ICP DAS

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
  - □ Thermocouple Input: 10 Channels
  - □ DO: 6 Channels

ET-7018Z
Regular Ethernet Version

PET-7018Z
PoE Version

CE FC RoHS

☑ 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-7018Z/PET-7018Z 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. ET-7018Z/PET-7018Z 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.
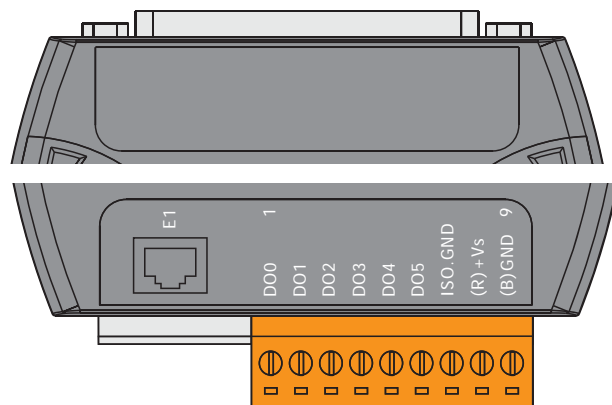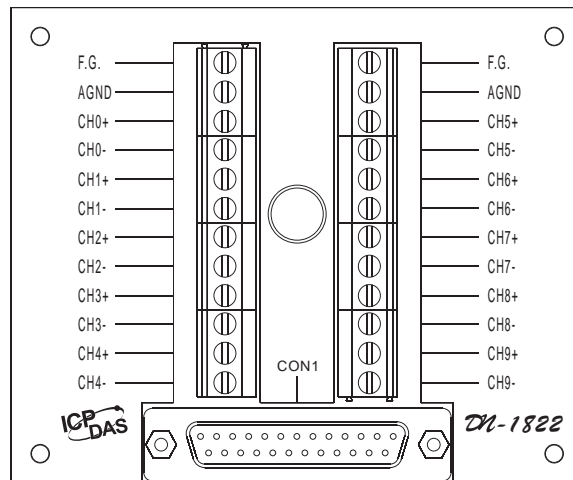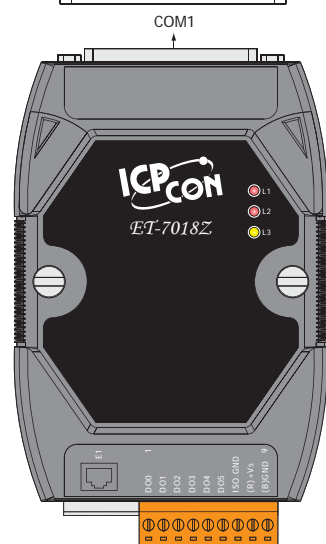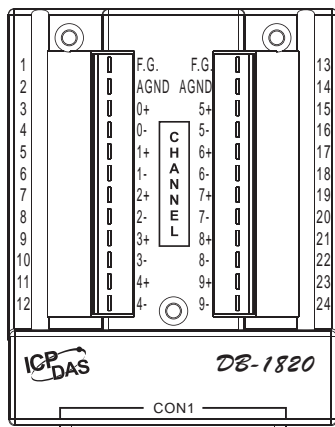
☑ System Specifications

Models	ET-7018Z	PET-7018Z
Software		
Built-In Web Server	Yes	
Web HMI	Yes	
I/O Pair Connection	Yes	
Communication		
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)	
LED Indicators		
L1 (System Running)	Yes	
L2 (Ethernet Link/Act)	Yes	
L3 (Ethernet 10/100 M Speed)	Yes	
PoE Power	-	Yes
2 Way Isolation		
Ethernet	1500 V_{DC}	-
I/O	2500 V_{DC}	2500 V_{DC}
EMS Protection		
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	
Power Requirements		
Reverse Polarity Protection	Yes	
Powered from Terminal Block	Yes, 10 ~ 30 V_{DC}	Yes, 12 ~ 48 V_{DC}
Powered from PoE	-	Yes, IEEE 802.3af, Class1
Consumption	2.0 W	3.0 W
Mechanical		
Dimensions (W x L x H)	72 mm x 116 mm x 35 mm	
Installation	DIN-Rail or Wall Mounting	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-30 °C ~ +80 °C	
Humidity	10 ~ 90% RH, Non-condensing	

ET-7000/PET-7000 Series (Web based)

ET-7018Z/PET-7018Z

3-3-15 ICP DAS CO., LTD. Professional Provider of High Quality Industrial Computer Products and Data Acquisition Systems Vol. RIO 1.0.00 (2011.MAY.17)

☑ I/O Specifications

Thermocouple Input	
Input Channels	10 (Differential)
Sensor Type	+/-15 mV, +/-50 mV, +/-100 mV, +/-500 mV, +/-1 V, +/-2.5 V
	+/-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, LDIN43710)
Individual Channel Configuration	Yes
Resolution	16-bit
Sampling Rate	10 Samples/Sec. (Total)
Accuracy	+/-0.1% or better
Zero Drift	+/-0.5 uV/°C
Span Drift	+/-25 ppm/°C
Over Voltage Protection	240 V$_{rms}$
Input Impedance	>300 kΩ
Common Mode Rejection	150 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$_{DC}$ ~ 50 V$_{DC}$
Overvoltage Protection	60 V$_{DC}$
Overload Protection	1.4 A
Short-circuit Protection	Yes
Power-on Value	Yes, Programmable
Safe Value	Yes, Programmable

☑ Pin Assignments

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Ethernet I/O Modules

③

PET-7000/PET-7000 Series (Web based)

ET-7018Z/PET-7018Z

☑ Wire Connections

Voltage Input (Default)		Thermocouple Input (Default)	
+ V -	CH+ CH-	+ -	CH+ CH-

Current Input			
125 Ω	CH+ CH-	Note: When connecting to a current source, an optional external 125 Ω resistor is required.	

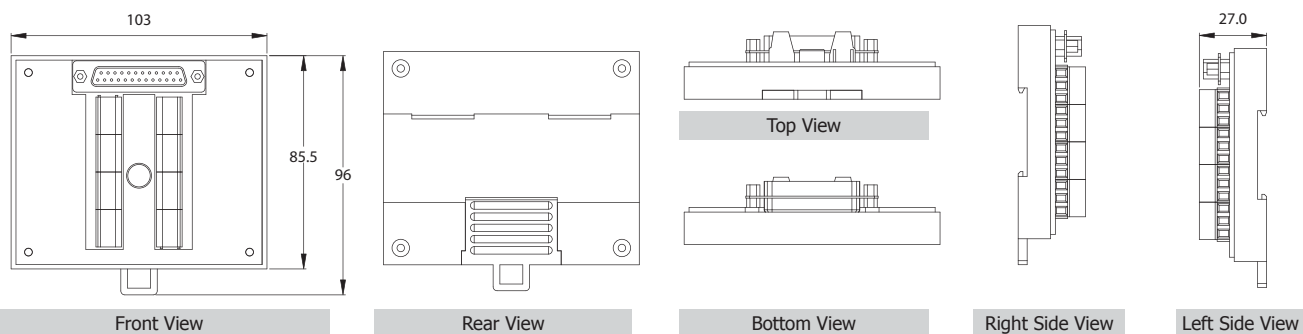| Digital Output	ON State Readback as 1	OFF State Readback as 0
Open Collector (Sink)	LOAD — DOx / ISO.GND 5 ~ 50 V$_{DC}$	LOAD — DOx / ISO.GND 5 ~ 50 V$_{DC}$

☑ Dimensions (Units: mm)

Front View	Right Side View	Din Rail MountingBracket	Rear View	Bottom View

DN-1820

Front View	Rear View	Left Side View	Bottom View

DN-1822

Front View	Rear View	Bottom View	Right Side View	Left Side View
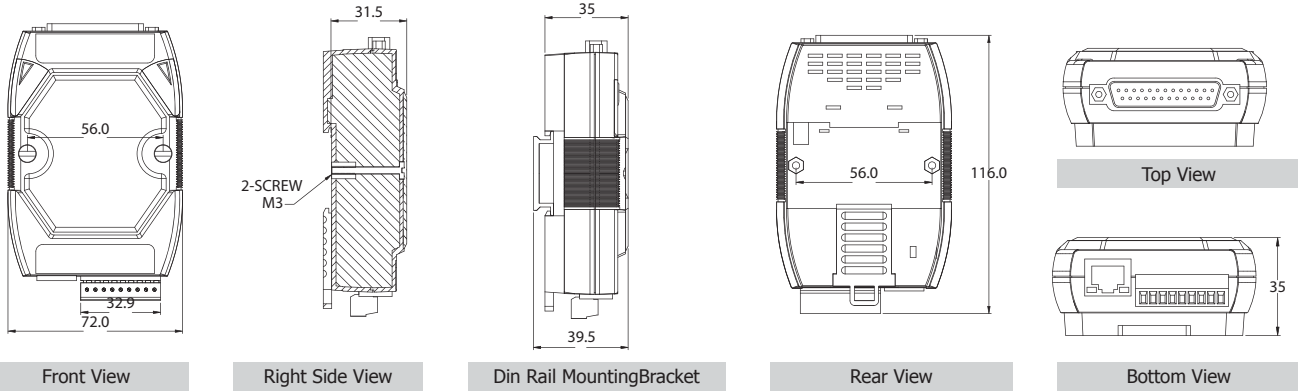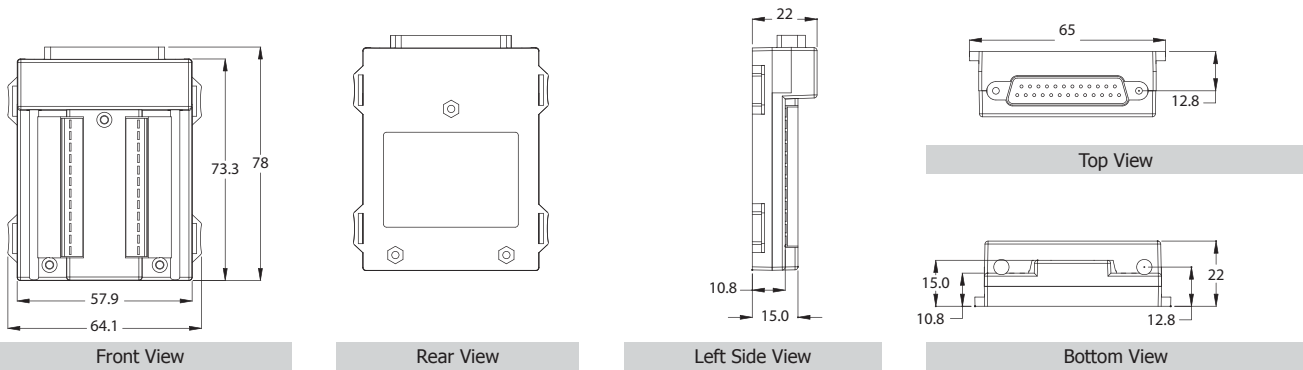
Ordering Information

ET-7018Z/S CR	10-channel Thermocouple Input with High Voltage Protection and 6-channel Isolated Digital Output Module (RoHS) Include ET-7018Z Module and DB-1820 Daughter Board
ET-7018Z/S2 CR	10-channel Thermocouple Input with High Voltage Protection and 6-channel Isolated Digital Output PoE Module (RoHS) Include ET-7018Z Module, DN-1822 Daughter Board and 1.8 m Cable
PET-7018Z/S CR	10-channel Thermocouple Input with High Voltage Protection and 6-channel Isolated Digital Output Module (RoHS) Include PET-7018Z Module and DB-1820 Daughter Board
PET-7018Z/S2 CR	10-channel Thermocouple Input with High Voltage Protection and 6-channel Isolated Digital Output PoE Module (RoHS) Include PET-7018Z Module, DN-1822 Daughter Board and 1.8 m Cable

Front   Rear

ET-7018Z/S = ET-7018Z Connects DB-1820 Directly
PET-7018Z/S = PET-7018Z Connects DB-1820 Directly

ET-7018Z/S2 = ET-7018Z Connect DN-1822 Directly
PET-7018Z/S2 = PET-7018Z Connect DN-1822 Directly

Accessories

	NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch; requires 24 V_{DC} Input (RoHS)
	NS-205PSE CR	Unmanaged Ethernet switch with 4-PoE and 1 RJ45 uplink; requires 48 V_{DC} Input (RoHS)
	NS-205PSE-24V CR	Unmanaged Ethernet switch with 4-PoE and 1 RJ45 uplink; requires 24 V_{DC} 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)

CD-25015
15 cm Cable + DB-1820

4PAPP-006-G

CD-2518D
1.8 m Cable + DB-1820

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

PET-7018Z/S + CD-2518D

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Ethernet I/O Modules

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PET-7000/PET-7000 Series (Web based)

ET-7018Z/PET-7018Z