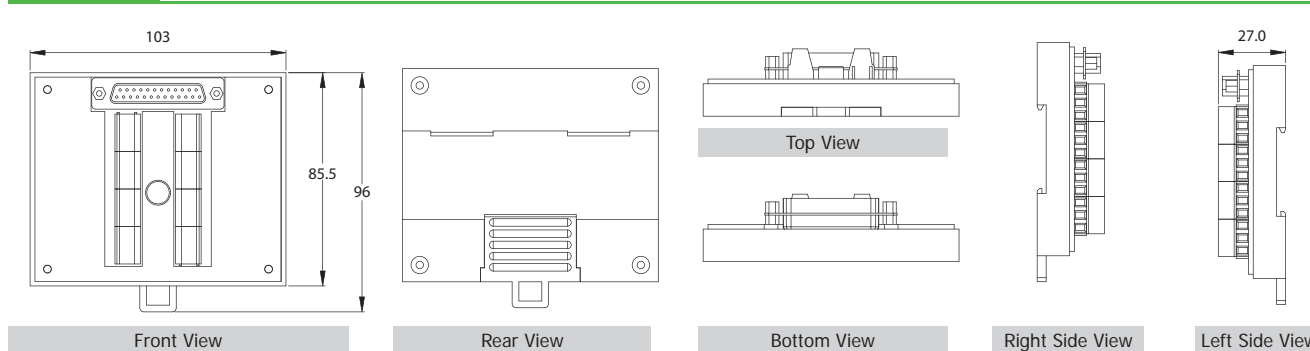
Voltage Input (Default)		Thermocouple Input (Default)
Current Input		
Digital Output	ON State Readback as 1	OFF State Readback as 0
Open Collector (Sink)		



### DN-1820



### DN-1822



## Ordering Information

Art. 127674 ET-7019Z/S CR	10-channel Thermocouple Input with High Voltage Protection and 6-channel Isolated Digital Output Module (RoHS) Include ET-7019Z Module and DB-1820 Daughter Board
Art. 127675 ET-7019Z/S2 CR	10-channel Thermocouple Input with High Voltage Protection and 6-channel Isolated Digital Output PoE Module (RoHS) Include ET-7019Z Module, DN-1822 Daughter Board and 1.8 m Cable
Art. 127677 PET-7019Z/S CR	10-channel Thermocouple Input with High Voltage Protection and 6-channel Isolated Digital Output Module (RoHS) Include PET-7019Z Module and DB-1820 Daughter Board
Art. 127676 PET-7019Z/S2 CR	10-channel Thermocouple Input with High Voltage Protection and 6-channel Isolated Digital Output PoE Module (RoHS) Include PET-7019Z Module, DN-1822 Daughter Board and 1.8 m Cable

<p>Front                      Rear</p> <p><b>ET-7019Z/S</b> = ET-7019Z Connects DB-1820 Directly <b>PET-7019Z/S</b> = PET-7019Z Connects DB-1820 Directly</p>	<p><b>ET-7019Z/S2</b> = ET-7019Z Connect DN-1822 Directly <b>PET-7019Z/S2</b> = PET-7019Z Connect DN-1822 Directly</p>
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## Accessories

NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch; requires 24 Vdc Input (RoHS)
NS-205PSE CR	Unmanaged Ethernet switch with 4-PoE and 1 RJ45 uplink; requires 48 Vdc Input (RoHS)
NS-205PSE-24V CR	Unmanaged Ethernet switch with 4-PoE and 1 RJ45 uplink; requires 24 Vdc Input (RoHS)
MDR-20-24 CR	24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS)
DIN-KA52F-48 CR	48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS)
CD-2518D CR	25F-25M 1.8 m Cable with DIN-Rail Mount of DB-1820 (RoHS)
CD-25015 CR	25F-25M 15 cm Cable with DIN-Rail Mount of DB-1820 (RoHS)
4PAPP-006-G CR	Plastic Rack (RoHS)

<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></p>	<p><b>CD-2518D</b> 1.8 m Cable + DB-1820</p>
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