

# Ethernet I/O Products



|   |        |
|---|--------|
| 3.1. Overview   | P3-1-1 |
| 3.2. Modbus TCP I/O Expansion Unit                    | P3-2-1 |
| 3.3. ET-7000/PET-7000/PET-7000-48V Series (Web based) | P3-3-1 |
| 3.4. PEE-7000/PEE-7000-48V Series (Web based)         | P3-4-1 |
| 3.5. tET/tPET Series Modules (IP based)               | P3-5-1 |
| 3.6. EtherCAT Products                                | P3-6-1 |
| 3.7. EtherNet/IP Products                             | P3-7-1 |
| 3.8. PROFINET Products                                | P3-8-1 |
| 3.9. Ethernet/Fiber Switch                            | P3-9-1 |



### 3.1. Overview

Although the RS-485 remote I/O module is still selling well, we found more and more demand of Ethernet based remote I/O modules. Our Ethernet remote I/O modules support Modbus TCP, Modbus UDP protocol. We also provide web HMI, Web server, OPC server, security mechanism..etc. According to different application, we have developed various Ethernet I/O units and modules, such as compact size ET-87Pn-MTCP (ch3.2), palm-size ET-7000/PET-7000/PET-7000-48V series (ch3.3), PET-7000/PEE-7000-48V series (ch3.4) and tiny-size tET/tPET series (Ch3.5). The module has diversified I/O interface, such as overvoltage-protection analog input module, relay output, digital input/output, counter, timer...etc.

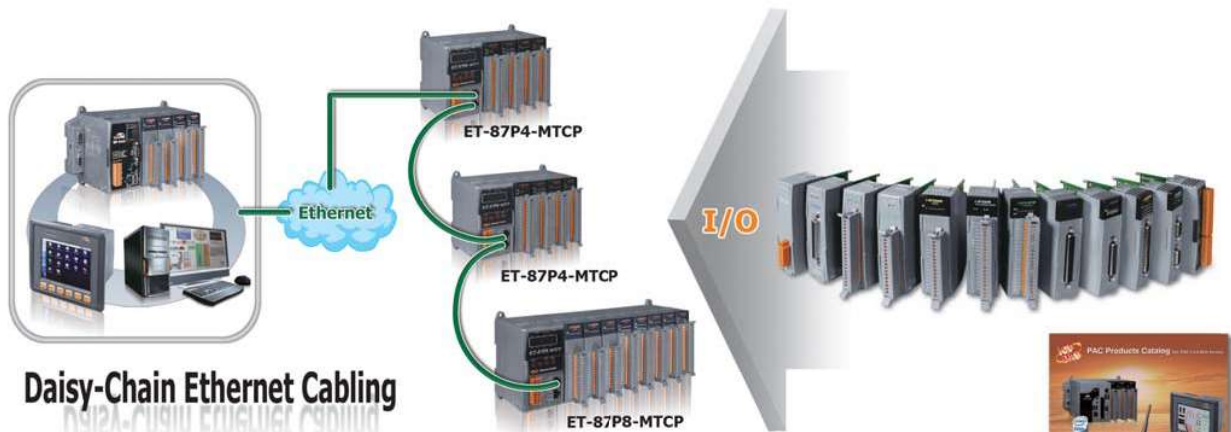
The brief comparison is as the following table. Besides those regular Ethernet I/O modules, we will release EtherCAT, Ethernet/IP and PROFINET I/O modules.

3  
1

Ethernet I/O Products

| Model Name             | tET/tPET Series            | ET-7000<br>PET-7000<br>PET-7000-48V | PEE-7000<br>PEE-7000-48V |
|------------------------|----------------------------|-------------------------------------|--------------------------|
| Pictures               |                            |                                     |                          |
| <b>Communication</b>   |                            |                                     |                          |
| Ethernet               | 10/100 M, RJ-45 x 1        |                                     | 10/100 M, RJ-45 x 2      |
| Protocol               | Modbus TCP, Modbus UDP     |                                     |                          |
| Security               | Web Password and IP Filter | ID, Password and IP Filter          |                          |
| Max. Sockets           | 5                          | 12                                  |                          |
| Web Server             | Yes                        | Yes                                 |                          |
| User-defined Web pages | -                          | Yes (Web HMI)                       |                          |
| <b>I/O</b>             |                            |                                     |                          |
| I/O pins               | 10 pins                    | 21 pins                             | 26 pins                  |
| DI Counter             | 32-bit, 3.5 kHz            | 32-bit, 500 Hz                      |                          |
| Pair Connection        | Yes (Polling/Push Mode)    | Yes (Polling Mode)                  |                          |
| <b>Mechanical</b>      |                            |                                     |                          |
| Dimensions (W x L x D) | 52 mm x 98 mm x 27 mm      | 72 mm x 123 mm x 35 mm              | 76 mm x 120 mm x 38 mm   |

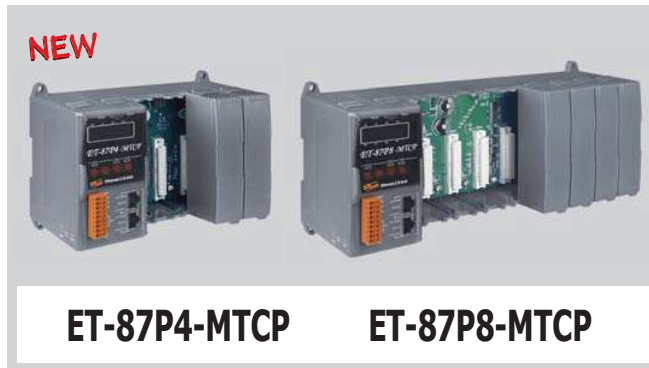
Further more, we also developed ET-87Pn-MTCP, a series of Ethernet remote I/O unit for compact and modular I/O expansion. It comprises a CPU, a power module and a backplane with a number of I/O slots for flexible I/O configuration.



For more details of the available modules (I-87K series) for ET-87Pn-MTCP, refer to **PAC Product Catalog**



## 3.2. Modbus TCP I/O Expansion Unit



### Features

- Two Ethernet Ports for Daisy-Chain Topology
- Supports Modbus TCP
- Supports Modbus RTU/ASCII
- Supports Modbus TCP to RTU Gateway
- Auto Configuration
- 4/8 I/O Slots for I-87K Series Modules
- Operating Temperature: -25 ~ +75 °C



3

2

Ethernet I/O Products

### Introduction

ET-87Pn-MTCP series is a Modbus TCP I/O expansion unit to expand I-87K series I/O modules over the Ethernet for industrial monitoring and controlling applications. It offers two Ethernet switch ports for daisy-chain topology. The daisy-chain feature allows ET-87Pn to connect in series to each other or other Ethernet devices. Users can easily simplify the cabling and save installation space with the feature.

It is designed to be used in harsh and noisy environment, so the hardware is manufactured with wide power input range (10 ~ 30 Vdc), isolated power input and can operate under wide temperature (-25 ~ +75°C). There are more than 50 I/O modules supported with the unit, including analog input/output, digital input/output, DI counter modules. To simplify installation and maintenance of I/O modules, it provides many useful features, such as: auto configuration, LED indicators for fault detection, dual watchdog to keep alive, programmable power on and safe values for safety.

Modbus is a very wide known protocol in the industrial manufacturing and environment monitoring fields. Many SCADA software, HMI and PLC has builtin driver to support Modbus devices. Besides, we also provide SDK on different platforms, such as Windows XP, Window CE 5.0/6.0, Linux, MiniOS7. Therefore, it is very easy to integrate remote I/O to customer's applications.

### System Specifications

| Models                     | ET-87P4-MTCP   | ET-87P8-MTCP             |
|----------------------------|--|--------------------------|
| <b>Communication Ports</b> |  |                          |
| Protocol                   | Modbus TCP Slave   |                          |
|                            | Modbus RTU/ASCII Slave   |                          |
|                            | Modbus TCP to RTU Gateway  |                          |
| Ethernet                   | RJ-45 x 2, 10/100 Base-TX (Auto negotiating, Auto MDI/MDI-X, LED indicators) |                          |
| COM 1                      | RS-232 (to update firmware) (Rx, Tx and GND); non-isolated                   |                          |
| <b>SMMI</b>                |  |                          |
| LED Display                | Yes, 5-Digit LED Display   |                          |
| Push Buttons               | 4  |                          |
| <b>I/O Expansion Slots</b> |  |                          |
| Slot Number                | 4  | 8                        |
|                            | Note: For High Profi I-87K Modules Only                                      |                          |
| <b>Mechanical</b>          |  |                          |
| Dimensions (W x H x D)     | 188 mm x 132 mm x 111 mm   | 312 mm x 132 mm x 111 mm |
| Installation               | DIN-Rail or Wall Mounting  |                          |
| <b>Environmental</b>       |  |                          |
| Operating Temperature      | -25 ~ +75 °C   |                          |
| Storage Temperature        | -30 ~ +80 °C   |                          |
| Ambient Relative Humidity  | 10 ~ 90% RH (non-condensing)   |                          |
| <b>Power</b>               |  |                          |
| Input Range                | +10 ~ +30 Vdc  |                          |
| Isolation                  | 1 kV   |                          |
| Redundant Power Inputs     | Yes  |                          |
| Capacity                   | 30 W   |                          |
| Consumption                | 2 W  | 2.4 W                    |

## 3.3. ET-7000/PET-7000/PET-7000-48V Series (Web based)

### • 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.

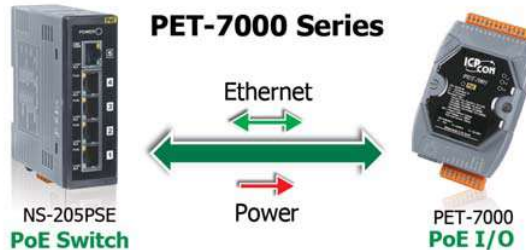
Besides Web HMI function, no more programming or HTML skills are required; creating dynamic and attractive web pages for I/O monitoring and I/O control would be fun to engineers ever after. The ET-7000/PET-7000 offers easy and safe access for users from anytime and anywhere! In addition, the ET-7000/PET-7000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

Furthermore, PET-7000 features "PoE" that not only Ethernet 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.

### • Features

#### 1. Power over Ethernet (PoE)

The PET-7000 series module can be powered by an IEEE802.3af compliant PoE switch. Both Ethernet and power can be carried by an Ethernet cable eliminating the need for additional wiring and power supply.



#### 2. Communication Security

Account and password are needed when logging into the ET-7000 web server. An IP address filter is also included, which can be used to allow or deny connections with specific IP addresses.

#### 3. Support for both Modbus TCP and Modbus UDP Protocols

The Modbus TCP, Modbus UDP slave function on the Ethernet port can be used to provide data to remote SCADA software.

#### 4. Built-in I/O

Various I/O components are mixed with multiple channels in a single module, which provides the most cost effective I/O usage and enhances performance of the I/O operations.

#### 5. Dual Watchdog

The Dual Watchdog consists of a Module Watchdog and a Communication Watchdog. The action of AO,DO are also associated to the Dual Watchdog.

**Module Watchdog** is a built-in hardware circuit to monitor the operation of the module and will reset the CPU if a failure occurs in the hardware or the software. Then the Power-on Value of AO,DO will be loaded.

**Communication Watchdog** is a software function to monitor the communication between the host and the ET-7000/PET-7000 module. The timeout of the communication Watchdog is programmable, when the ET-7000/PET-7000 doesn't receive commands from the host for a while, the watchdog forces the AO,DO to pre-programmed Safe Value to prevent unpredictable damage of the connected devices.



### 6. Highly Reliable UnderHarsh Environmen

- Wide Operating Temperature Range: -25 ~ +75°C
- Storage Temperature: -30 ~ +80°C
- Humidity 10 ~ 90% RH (Non-condensing)

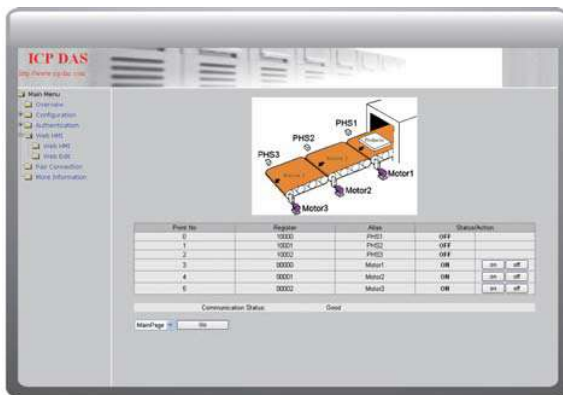


### 8. I/O Pair Connection

This function is used to create a AI/DI to AO/DO pair through the Ethernet. Once the configuration is completed, the ET-7000/PET-7000 module can poll the status of remote AI/DI devices and then use the Modbus TCP protocol to continuously write to a local AO/DO channels in the background.

### 9. Web HMI

The Web HMI function allows the users to create dynamic and attractive web pages to monitor and control the I/O points. Users can upload specific I/O layout pictures (bmp, jpg, gif format) and define a description for each I/O point. No HTML or Java skills are needed to create the web pages.

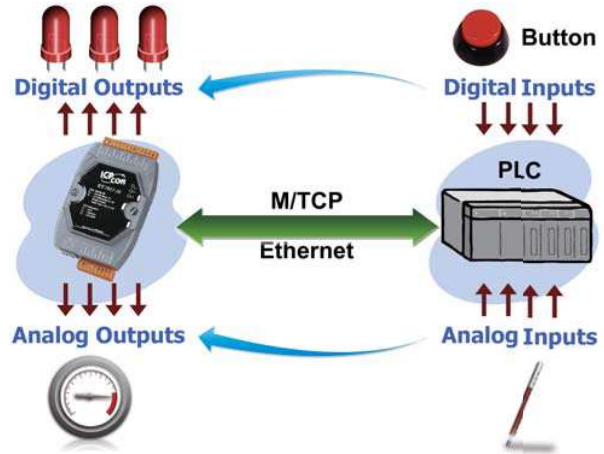


### 7. Power-on Value and Safe Value

Besides setting by the set AO,DO commands, the AO,DO can be set under two other conditions.

**Power-on Value:** The Power-on Value is loaded into the AO,DO under 3 conditions: Power-on, reset by Module Watchdog, reset by reset command.

**Safe Value:** When the Communication Watchdog is enabled and a Communication Watchdog timeout occurs, the "safe value" is loaded into the AO,DO.

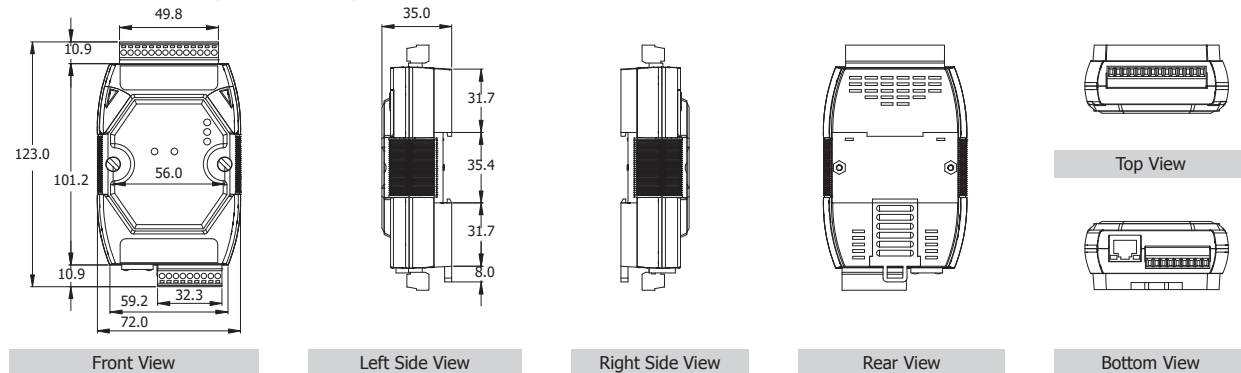


### 10. Built-in Web Server

Each ET-7000/PET-7000 module has a Built-in web server that allows the users to easily configure, monitor and control the module from a remote location using a regular web browser.



### 11. Dimensions (Units: mm)



3  
3  
Ethernet I/O Products

## • Software Support

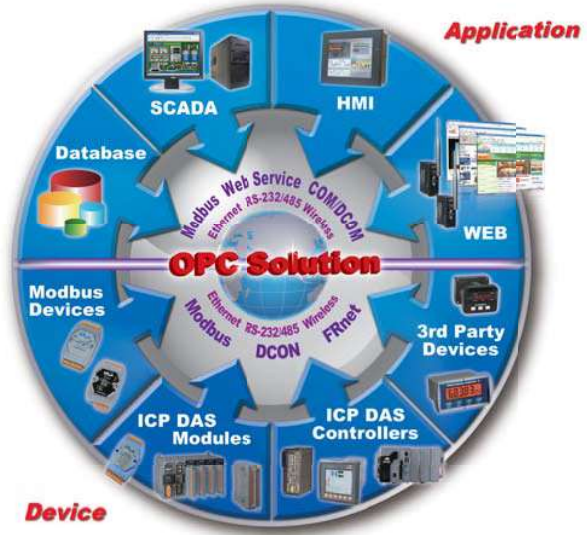
Our free charge software utility and development kit include

### 1. OPC Server

**NAPOPC\_ST DA Server** is a **free** OPC DA Server ("OPC" stands for "OLE for Process Control" and "DA" stands for "Data Access") for ICP DAS products. Based on Microsoft's OLE COM (component object model) and DCOM (distributed component object model) technologies, NAPOPC\_ST DA Server defines a standard set of objects, interfaces and methods for use in process control and manufacturing automation applications to facilitate the interoperability.

Using NAPOPC\_ST DA Server, system integrates data with SCADA/HMI/Database software on the same computer and others. SCADA/HMI/Database sends a request and NAPOPC DA Server fulfills the request by gathering the data of ICP DAS modules (**License Free**) and third-party devices (**License Charge**) to SCADA/HMI/Database.

For different OS of PAC products, ICP DAS provides several professional DA Servers:



| Version  | NAPOPC_ST       | NAPOPC_XPE          | NAPOPC_CE5  | NAPOPC_CE6  |
|----------|-----------------|---------------------|-------------|-------------|
| Platform | Desktop Windows | Windows XP Embedded | Windows CE5 | Windows CE6 |
| Price    | Free/💰          | Free                | Free        | Free        |

For more Information please visit <http://opc.icpdas.com>

### 2. EZ Data Logger

EZ Data Logger is the software that ICP DAS provides for users to easily build a small SCADA system on Windows 2000/XP/Vista. It comes with two versions, "Lite" & "Professional". The Lite version is not only full-functioned but free to all ICP DAS users!

EZ Data Logger is a small data logger software. It can be applied to small remote I/O system. With its user-friendly interface, users can quickly and easily build a data logger software without any programming skill.

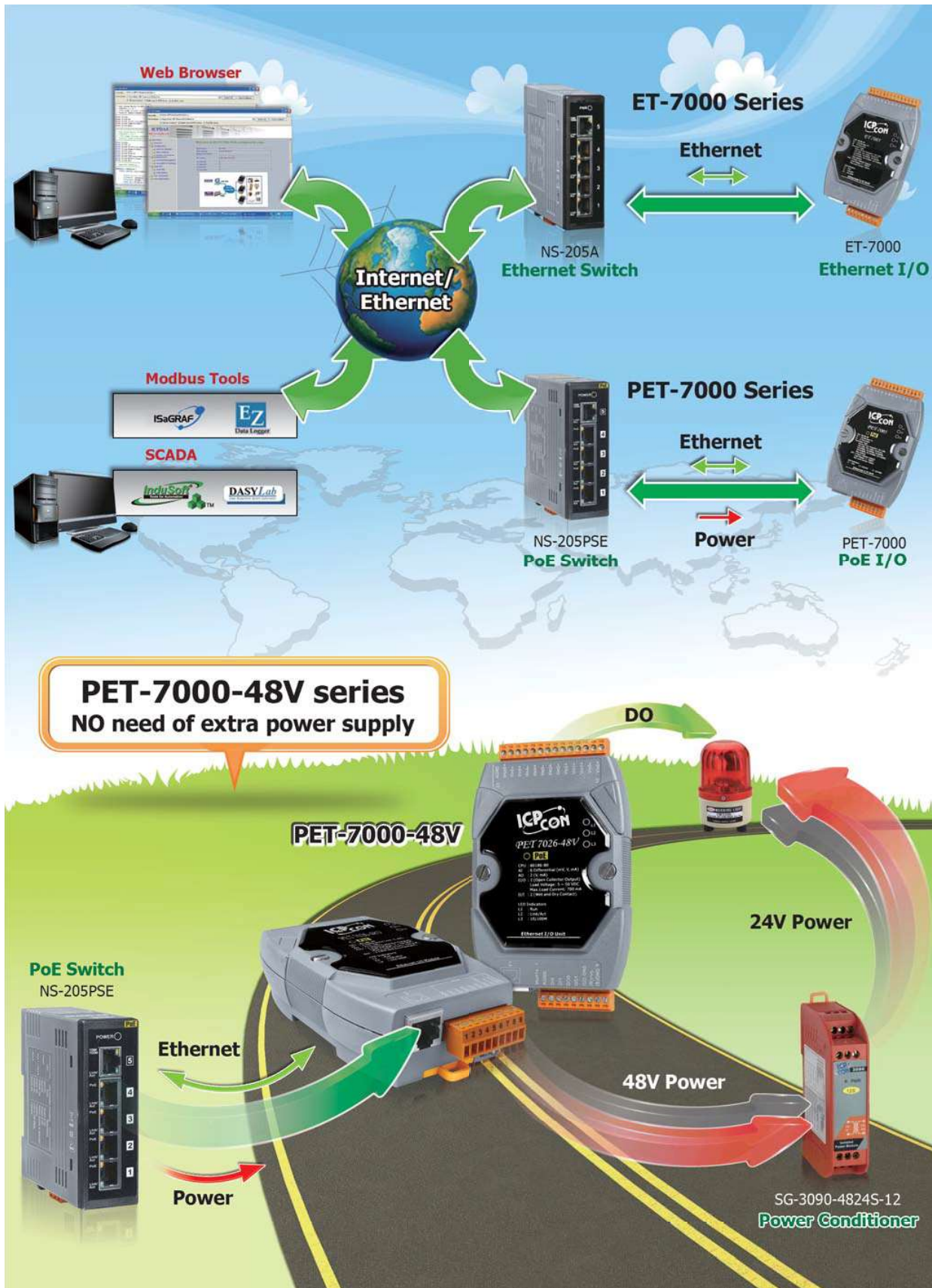
### 3. Modbus Software Development Toolkits

Plenty of library functions and demo programs are provided to let user develop programs easily under Windows, Linux and MiniOS7 operating systems.

| OS                           | Development Language | SDK                                  |
|------------------------------|----------------------|--------------------------------------|
| MiniOS7                      | TC, BC               | MBT7_xxx.lib, MBT8_xxx.lib and Demos |
| WinCE 5.0/6.0                | VS .NET 2005/2008    | nModbusCE.dll and Demos              |
|                              | VS .NET 2005/2008    | nModbus.dll and Demos                |
| WES 2009, Windows XP/Vista/7 | LabView              | Demos                                |
|                              | C                    | Libraries and Demos                  |



• Difference between ET-7000, PET-7000 and PET-7000-48V



## • Selection Guide

### Analog Input Model

| Model Name                                   | AI      |   |  | DO      |                |             |
|--|---------|---|--|---------|----------------|-------------|
|  | Channel | Voltage and Current Input   | Sensor Input   | Channel | Type           | Sink/Source |
| ET-7005<br>PET-7005<br>PET-7005-48V          | 8       | -   | Thermistor   | 4       | Open Collector | Sink        |
| ET-7015<br>PET-7015<br>PET-7015-48V          | 7       | -   | RTD:<br>Pt100, Pt1000, Ni120, Cu100, Cu1000                        | -       | -              | -           |
| ET-7017<br>PET-7017<br>PET-7017-48V          | 8       | +/-150 mV, +/-500 mV, +/-1 V,<br>+/-5 V, +/-10 V, +/-20 mA,<br>0 ~ 20 mA, 4 ~ 2.0mA             | -  | 4       | Open Collector | Sink        |
| ET-7017-10<br>PET-7017-10<br>PET-7017-10-48V | 10/20   | +/-150 mV, +/-500 mV, +/-1 V,<br>+/-5 V, +/-10 V, +/-20 mA,<br>0 ~ 20 mA, 4 ~ 20 mA             | -  | -       | -              | -           |
| ET-7018Z<br>PET-7018Z<br>PET-7018Z-48V       | 10      | +/-15 mV, +/-50 mV, +/-100 mV,<br>+/-500 mV, +/-1 V, +/-2.5 V<br>+/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA | Thermocouple:<br>J, K, T, E, R, S, B, N, C, L, M,<br>and LDIN43710 | 6       | Open Collector | Sink        |
| ET-7019<br>PET-7019<br>PET-7019-48V          | 8       | +/-15 mV, +/-50 mV, +/-100 mV,<br>+/-150 mV, +/-500 mV,<br>+/-1 V, +/-5 V, +/-10 V              | Thermocouple:<br>J, K, T, E, R, S, B, N, C, L, M,<br>and LDIN43710 | 4       | Open Collector | Sink        |
| ET-7019Z<br>PET-7019Z<br>PET-7019Z-48V       | 10      | +/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA  |  | 6       |                |             |

**Note:** We recommend to choose ET-7018Z/PET-7018Z and ET-7019Z/PET-7019Z for extremely accurate thermocouple measurement.

### Multi-function I/O

| Model Name                          | AI      |   |   | AO          |   | DI/Counter |  | DO      |                          |
|-------------------------------------|---------|---|---|-------------|---|------------|--|---------|--------------------------|
|                                     | Channel | Voltage and Current Input   | Sensor Input  | Channel     | Voltage and Current Output  | Channel    | Contact                                  | Channel | Type                     |
| ET-7002<br>PET-7002<br>PET-7002-48V | 3       | +/-150 mV,<br>+/-500 mV,<br>+/-1 V,<br>+/-5 V,<br>+/-10 V,<br>+0 mA ~ +20 mA,<br>+/-20 mA,<br>4 ~ 20 mA           | -   | -           | -   | 6          | Wet<br>(Sink,Source)                     | 3       | Power Relay<br>(Form A)  |
| ET-7016<br>PET-7016<br>PET-7016-48V | 2       | +/-15 mV,<br>+/-50 mV,<br>+/-100 mV,<br>+/-500 mV,<br>+/-1 V,<br>+/-2.5 V,<br>0 ~ 20 mA,<br>+/-20 mA,<br>4 ~ 20mA | Strain Gauge,<br>Load Cell,<br>Full-Bridge,<br>Half-Bridge,<br>Quarter-Bridge | 1<br>(Note) | 0 ~ 10V   | 2          | Wet<br>(Sink,Source)                     | 2       | Open Collector<br>(Sink) |
| ET-7026<br>PET-7026<br>PET-7026-48V | 6       | +/-150 mV,<br>+/-500 mV,<br>+/-1 V,<br>+/-5 V,<br>+/-10 V,<br>0 ~ 20 mA,<br>+/-20 mA,<br>4 ~ 20mA                 | -   | 2           | 0 ~ 5 V,<br>+/-5 V,<br>0 ~ 10 V,<br>+/-10 V,<br>0 ~ 20 mA,<br>4 ~ 20 mA | 2          | Dry<br>(Source),<br>Wet<br>(Sink,Source) | 2       | Open Collector<br>(Sink) |

**Note:** The AO is configured as a volage excitation source for the strain gauge.

3

3

Ethernet I/O Products



 Digital I/O

| Model Name                          | DI/Counter |          |              | DO      |                |             |                          |
|-------------------------------------|------------|----------|--------------|---------|----------------|-------------|--------------------------|
|                                     | Channel    | Contact  | Sink/Source  | Channel | Type           | Sink/Source | Max. Load Current @ 25°C |
| ET-7042<br>PET-7042<br>PET-7042-48V | -          | -        | -            | 16      | Open Collector | Sink        | 100 mA/channel           |
| ET-7044<br>PET-7044<br>PET-7044-48V | 8          | Wet      | Sink, Source | 8       | Open Collector | Sink        | 300 mA/channel           |
| ET-7050<br>PET-7050<br>PET-7050-48V | 12         | Wet      | Sink, Source | 6       | Open Collector | Sink        | 100 mA/channel           |
| ET-7051<br>PET-7051<br>PET-7051-48V | 16         | Wet      | Sink, Source | -       | -              | -           | -                        |
| ET-7052<br>PET-7052<br>PET-7052-48V | 8          | Wet      | Sink, Source | 8       | Open Collector | Source      | 650 mA/channel           |
| ET-7053<br>PET-7053<br>PET-7053-48V | 16         | Dry      | Source       | -       | -              | -           | -                        |
| ET-7055<br>PET-7055<br>PET-7055-48V | 8          | Dry, Wet | Sink, Source | 8       | Open Collector | Source      | 650 mA/channel           |

3

3

Ethernet I/O Products

 Relay Output & Digital Input

| Model Name                          | Relay Output |                |                    |                          | DI/Counter |         |              |
|-------------------------------------|--------------|----------------|--------------------|--------------------------|------------|---------|--------------|
|                                     | Channel      | Relay          | Type               | Max. Load Current @ 25°C | Channel    | Contact | Sink/Source  |
| ET-7060<br>PET-7060<br>PET-7060-48V | 6            | Power Relay    | Form A (SPST N.O.) | 5.0 A/channel            | 6          | Wet     | Sink, Source |
| ET-7062<br>PET-7062<br>PET-7062-48V | 2            | Power Relay    | Form C (SPDT)      | 5.0A, TV-5 rated/channel | 6          | Wet     | Sink, Source |
| ET-7065<br>PET-7065<br>PET-7065-48V | 6            | PhotoMOS Relay | Form A             | 1.0 A/channel            | 6          | Wet     | Sink, Source |
| ET-7066<br>PET-7066<br>PET-7066-48V | 8            | PhotoMOS Relay | Form A             | 1.0 A/channel            | -          | -       | -            |
| ET-7067<br>PET-7067<br>PET-7067-48V | 8            | Power Relay    | Form A (SPST N.O.) | 5.0 A/channel            | -          | -       | -            |


**ET-7002**
**PET-7002  
PET-7002-48V**

3-channel Analog Input and DIO Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - AI: 3 Channels with 240 Vrms Overvoltage Protection
  - DI/Counter: 6 Channels
  - Power Relay: 3 Channels



### Introduction

The ET-7002/PET-7002/PET-7002-48V is a multi-function module with 3-channel analog inputs, 6-channel digital inputs and 3-channel relay outputs. It provides various programmable analog inputs (+/-150 mV, +/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-20 mA, 0 ~ 20 mA and 4 ~ 20 mA). Each analog input is allowed to configure a proper range with 240 Vrms high voltage protection. Each analog input/output can be programmed to accept current or voltage as input/output depending upon the position of corresponding jumper. The ET-7002/PET-7002 is fully RoHS-compliant and has qualification for 4 kV ESD protection as well as 2500 Vdc intra-module isolation.






### System Specifications

| Models                       | ET-7002  | PET-7002         | PET-7002-48V              |
|------------------------------|--|------------------|---------------------------|
| <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                           |                  |                           |
| ★ PoE                        | -  |                  | 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>        |  |                  |                           |
| 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 Vdc   |                  | -                         |
| I/O                          | 2500 Vdc   |                  | 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  |                  |                           |
| Surge (IEC 61000-4-5)        | +/-4 kV for Power  |                  |                           |
| <b>Power</b>                 |  |                  |                           |
| Reverse Polarity Protection  |  | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc   | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -  |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -  | -                | 48 Vdc, 10 W              |
| Consumption                  |  | 1.7 W            |                           |
| <b>Mechanical</b>            |  |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                       |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                                    |                  |                           |
| <b>Environment</b>           |  |                  |                           |
| Operating Temperature        | -25 ~ +75°C  |                  |                           |
| Storage Temperature          | -30 ~ +80°C  |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                                  |                  |                           |

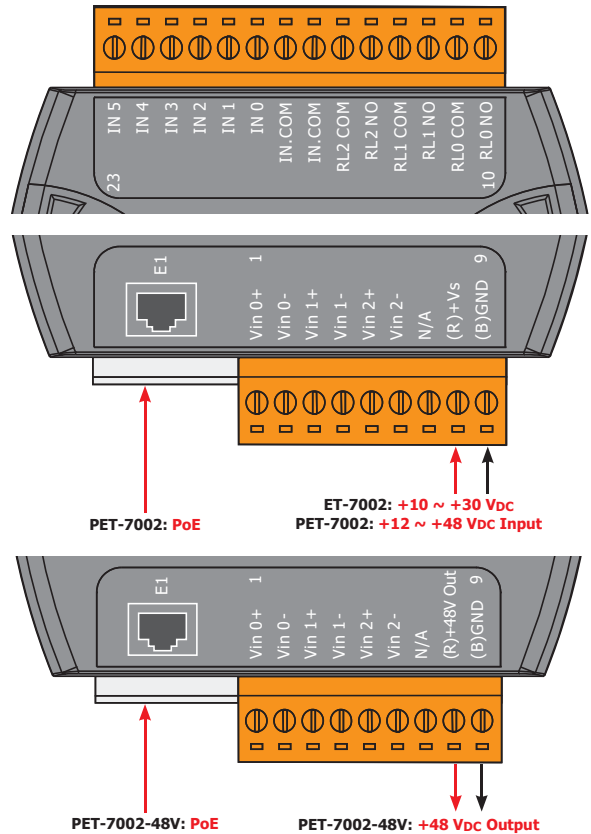
### I/O Specifications

| Analog Input                           |  |   |
|--|--|---|
| Channels                               | 3 (Differential)   |   |
| Type                                   | +/-150 mV, +/-500 mV, +/-1 V, +/-5 V, +/-10 V<br>+0 mA ~ +20 mA, +/-20 mA, 4 ~ 20 mA (jumper selectable) |   |
| Individual Channel Configuration       | Yes  |   |
| Resolution                             | Normal Mode  | 16-bit  |
|  | Fast Mode  | 12-bit  |
| Sampling Rate                          | Normal Mode  | 10 Samples/Second (Total)   |
|  | Fast Mode  | 60 Samples/Second (Total)   |
| Accuracy                               | Normal Mode  | +/-0.1%   |
|  | Fast Mode  | +/-0.5% or better   |
| Zero Drift                             | +/-20 $\mu$ V/°C   |   |
| Span Drift                             | +/-25 ppm/°C   |   |
| Overvoltage Protection                 | 240 Vrms   |   |
| Overcurrent Protection                 | 50 mA Max. at 110 Vdc/VAC Max.   |   |
| Input Impedance                        | Voltage  | 2 M $\Omega$  |
|  | Current  | 125 $\Omega$  |
| Common Mode Rejection                  | 86 dB Min.   |   |
| Normal Mode Rejection                  | 100 dB   |   |
| Digital Input/Counter                  |  |   |
| Channels                               | 6  |   |
| Contact                                | Wet Contact  |   |
| Sink/Source (NPN/PNP)                  | Sink/Source  |   |
| On Voltage Level                       | +10 Vdc ~ +50 Vdc  |   |
| Off Voltage Level                      | +4 Vdc Max.  |   |
| Input Impedance                        | 10 K $\Omega$ , 0.5W   |   |
| Counters                               | Channels   | 6   |
|  | Max. Count   | 4,294,967,285 (32-bit)  |
|  | Max. Input Frequency   | 100 Hz  |
|  | Min. Pulse Width   | 5 ms  |
| Overvoltage Protection                 | +50 Vdc  |   |
| Power Relay                            |  |   |
| Channels                               | 3  |   |
| Type                                   | Power Relay, Form A (SPST N.O.)  |   |
| Operating Voltage Range                | 250 VAC/30 Vdc   |   |
| Max. Load Current                      | 5.0A/channel at 25°C   |   |
| Operate Time                           | 6 ms (Typical)   |   |
| Release Time                           | 3 ms (Typical)   |   |
| Electrical Life ( Resistive load )     | VDE:   | 5 A @ 250 VAC 30,000 ops<br>(10 ops/minute) at 75°C.<br>5 A @ 30 Vdc 70,000 ops<br>(10 ops/minute) at 75°C. |
|  | UL:  | 5 A @ 250 VAC/30 Vdc 6,000 ops.<br>3 A @ 250 VAC/30 Vdc 100,000 ops.  |
| Mechanical Life                        | 20,000,000 ops. at no load (300 ops./minute).  |   |
| Intra-module Isolation, Field-to-Logic | 3750 Vdc   |   |
| Power-on Value                         | Yes, Programmable  |   |
| Safe Value                             | Yes, Programmable  |   |

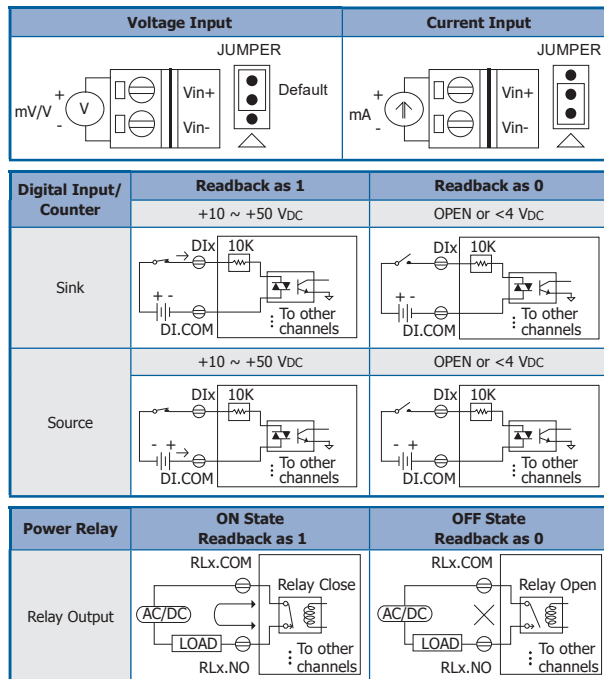
### Accessories

|   |                  |  |
|---|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |

### Pin Assignments

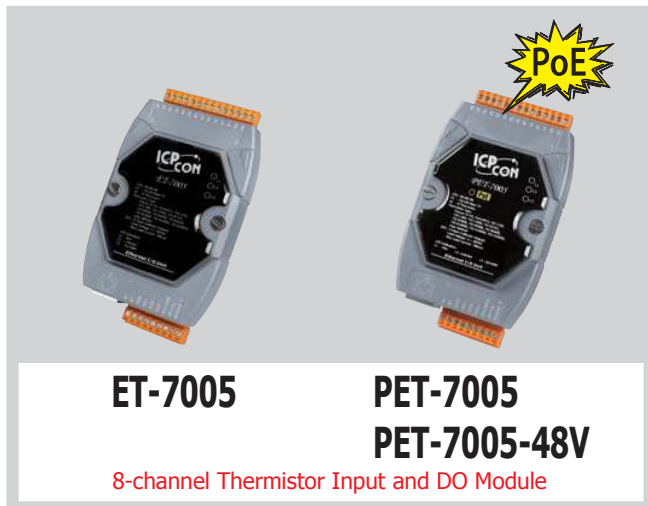


### Wire Connections



### Ordering Information

|                        |   |
|------------------------|---|
| <b>ET-7002 CR</b>      | 3-channel Analog Input and DIO Module (RoHS)  |
| <b>PET-7002 CR</b>     | 3-channel Analog Input and DIO Module with PoE (RoHS)   |
| <b>PET-7002-48V CR</b> | 3-channel Analog Input and DIO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacturer) |


**ET-7005**
**PET-7005  
PET-7005-48V**

8-channel Thermistor Input and DO Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - Thermistor Input: 8 Channels
  - DO: 4 Channels



### Introduction

ET-7005/PET-7005/PET-7005-48V is used for measuring temperature by the thermistor. It supports many kinds of thermistors and features individual channel configuration which means that eight of its input channels can individually be configured with different kind of thermistor and supports user-defined types by specifying the Steinhart coefficients to add other thermistors, if necessary. Besides, ET-7005/PET-7005 also has 4-channel digital outputs for alarm output with Short-circuit protection and overload protection. Adding 2500 Vdc intra-module isolation and 110 Vdc/VAC overvoltage protection for thermistor on ET-7005/PET-7005 makes itself running with higher reliability.

### System Specifications

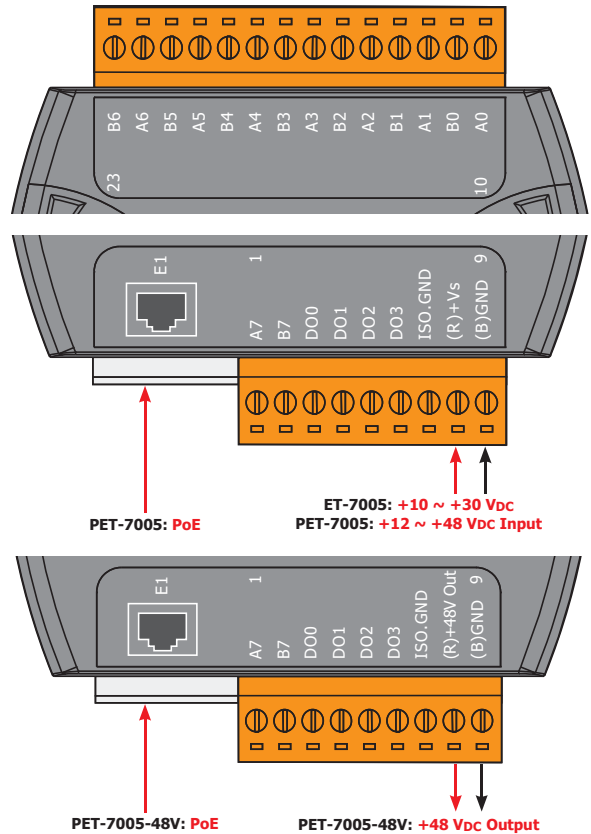
| Models                       | ET-7005  | PET-7005         | PET-7005-48V              |
|------------------------------|--|------------------|---------------------------|
| <b>Software</b>              |  |                  |                           |
| ★ Built-in Web Server        |  | Yes              |                           |
| ★ Web HMI                    |  | Yes              |                           |
| ★ I/O Pair Connection        |  | Yes              |                           |
| <b>Communication</b>         |  |                  |                           |
| Ethernet Port                | 10/100 Base-TX with Auto MDI/MDI-X                           |                  |                           |
| ★ PoE                        | -  |                  | 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>        |  |                  |                           |
| 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 Vdc   |                  | -                         |
| I/O                          | 2500 Vdc   |                  | 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  |                  |                           |
| <b>Power</b>                 |  |                  |                           |
| Reverse Polarity Protection  |  | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc   | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -  |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -  | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.1 W  |                  | 3.0 W                     |
| <b>Mechanical</b>            |  |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                       |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                                    |                  |                           |
| <b>Environment</b>           |  |                  |                           |
| Operating Temperature        | -25 ~ +75°C  |                  |                           |
| Storage Temperature          | -30 ~ +80°C  |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                                  |                  |                           |



### I/O Specifications

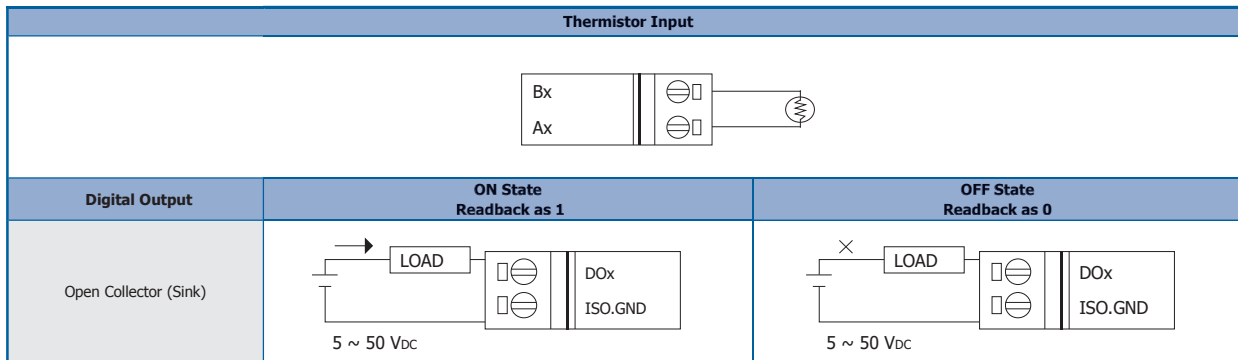
| Thermistor Input                 |  |
|----------------------------------|--|
| Channels                         | 8 (Differential)   |
| Sensor Type (thermistor)         | Precon ST-A3, Fenwell U, YSI L100, YSI L300, YSI L1000, YSI B2252, YSI B3000, YSI B5000, YSI B6000, YSI B10000, YSI H10000, YSI H30000, User-defined |
| Individual Channel Configuration | Yes  |
| Resolution                       | 16-bit   |
| Sampling Rate                    | 10 Sample/Second (Total)   |
| Accuracy                         | +/-0.1% or better  |
| Zero Drift                       | +/-20 $\mu$ V/ $^{\circ}$ C  |
| Span Drift                       | +/-25 ppm/ $^{\circ}$ C  |
| Overvoltage Protection           | 110 Vdc/VAc  |
| Common Mode Rejection            | 86 dB  |
| Normal Mode Rejection            | 100 dB   |
| Open Wire Detection              | Yes  |
| Digital Output                   |  |
| Channels                         | 4  |
| Type                             | Isolated Open Collector  |
| Sink/Source (NPN/PNP)            | Sink   |
| Max. Load Current                | 700 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  |

### Pin Assignments



3  
 3  
 Ethernet I/O Products

### Wire Connections

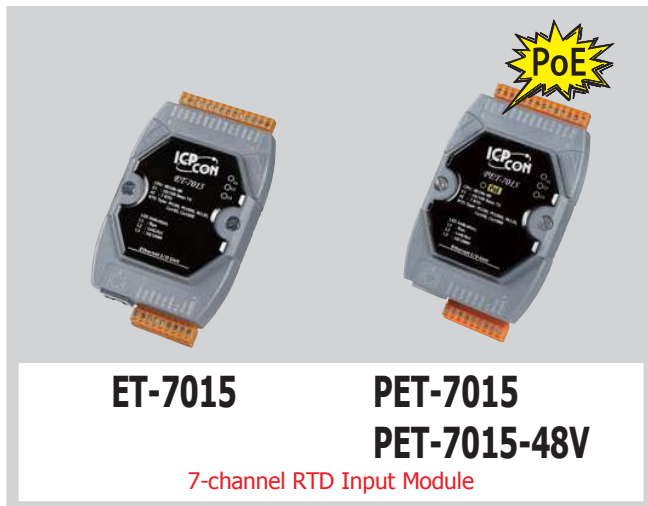


### Ordering Information

|                        |   |
|------------------------|---|
| <b>ET-7005 CR</b>      | 8-channel Thermistor Input and DO Module (RoHS)   |
| <b>PET-7005 CR</b>     | 8-channel Thermistor Input and DO Module with PoE (RoHS)  |
| <b>PET-7005-48V CR</b> | 8-channel Thermistor Input and DO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |


**ET-7015**
**PET-7015  
PET-7015-48V**

7-channel RTD Input Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - RTD Input: 7 Channels



### Introduction

ET-7015/PET-7015/PET-7015-48V is specifically designed for long-distance RTD measurement. It features automatic compensation for three-wire RTD regardless of the length of wires and provides open wire detection for RTD measurement. ET-7015/PET-7015 offers 7 channels, each of which could be connected with different kinds of RTD (Pt100, Pt1000, Ni120, Cu100, Cu1000). Also, ET-7015/PET-7015 is fully RoHS-compliant and has qualification for 4 kV ESD protection as well as 2500 Vdc intra-module isolation.

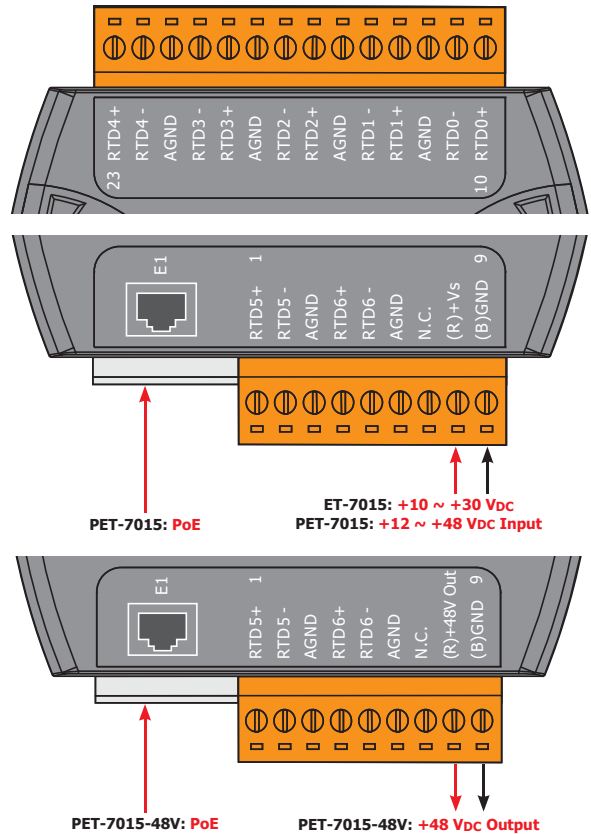
### System Specifications

| Models                       | ET-7015  | PET-7015         | PET-7015-48V              |
|------------------------------|--|------------------|---------------------------|
| <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                           |                  |                           |
| ★ PoE                        | -  |                  | 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>        |  |                  |                           |
| 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 Vdc   |                  | -                         |
| I/O                          | 2500 Vdc   |                  | 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  |                  |                           |
| <b>Power</b>                 |  |                  |                           |
| Reverse Polarity Protection  |  | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc   | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -  |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -  | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.0 W  |                  | 2.6 W                     |
| <b>Mechanical</b>            |  |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                       |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                                    |                  |                           |
| <b>Environment</b>           |  |                  |                           |
| Operating Temperature        | -25 ~ +75°C  |                  |                           |
| Storage Temperature          | -30 ~ +80°C  |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                                  |                  |                           |

### I/O Specifications

| RTD Input                                |                                     |
|--|-------------------------------------|
| Channels                                 | 7 (Differential)                    |
| ★ Sensor Type                            | Pt100, Pt1000, Ni120, Cu100, Cu1000 |
| ★ Wire Connections                       | 2/3 wire                            |
| ★ Individual Channel Configuration       | Yes                                 |
| Resolution                               | 16-bit                              |
| Sampling Rate                            | 12 Samples/Second (Total)           |
| Accuracy                                 | +/-0.05%                            |
| Zero Drift                               | +/-0.5 $\mu$ V/ $^{\circ}$ C        |
| Span Drift                               | +/-20 $\mu$ V/ $^{\circ}$ C         |
| Common Mode Rejection                    | 150 dB                              |
| Normal Mode Rejection                    | 100 dB                              |
| Input Impedance                          | >1M $\Omega$                        |
| ★ Open Wire Detection                    | Yes                                 |
| ★ 3-wire RTD Lead Resistance Elimination | Yes                                 |

### Pin Assignments



3  
3  
Ethernet I/O Products

### Wire Connections

| Open Collector (Sink) | CH0, 1, 2, 5 and 6 | CH3 and CH4 |
|-----------------------|--------------------|-------------|
| 2-wire of RTD         |                    |             |
| 3-wire of RTD         |                    |             |

### Ordering Information

|                        |   |
|------------------------|---|
| <b>ET-7015 CR</b>      | 7-channel RTD Input Module (RoHS)   |
| <b>PET-7015 CR</b>     | 7-channel RTD Input Module with PoE (RoHS)  |
| <b>PET-7015-48V CR</b> | 7-channel RTD Input Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Accessories

|                  |  |                 |  |
|------------------|--|-----------------|--|
| NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  | MDR-20-24 CR    | 24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS)    |
| NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) | DIN-KA52F-48 CR | 48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS) |
| NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 24 Vdc Input (RoHS) |                 |  |



### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - Strain Gauge Input: 2 Channels
  - DI/Counter: 2 Channels
  - DO: 2 Channels



### Introduction

The ET-7016/PET-7016/PET-7016-48V is a strain gauge module with 2 analog input channels, 1 excitation voltage output channel, 2 digital input channels and 2 digital output channels module. It provides various programmable analog input inputs (+/-1 mV, +/-50 mV, +/-100 mV, +/-500 mV, +/-1 V, and +/-2.5 V) and supports full-bridge, half-bridge, and quarter-bridge. The range for each analog input is allowed to be configured individually. Excitation voltage output can be in the range of 0 ~ 10 V with a 60 mA driving efficiency. Digital outputs can also be set as alarm outputs. The ET-7016/PET-1016 can also provide long-distance strain gauge measurement that compensates for the loss of voltage resulting from long-distance measurements.

### System Specifications

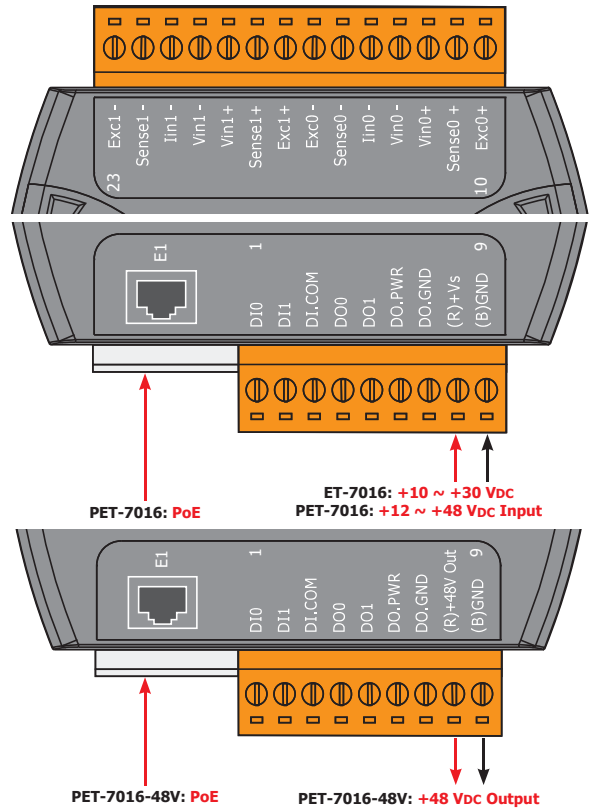
| Models                       | ET-7016  | PET-7016         | PET-7016-48V              |
|------------------------------|--|------------------|---------------------------|
| <b>Software</b>              |  |                  |                           |
| ★ Built-in Web Server        |  | Yes              |                           |
| ★ Web HMI                    |  | Yes              |                           |
| ★ I/O Pair Connection        |  | Yes              |                           |
| <b>Communication</b>         |  |                  |                           |
| Ethernet Port                | 10/100 Base-TX with Auto MDI/MDI-X                           |                  |                           |
| ★ PoE                        | -  |                  | 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>        |  |                  |                           |
| 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 Vdc   |                  | -                         |
| I/O                          | 2500 Vdc   |                  | 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  |                  |                           |
| <b>Power</b>                 |  |                  |                           |
| Reverse Polarity Protection  |  | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc   | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -  |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -  | -                | 48 Vdc, 10 W              |
| Consumption                  | 4.2 W  |                  | 5.3 W                     |
| <b>Mechanical</b>            |  |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                       |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                                    |                  |                           |
| <b>Environment</b>           |  |                  |                           |
| Operating Temperature        | -25 ~ +75°C  |                  |                           |
| Storage Temperature          | -30 ~ +80°C  |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                                  |                  |                           |



### I/O Specifications

| Strain Gauge Input               |  |                        |
|----------------------------------|--|------------------------|
| Channels                         | 2 (Differential)   |                        |
| Type                             | +/-15 mV, +/-50 mV, +/-100 mV, +/-500 mV, +/-1 V, +/-2.5 V, +/-20mA, 10 ~ 20 mA, 4 ~ 20 mA |                        |
| Strain Gauge Type                | Full-Bridge, Half-Bridge, and Quarter-Bridge   |                        |
| Individual Channel Configuration | Yes  |                        |
| Resolution                       | 16-bit   |                        |
| Sampling Rate                    | 10 Samples/Second (Total)  |                        |
| Accuracy                         | +/-0.05%   |                        |
| Zero Drift                       | +/-0.5 $\mu$ V/ $^{\circ}$ C   |                        |
| Span Drift                       | +/-25 ppm/ $^{\circ}$ C  |                        |
| Overvoltage Protection           | 30 Vdc   |                        |
| Input Impedance                  | Voltage Input: >400 k $\Omega$ ,<br>Current Input: 125 $\Omega$                            |                        |
| Common Mode Rejection            | 150 dB min.  |                        |
| Normal Mode Rejection            | 100 dB   |                        |
| Excitation Voltage Output        |  |                        |
| Channels                         | 1  |                        |
| Output Range                     | 0 ~ 10 V   |                        |
| Max. Output Load Current         | 60 mA  |                        |
| Accuracy                         | +/-0.05% of FSR  |                        |
| Drift                            | +/-50 ppm/ $^{\circ}$ C  |                        |
| Power-on Value                   | Yes  |                        |
| Digital Input/Counter            |  |                        |
| Channels                         | 2  |                        |
| Contact                          | Wet  |                        |
| Sink/Source (NPN/PNP)            | Sink/Source  |                        |
| Off Voltage Level                | +1 Vdc Max.  |                        |
| On Voltage Level                 | +3.5 Vdc ~ +50 Vdc   |                        |
| Counters                         | Channels   | 2                      |
|                                  | Max. Count   | 4,294,967,285 (32-bit) |
|                                  | Max. Input Frequency   | 100 Hz                 |
|                                  | Min. Pulse Width   | 5 ms                   |
| Overvoltage Protection           | 70 Vdc   |                        |
| Digital Output                   |  |                        |
| Channels                         | 2  |                        |
| Type                             | Isolated Open Collector  |                        |
| Sink/Source (NPN/PNP)            | Sink   |                        |
| Max. Load Current                | 700 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  |                        |

### Pin Assignments



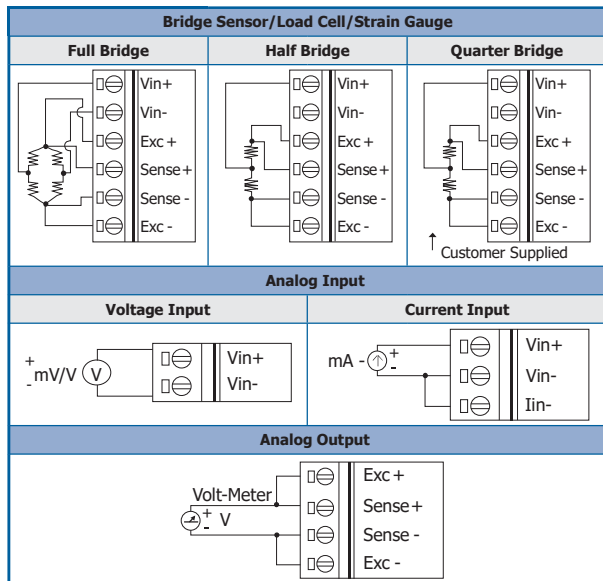
### Excitation Voltage

| Strain Gauge | Quarter-Bridge | Half-Bridge | Full-Bridge |
|--------------|----------------|-------------|-------------|
| 120 R        | 7.0 V          | 7.0 V       | 3.5 V       |
| 350 R        | 10 V           | 10 V        | 10 V        |

### Ordering Information

|                        |  |
|------------------------|--|
| <b>ET-7016 CR</b>      | 2-channel Strain Gauge and DIO Module (RoHS)   |
| <b>PET-7016 CR</b>     | 2-channel Strain Gauge and DIO Module with PoE (RoHS)  |
| <b>PET-7016-48V CR</b> | 2-channel Strain Gauge and DIO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Wire Connections



| Digital Input/Counter | Readback as 1          | Readback as 0           |
|-----------------------|------------------------|-------------------------|
|                       | +10 ~ +50 Vdc          | OPEN or <4 Vdc          |
| Sink                  |                        |                         |
| Source                |                        |                         |
| Output Type           | ON State Readback as 1 | OFF State Readback as 0 |
| Drive Relay           |                        |                         |
| Resistance Load       |                        |                         |



### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - AI: 8 Channels with 240 Vrms Overvoltage Protection
  - DO: 4 Channels



### Introduction

The ET-7017/PET-7017/PET-7017-48V is a 16-bit module with 8-channel differential analog inputs and 4-channel digital outputs. It provides programmable input range on all analog channels (+/-150 mV, +/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-20 mA, 0 ~ 20 mA and 4 ~ 20 mA) and digital output can be set alarm output with Short-circuit protection and overload protection. Each analog channel is allowed to configure an individual range and has 240 Vrms high overvoltage protection. Each analog input can be programmed to accept voltage or current as input depending upon the position of corresponding jumper. The sampling rate of ET-7017/PET-7017 is changeable; there are fast mode and normal mode for your consideration. ET-7017/PET-7017 also has qualification for 4 kV ESD protection as well as 3000 Vdc intra-module isolation.

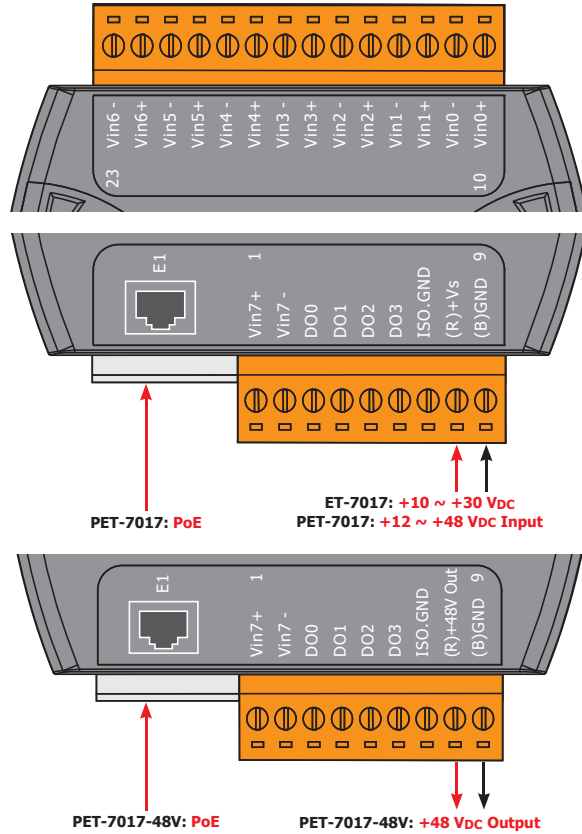
### System Specifications

| Models                       | ET-7017  | PET-7017         | PET-7017-48V              |
|------------------------------|--|------------------|---------------------------|
| <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                           |                  |                           |
| ★ PoE                        | -  |                  | 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>        |  |                  |                           |
| 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 Vdc   |                  | -                         |
| I/O                          | 2500 Vdc   |                  | 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  |                  |                           |
| <b>Power</b>                 |  |                  |                           |
| Reverse Polarity Protection  |  | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc   | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -  |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -  | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.6 W  |                  | 3.1 W                     |
| <b>Mechanical</b>            |  |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                       |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                                    |                  |                           |
| <b>Environment</b>           |  |                  |                           |
| Operating Temperature        | -25 ~ +75°C  |                  |                           |
| Storage Temperature          | -30 ~ +80°C  |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                                  |                  |                           |

### I/O Specifications

| Analog Input                     |   |                           |
|----------------------------------|---|---------------------------|
| Channels                         | 8 (Differential)  |                           |
| Type                             | +/-150 mV, +/-500 mV, +/-1V, +/-5V, +/-10V<br>+/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA<br>(Jumper Selectable) |                           |
| Individual Channel Configuration | Yes   |                           |
| Resolution                       | Normal Mode   | 16-bit                    |
|                                  | Fast Mode   | 12-bit                    |
| Sampling Rate                    | Normal Mode   | 10 Samples/Second (Total) |
|                                  | Fast Mode   | 60 Samples/Second (Total) |
| Accuracy                         | Normal Mode   | +/-0.1%                   |
|                                  | Fast Mode   | +/-0.5% or better         |
| Zero Drift                       | +/-20 $\mu$ V/ $^{\circ}$ C   |                           |
| Span Drift                       | +/-25 ppm/ $^{\circ}$ C   |                           |
| Overvoltage Protection           | 240 Vrms  |                           |
| Input Impedance                  | Voltage   | 2 M $\Omega$              |
|                                  | Current   | 125 $\Omega$              |
| Common Mode Rejection            | 86 dB Min.  |                           |
| Normal Mode Rejection            | 100 dB  |                           |
| Digital Output                   |   |                           |
| Channels                         | 4   |                           |
| Type                             | Isolated Open Collector   |                           |
| Sink/Source (NPN/PNP)            | Sink  |                           |
| Max. Load Current                | 700 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   |                           |

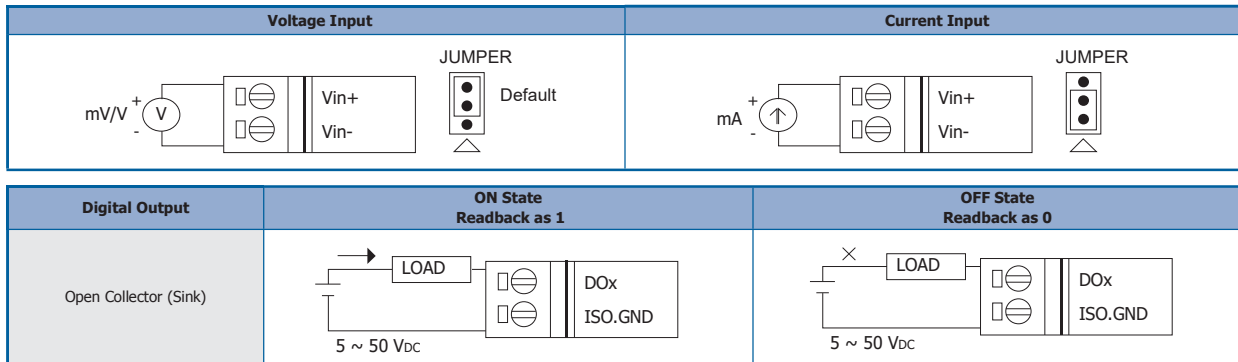
### Pin Assignments



3  
3

Ethernet I/O Products

### Wire Connections

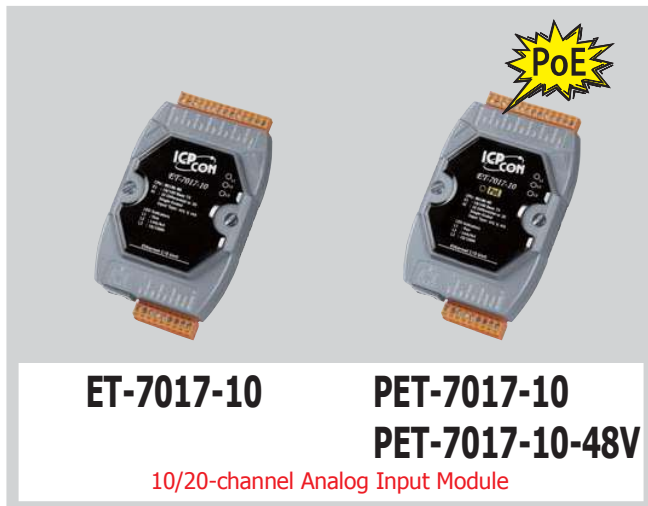


### Ordering Information

|                        |   |
|------------------------|---|
| <b>ET-7017 CR</b>      | 8-channel Analog Input and 4-channel DO Module (RoHS)   |
| <b>PET-7017 CR</b>     | 8-channel Analog Input and 4-channel DO Module with PoE (RoHS)  |
| <b>PET-7017-48V CR</b> | 8-channel Analog Input and 4-channel DO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |



### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - AI: 10/20 Channels with 240 Vrms Overvoltage Protection



### Introduction

The ET-7017-10 is a 16-bit, module with 10-channel differential or 20-channel single-ended analog inputs. It provides programmable input range on all analog channels (+/-150 mV, +/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-20 mA, 0 ~ 20 mA and 4 ~ 20 mA). Each analog channel is allowed to configure an individual range and has 240 Vrms high overvoltage protection. Each analog input can be programmed to accept voltage or current as input depending upon the position of corresponding jumper. The sampling rate of ET-7017/PET-7017/PET-7017-48V has two modes; fast mode and normal mode for your consideration. ET-7017/PET-7017/PET-7017-48V also has qualification for 4 kV ESD protection as well as 3000 Vdc intra-module isolation.

### System Specifications

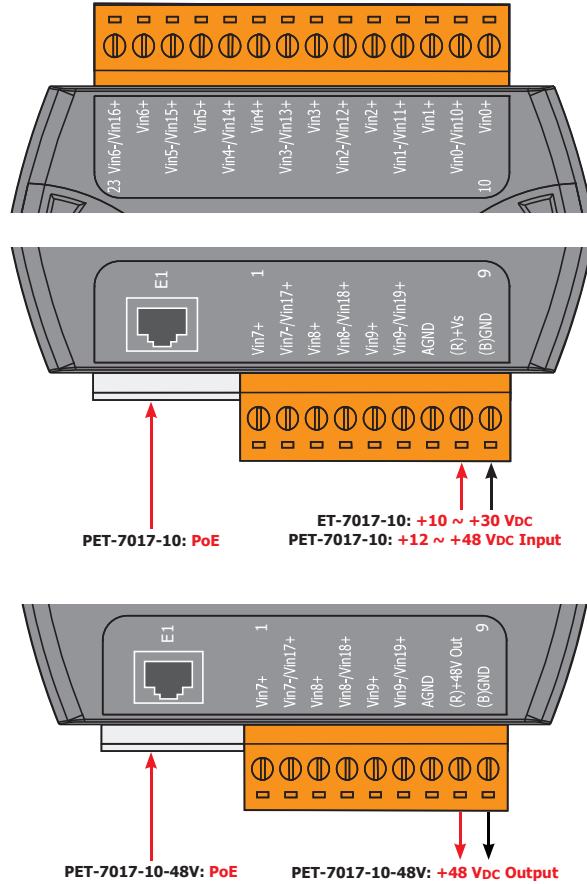
| Models                       | ET-7017-10   | PET-7017-10      | PET-7017-10-48V           |
|------------------------------|--|------------------|---------------------------|
| <b>Software</b>              |  |                  |                           |
| ★ Built-in Web Server        |  | Yes              |                           |
| ★ Web HMI                    |  | Yes              |                           |
| ★ I/O Pair Connection        |  | Yes              |                           |
| <b>Communication</b>         |  |                  |                           |
| Ethernet Port                | 10/100 Base-TX with Auto MDI/MDI-X                           |                  |                           |
| ★ PoE                        | -  |                  | 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>        |  |                  |                           |
| 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 Vdc   |                  | -                         |
| I/O                          | 2500 Vdc   |                  | 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  |                  |                           |
| <b>Power</b>                 |  |                  |                           |
| Reverse Polarity Protection  |  | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc   | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -  |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -  | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.6 W  |                  | 3.8 W                     |
| <b>Mechanical</b>            |  |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                       |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                                    |                  |                           |
| <b>Environment</b>           |  |                  |                           |
| Operating Temperature        | -25 ~ +75°C  |                  |                           |
| Storage Temperature          | -30 ~ +80°C  |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                                  |                  |                           |



### I/O Specifications

| Analog Input   |  |  |
|--|--|--|
| Channels   | 10 differential or 20 single-ended (Note1), software selectable                                  |  |
| Type   | +/-150 mV, +/-500 mV, +/-1V, +/-5V, +/-10V<br>+/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA (Jumper Selectable) |  |
| Individual Channel Configuration   | Yes  |  |
| Resolution   | Normal Mode  | 16-bit   |
|  | Fast Mode  | 12-bit   |
| Sampling Rate  | Normal Mode  | 10 Samples/Second (Total)                                |
|  | Fast Mode  | 60 Samples/Second (Total)                                |
| Accuracy   | Normal Mode  | +/-0.1%  |
|  | Fast Mode  | +/-0.5% or better  |
| Zero Drift   | +/-20 $\mu$ V/ $^{\circ}$ C  |  |
| Span Drift   | +/-25 ppm/ $^{\circ}$ C  |  |
| Overvoltage Protection   | Differential   | 240 Vrms   |
|  | Single-ended   | 150 Vrms   |
| Input Impedance  | Voltage  | 2 M $\Omega$ (Differential), 1 M $\Omega$ (Single-ended) |
|  | Current  | 125 $\Omega$   |
| Common Mode Rejection  | 86 dB Min.   |  |
| Normal Mode Rejection  | 100 dB   |  |
| Note1: Differential mode can be used for voltage input and current input.<br>Single-Ended mode can be used for voltage input only. |  |  |

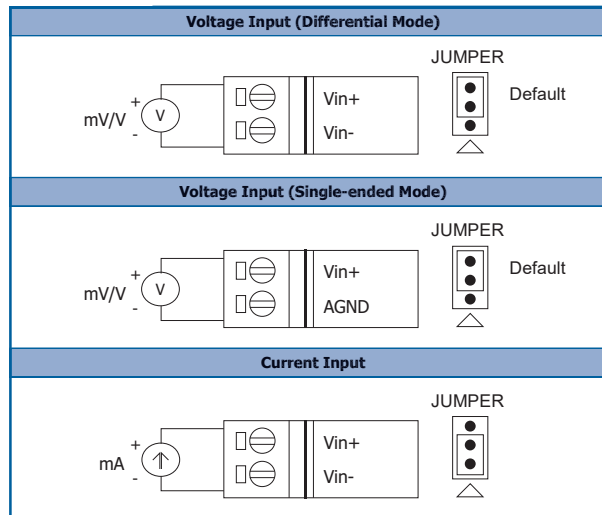
### Pin Assignments



3  
3

Ethernet I/O Products

### Wire Connections

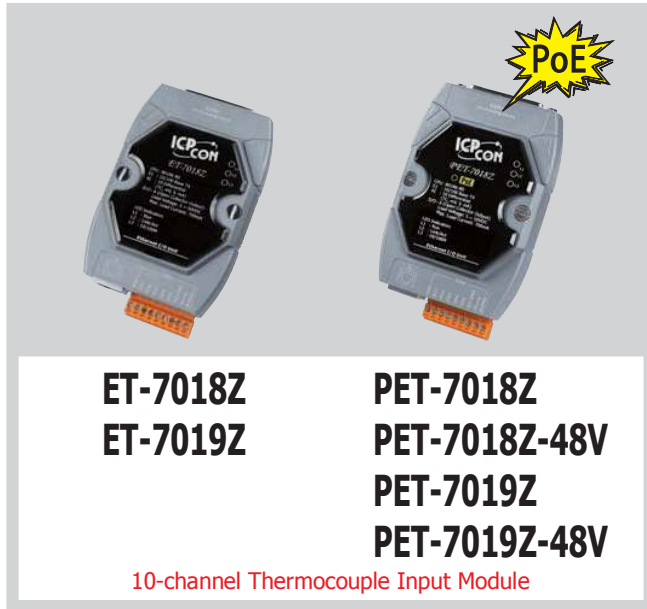


### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |

### Ordering Information

|                        |  |
|------------------------|--|
| <b>ET-7017-10</b>      | 10/20-channel Analog Input Module (RoHS)   |
| <b>PET-7017-10</b>     | 10/20-channel Analog Input Module with PoE (RoHS)  |
| <b>PET-7017-10-48V</b> | 10/20-channel Analog Input Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |



### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - Thermocouple Input:
    - 10 Channels (For ET-7018Z/PET-7018Z/PET-7018Z-48V)
  - AI: 10 Channels with 240 Vrms Overvoltage Protection  
(For ET-7019Z/PET-7019Z/PET-7019Z-48V)
  - DO: 6 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/PET-7018Z-48V/ET-7019Z/PET-7019Z/PET-7019Z-48V 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 digital output channels can be set as alarm outputs with short-circuit protection and overload protection.

### System Specifications

| Models                       | ET-7018Z   | ET-7019Z          | PET-7018Z        | PET-7019Z         | PET-7018Z-48V             | PET-7019Z-48V     |
|------------------------------|--|-------------------|------------------|-------------------|---------------------------|-------------------|
| <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                           |                   |                  |                   |                           |                   |
| ★ PoE                        | -  |                   |                  | 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>        |  |                   |                  |                   |                           |                   |
| 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 Vdc   |                   |                  |                   | -                         |                   |
| I/O                          | 2500 Vdc   |                   |                  |                   | 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  |                   |                  |                   |                           |                   |
| Surge (IEC 61000-4-5)        | -  | +/-3 kV for Power | -                | +/-3 kV for Power | -                         | +/-3 kV for Power |
| <b>Power</b>                 |  |                   |                  |                   |                           |                   |
| Reverse Polarity Protection  | Yes  |                   |                  |                   |                           |                   |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc   |                   | Yes, 12 ~ 48 Vdc |                   | -                         |                   |
| Powered from PoE             | -  |                   |                  |                   | Yes, IEEE 802.3af, Class1 |                   |
| Power Output                 | -  |                   | -                |                   | 48 Vdc, 10 W              |                   |
| Consumption                  | 2.0 W  | 2.5 W             | 3.0 W            | 3.5 W             | 3.0 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 ~ +75°C  |                   |                  |                   |                           |                   |
| Storage Temperature          | -30 ~ +80°C  |                   |                  |                   |                           |                   |
| Humidity                     | 10 ~ 90% RH, Non-condensing                                  |                   |                  |                   |                           |                   |

I/O Specifications

| Models                                 | ET-7018Z<br>PET-7018Z<br>PET-7018Z-48V  | ET-7019Z<br>PET-7019Z<br>PET-7019Z-48V   |
|--|---|--|
| <b>Thermocouple Input</b>              |   |  |
| Channels                               | 10 (Differential)   |  |
| Sensor Type                            | +/-15 mV, +/-50 mV, +/-100 mV, +/-500 mV, +/-1 V, +/-2.5 V<br>+/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA<br>(Requires Optional External 125 Ω Resistor) | +/-15 mV, +/-50 mV, +/-100 mV, +/-150 mV, +/-500 mV,<br>+/-1 V, +/-2.5 V, +/-5 V, +/-10 V,<br>+/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA (Jumper Selectable) |
| Individual Channel Configuration       | Thermocouple (J, K, T, E, R, S, B, N, C, L, M, and L <sub>DIN43710</sub> )  |  |
| Resolution                             | Yes   |  |
| Sampling Rate                          | 16-bit  |  |
| Accuracy                               | 10 Samples/Second (Total)   |  |
| Zero Drift                             | +/-0.1% of FSR or better  |  |
| Span Drift                             | +/-0.5 μV/°C  |  |
| Over Voltage Protection                | +/-25 ppm/°C  |  |
| Input Impedance                        | 240 V <sub>rms</sub>  |  |
| Common Mode Rejection                  | 150 dB Min.   | 86 dB Min.   |
| Normal Mode Rejection                  | 100 dB  |  |
| Temperature Output Consistency         | Yes   |  |
| Stable Temperature Output in the Field | Yes   |  |
| Open Wire Detection                    | Yes   |  |
| <b>Digital Output</b>                  |   |  |
| Channels                               | 6   |  |
| Type                                   | Isolated Open Collector   |  |
| Sink/Source (NPN/PNP)                  | 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   |  |

3  
3  
Ethernet I/O Products

Wire Connections

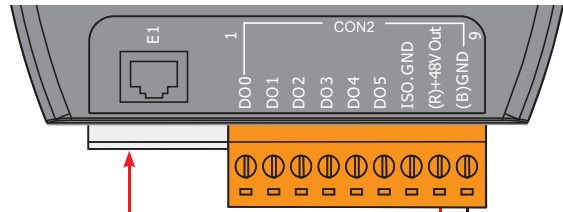
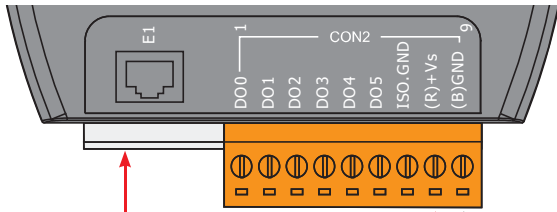
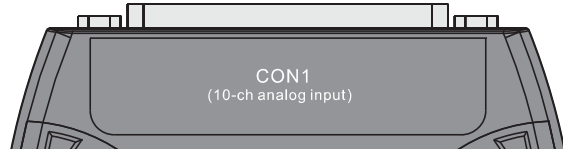
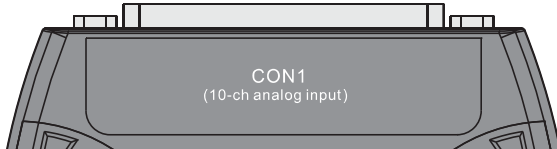
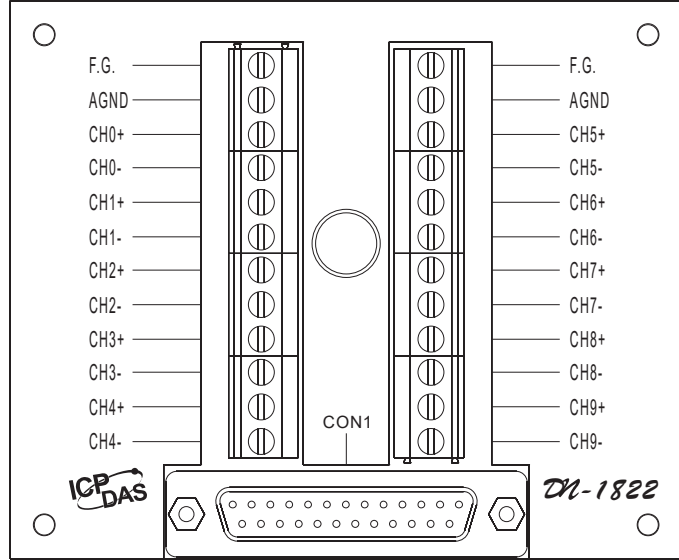
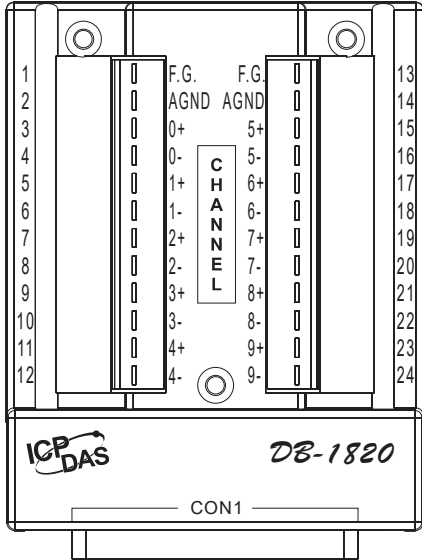
| ET-7018Z/PET-7018Z/PET-7018Z-48V   | ET-7019Z/PET-7019Z/PET-7019Z-48V           |
|--|--|
| <p><b>Voltage Input (Default)</b></p>  | <p><b>Voltage Input (Default)</b></p>      |
| <p><b>Thermocouple Input (Default)</b></p>   | <p><b>Thermocouple Input (Default)</b></p> |
| <p><b>Current Input</b></p> <p>Note: When connecting to a current source, an optional external 125 Ω resistor is required.</p> | <p><b>Current Input</b></p>                |

| ET-7018Z/PET-7018Z/PET-7018Z-48V/ET-7019Z/PET-7019Z/PET-7019Z-48V | ON State<br>Readback as 1 | OFF State<br>Readback as 0 |
|---|---------------------------|----------------------------|
| Open Collector (Sink)   |                           |                            |

■ Pin Assignments

3  
3

Ethernet I/O Products



PET-7018Z: PoE  
PET-7019Z: PoE

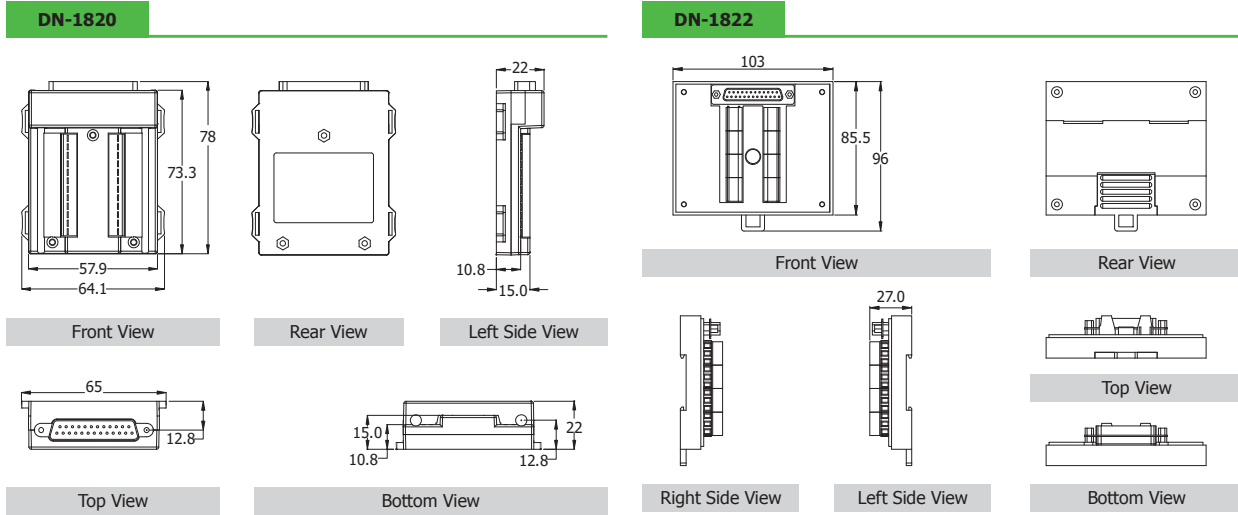
ET-7018Z: +10 ~ +30 Vdc  
PET-7018Z: +12 ~ +48 Vdc Input  
ET-7019Z: +10 ~ +30 Vdc  
PET-7019Z: +12 ~ +48 Vdc Input

PET-7018Z-48V: PoE  
PET-7019Z-48V: PoE

PET-7018Z-48V: +48 Vdc Output  
PET-7019Z-48V: +48 Vdc Output



■ Dimensions (Units: mm)



■ Ordering Information

|                            |   |
|----------------------------|---|
| <b>ET-7018Z/S CR</b>       | 10-channel Thermocouple Input Module with DB-1820 Daughter Board (RoHS)   |
| <b>PET-7018Z/S CR</b>      | 10-channel Thermocouple Input Module with DB-1820 Daughter Board with PoE (RoHS)  |
| <b>PET-7018Z-48V/S CR</b>  | 10-channel Thermocouple Input Module with DB-1820 Daughter Board with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture)                   |
| <b>ET-7018Z/S2 CR</b>      | 10-channel Thermocouple Input Module with DN-1822 Daughter Board and a 1.8 m Cable (RoHS)   |
| <b>PET-7018Z/S2 CR</b>     | 10-channel Thermocouple Input Module with DN-1822 Daughter Board and a 1.8 m Cable with PoE (RoHS)  |
| <b>PET-7018Z-48V/S2 CR</b> | 10-channel Thermocouple Input Module with DN-1822 Daughter Board and a 1.8 m Cable with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |
| <b>ET-7019Z/S CR</b>       | 10-channel Thermocouple Input Module with DB-1820 Daughter Board (RoHS)   |
| <b>PET-7019Z/S CR</b>      | 10-channel Thermocouple Input Module with DB-1820 Daughter Board with PoE (RoHS)  |
| <b>PET-7019Z-48V/S CR</b>  | 10-channel Thermocouple Input Module with DB-1820 Daughter Board with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture)                   |
| <b>ET-7019Z/S2 CR</b>      | 10-channel Thermocouple Input Module with DN-1822 Daughter Board and a 1.8 m Cable (RoHS)   |
| <b>PET-7019Z/S2 CR</b>     | 10-channel Thermocouple Input Module with DN-1822 Daughter Board and a 1.8 m Cable with PoE (RoHS)  |
| <b>PET-7019Z-48V/S2 CR</b> | 10-channel Thermocouple Input Module with DN-1822 Daughter Board and a 1.8 m Cable with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

|  |  |
|--|--|
| <br><b>ET-7018Z/S</b> = DB-1820 Connects to the ET-7018Z Directly<br><b>PET-7018Z/S</b> = DB-1820 Connects to the PET-7018Z Directly<br><b>PET-7018Z-48V/S</b> = DB-1820 Connects to the PET-7018Z-48V Directly<br><b>ET-7019Z/S</b> = DB-1820 Connects to the ET-7019Z Directly<br><b>PET-7019Z/S</b> = DB-1820 Connects to the PET-7019Z Directly<br><b>PET-7019Z-48V/S</b> = DB-1820 Connects to the PET-7019Z Directly | <br><b>ET-7018Z/S2</b> = DN-1822 Connects to the ET-7018Z Directly<br><b>PET-7018Z/S2</b> = DN-1822 Connects to the PET-7018Z Directly<br><b>PET-7018Z-48V/S2</b> = DN-1822 Connects to the PET-7018Z-48V Directly<br><b>ET-7019Z/S2</b> = DN-1822 Connects to the ET-7019Z Directly<br><b>PET-7019Z/S2</b> = DN-1822 Connects to the PET-7019Z Directly<br><b>PET-7019Z-48V/S2</b> = DN-1822 Connects to the PET-7019Z Directly |
|--|--|

■ Accessories

|                        |   |  |   |
|------------------------|---|--|---|
| <br><b>4PAPP-006-G</b> | <br><b>CD-25015</b><br>15 cm Cable +DB-1820 | <br><b>PET-7018Z/S + CD-2518D</b><br><b>PET-7018Z-48V/S + CD-2518D</b><br><b>PET-7019Z/S + CD-2518D</b><br><b>PET-7019Z-48V/S + CD-2518D</b> | <br><b>CD-2518D</b><br>1.8 m Cable +DB-1820 |
|------------------------|---|--|---|




**ET-7019**
**PET-7019  
PET-7019-48V**

8-channel Analog Input and 4-channel DO Module

**Features**

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - AI: 8 Channels with 240 Vrms Overvoltage Protection
  - DO: 4 Channels


**Introduction**

The ET-7019/PET-7019/PET-7019-48V features an extremely excellent protection mechanism where overvoltage protection is up to 240 Vrms. It has wider input range for voltage compared to ET-7017. ET-7019/PET-7019 measures voltage from +/-15 mV ~ +/-10 V. Its input type also includes current and thermocouple. An intuitive design is built in this model, measuring current or voltage simply by a jumper. An external resistor is no longer needed. Eight of its inputs channels can individually be configured with different kinds of analog input. Moreover, the ET-7019/PET-7019/PET-7019-48V also got open thermocouple detection and many protection mechanisms. The 4 digital output can be set as alarm output with Short-circuit protection and overload protection.

**System Specifications**

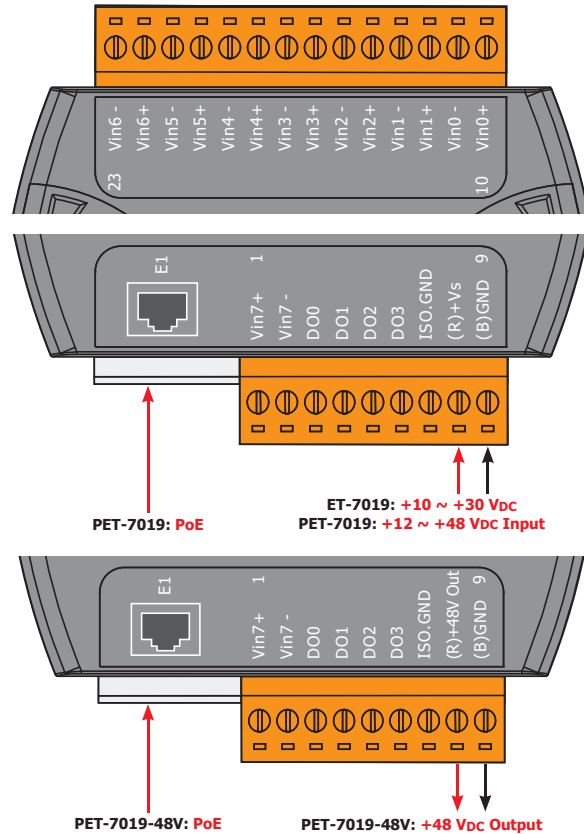
| Models                       | ET-7019  | PET-7019         | PET-7019-48V              |
|------------------------------|--|------------------|---------------------------|
| <b>Software</b>              |  |                  |                           |
| ★ Built-in Web Server        |  | Yes              |                           |
| ★ Web HMI                    |  | Yes              |                           |
| ★ I/O Pair Connection        |  | Yes              |                           |
| <b>Communication</b>         |  |                  |                           |
| Ethernet Port                | 10/100 Base-TX with Auto MDI/MDI-X                           |                  |                           |
| ★ PoE                        | -  |                  | 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>        |  |                  |                           |
| 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 Vdc   |                  | -                         |
| I/O                          | 2500 Vdc   |                  | 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  |                  |                           |
| <b>Power</b>                 |  |                  |                           |
| Reverse Polarity Protection  |  | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc   | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -  |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -  | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.4 W  |                  | 3.4 W                     |
| <b>Mechanical</b>            |  |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                       |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                                    |                  |                           |
| <b>Environment</b>           |  |                  |                           |
| Operating Temperature        | -25 ~ +75°C  |                  |                           |
| Storage Temperature          | -30 ~ +80°C  |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                                  |                  |                           |

### I/O Specifications

| Analog Input                     |  |
|----------------------------------|--|
| Channels                         | 8 (Differential)   |
| Sensor Type                      | +/-15 mV, +/-50 mV, +/-100 mV, +/-150 mV, +/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-20 mA, 0~20 mA, 4~20 mA |
| Individual Channel Configuration | Thermocouple (J, K, T, E, R, S, B, N, C, L, M, , and L <sub>DIN43710</sub> )                             |
| Resolution                       | 16-bit   |
| Sampling Rate                    | 10 samples/Second total  |
| Accuracy                         | +/-0.1 % or better   |
| Zero Drift                       | +/-10 $\mu$ V/ $^{\circ}$ C  |
| Span Drift                       | +/-25 ppm/ $^{\circ}$ C  |
| Overvoltage Protection           | 240 Vrms   |
| Input Impedance                  | Voltage >1 M $\Omega$<br>Current 125 $\Omega$  |
| Common Mode Rejection            | 86 dB Min.   |
| Normal Mode Rejection            | 100 dB   |
| Open Wire Detection              | Yes  |
| Digital Output                   |  |
| Channels                         | 4  |
| Type                             | Isolated Open Collector  |
| Sink/Source (NPN/PNP)            | Sink   |
| Max. Load Current                | 700 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  |

Note: We recommend to choose ET-7018Z for accurate thermocouple measurement.

### Pin Assignments



3  
3  
Ethernet I/O Products

### Wire Connections

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

### Ordering Information

|                        |   |
|------------------------|---|
| <b>ET-7019 CR</b>      | 8-channel Analog Input and 4-channel DO Module (RoHS)   |
| <b>PET-7019 CR</b>     | 8-channel Analog Input and 4-channel DO Module with PoE (RoHS)  |
| <b>PET-7019-48V CR</b> | 8-channel Analog Input and 4-channel DO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |


**ET-7026**
**PET-7026  
PET-7026-48V**

Multi-function Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - AI: 6 Channels with 240 Vrms Overvoltage Protection
  - AO: 2 Channels
  - DI/Counter: 2 Channels
  - DO: 2 Channels



### Introduction

The ET-7026/PET-7026/PET-7026-48V is a multi-function module with 6-channel analog inputs, 2-channel analog outputs, 2-channel digital inputs and 2-channel digital outputs. It provides various programmable analog inputs (+/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-20 mA, 0 ~ 20 mA and 4 ~ 20 mA), and analog outputs (+/-5 V, +/-10 V, 0 ~ 20 mA and 4 ~ 20 mA). Each analog input is allowed to configure a proper range with 240 Vrms high voltage protection. Each analog input/output can be programmed to accept current or voltage as input/output depending upon the position of corresponding jumper.

### System Specifications

| Models                       | ET-7026  | PET-7026         | PET-7026-48V              |
|------------------------------|--|------------------|---------------------------|
| <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                           |                  |                           |
| ★ PoE                        | -  |                  | 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>        |  |                  |                           |
| 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 Vdc   |                  | -                         |
| I/O                          | 2500 Vdc   |                  | 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  |                  |                           |
| <b>Power</b>                 |  |                  |                           |
| Reverse Polarity Protection  |  | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc   | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -  |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -  | -                | 48 Vdc, 10 W              |
| Consumption                  | 3.1 W  |                  | 4.2 W                     |
| <b>Mechanical</b>            |  |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                       |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                                    |                  |                           |
| <b>Environment</b>           |  |                  |                           |
| Operating Temperature        | -25 ~ +75°C  |                  |                           |
| Storage Temperature          | -30 ~ +80°C  |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                                  |                  |                           |

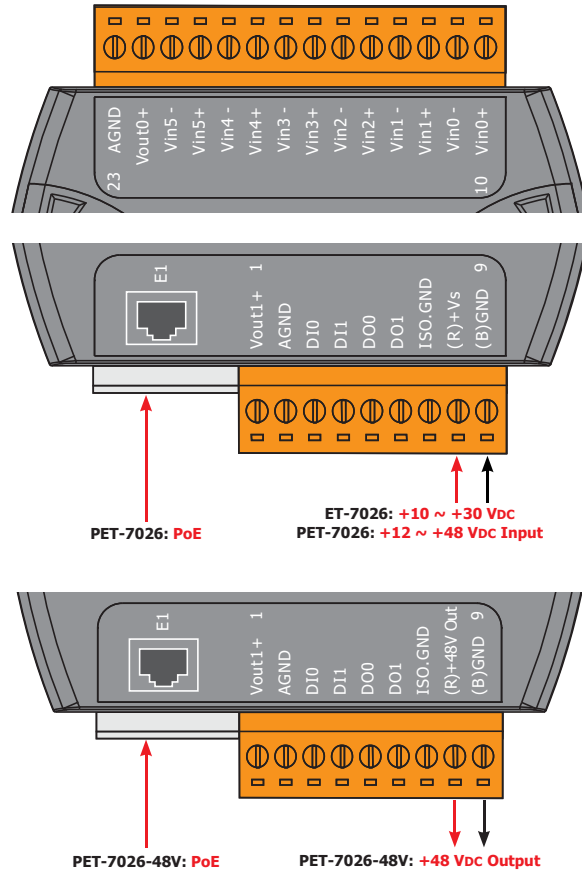
### I/O Specifications

| Analog Input                     |   |                           |
|----------------------------------|---|---------------------------|
| Channels                         | 6 (Differential)  |                           |
| Type                             | +/-500 mV, +/-1V, +/-5 V, +/-10 V<br>+0 mA ~ +20 mA, +/-20 mA, 4 ~ 20 mA<br>(Jumper Selectable)                 |                           |
| Individual Channel Configuration | Yes   |                           |
| Resolution                       | Normal Mode   | 16-bit                    |
|                                  | Fast Mode   | 12-bit                    |
| Sampling Rate                    | Normal Mode   | 10 Samples/Second (Total) |
|                                  | Fast Mode   | 60 Samples/Second (Total) |
| Accuracy                         | Normal Mode   | +/-0.1%                   |
|                                  | Fast Mode   | +/-0.5% or better         |
| Zero Drift                       | +/-20 $\mu$ V/ $^{\circ}$ C   |                           |
| Span Drift                       | +/-25 ppm/ $^{\circ}$ C   |                           |
| Overvoltage Protection           | 240 Vrms  |                           |
| Input Impedance                  | Voltage   | 2 M $\Omega$              |
|                                  | Current   | 125 $\Omega$              |
| Common Mode Rejection            | 86 dB Min.  |                           |
| Normal Mode Rejection            | 100 dB  |                           |
| Analog Output                    |   |                           |
| Channels                         | 2   |                           |
| Type                             | +0 Vdc ~ +5 Vdc, +/-5 Vdc, +0 Vdc ~ +10 Vdc,<br>+/-10 Vdc,+0 mA ~ +20 mA, +4 mA ~ +20 mA<br>(Jumper Selectable) |                           |
| Individual Channel Configuration | Yes   |                           |
| Resolution                       | 12-bit  |                           |
| Accuracy                         | +/-0.1% of FSR  |                           |
| Voltage Output Capability        | 20 mA @ 10 V  |                           |
| Current Load Resistance          | 500 $\Omega$  |                           |
| Open Wire Detection              | Yes, for 4 ~ 20 mA only   |                           |
| Power-on Value                   | Yes, Programmable   |                           |
| Safe Value                       | Yes, Programmable   |                           |
| Digital Input/Counter            |   |                           |
| Channels                         | 2   |                           |
| Dry Contact (Source)             | On Voltage Level  | Close to GND              |
|                                  | Off Voltage Level   | Open                      |
|                                  | Effective Distance for Dry Contact  | 500 M Max.                |
| Wet contact (Sink/Source)        | On Voltage Level  | +1 Vdc Max.               |
|                                  | Off Voltage Level   | +3.5 Vdc ~ +30 Vdc        |
| Counters                         | Channels  | 2                         |
|                                  | Max. Count  | 4,294,967,285 (32-bit)    |
|                                  | Max. Input Frequency  | 100 Hz                    |
|                                  | Min. Pulse Width  | 5 ms                      |
| Overvoltage Protection           | 30 Vdc  |                           |
| Digital Output                   |   |                           |
| Channels                         | 2   |                           |
| Type                             | Isolated Open Collector   |                           |
| Sink/Source (NPN/PNP)            | Sink  |                           |
| Max. Load Current                | 700 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   |                           |

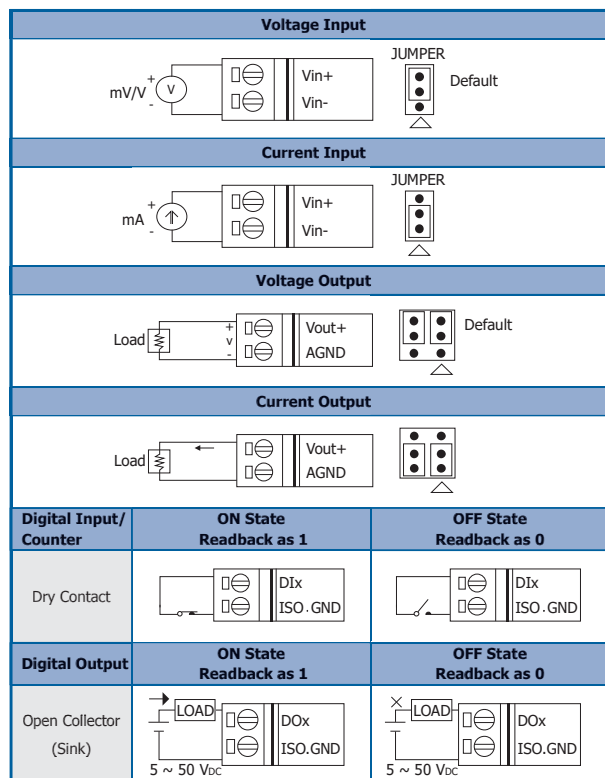
### Ordering Information

|                        |   |
|------------------------|---|
| <b>ET-7026 CR</b>      | Multi-function Module (RoHS)  |
| <b>PET-7026 CR</b>     | Multi-function PoE Module (RoHS)  |
| <b>PET-7026-48V CR</b> | Multi-function PoE Module and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Pin Assignments



### Wire Connections




**ET-7042**
**PET-7042**
**PET-7042-48V**

16-channel Isolated Digital Output Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DO: 16 Channels



### Introduction

The ET-7042/PET-7042/PET-7042-48V provides 16 sink-type digital output channels. It features optical isolation for 3750 V<sub>rms</sub> of transient overvoltage protection and doesn't have channel-to-channel isolation. The power-on value and safe value of digital output channel are programmable. In some industrial applications, the user can connect the output channel of ET-7042/PET-7042/PET-7042-48V to the RM series relay module to switch inductive loads.

### System Specifications

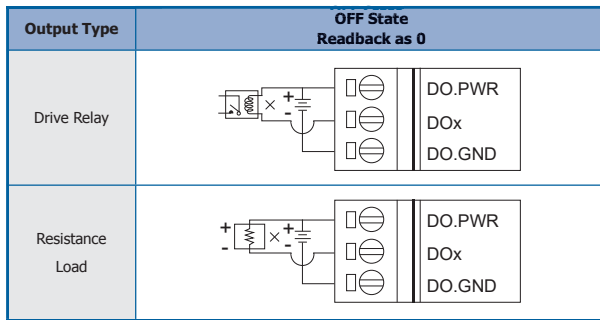
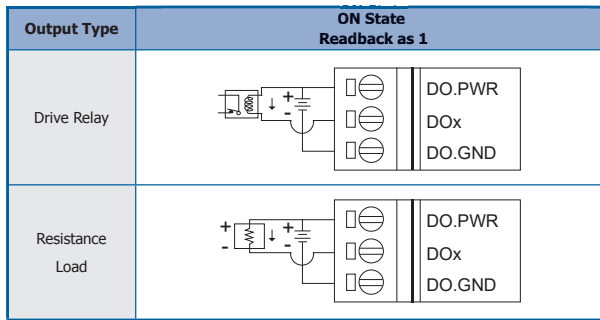
| Models                       | ET-7042   | PET-7042         | PET-7042-48V              |
|------------------------------|---|------------------|---------------------------|
| <b>Software</b>              |   |                  |                           |
| ★ Built-in Web Server        |   | Yes              |                           |
| ★ Web HMI                    |   | Yes              |                           |
| ★ I/O Pair Connection        |   | Yes              |                           |
| <b>Communication</b>         |   |                  |                           |
| ★ Ethernet Port              | 10/100 Base-TX with Auto MDI/MDI-X                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3750 Vrms   |                  | 3750 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.7 W   |                  | 3.0 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |



### I/O Specifications

| Models                   | ET-7042   | PET-7042 | PET-7042-48V |
|--------------------------|---|----------|--------------|
| <b>Digital Output</b>    |   |          |              |
| Channels                 | 16  |          |              |
| Type                     | Isolated Open Collector                                   |          |              |
| Sink/Source (NPN/PNP)    | Sink  |          |              |
| Max. Load Current        | 100 mA/channel at 25°C<br>Direct Drive Power Relay Module |          |              |
| Load Voltage             | +5 Vdc ~ +30 Vdc  |          |              |
| Overvoltage Protection   | -   | 60 Vdc   |              |
| Overload Protection      | -   | 1.3 A    |              |
| Short-circuit Protection | -   | Yes      |              |
| Power-on Value           | Yes, Programmable   |          |              |
| Safe Value               | Yes, Programmable   |          |              |

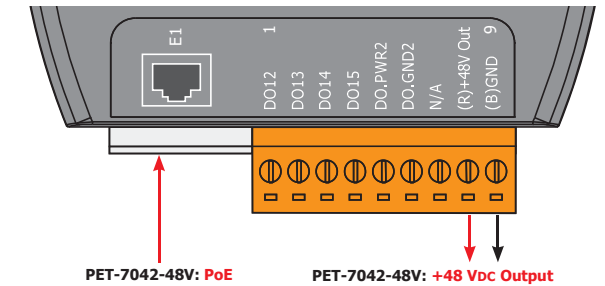
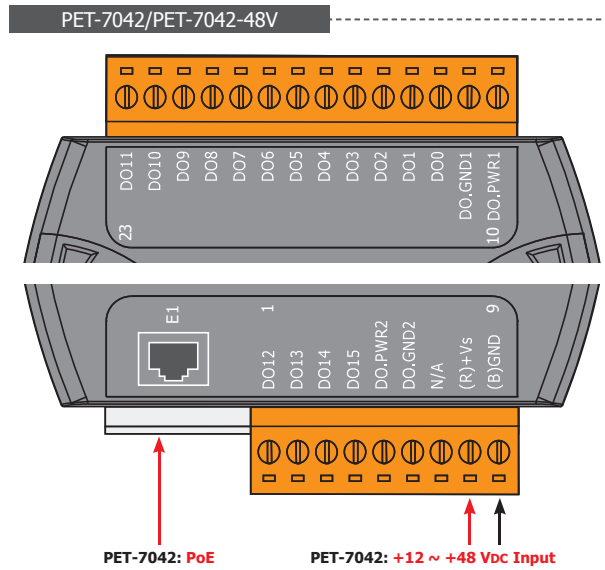
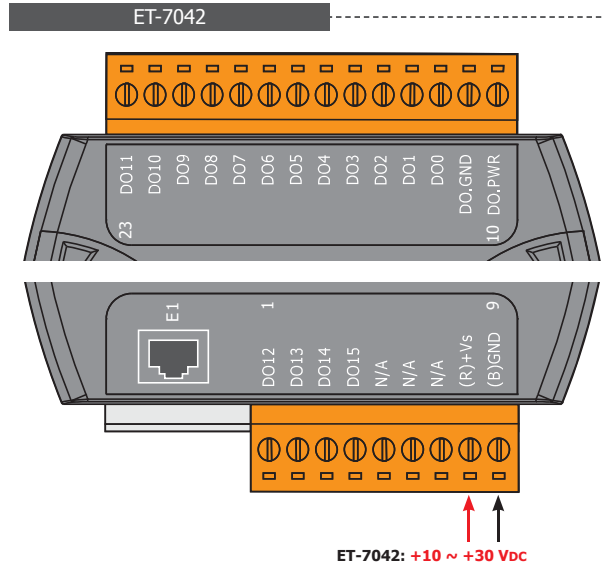
### Wire Connections



### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |

### Pin Assignments



### Ordering Information

|                        |  |
|------------------------|--|
| <b>ET-7042 CR</b>      | 16-channel Isolated Digital Output Module (RoHS)   |
| <b>PET-7042 CR</b>     | 16-channel Isolated Digital Output Module with PoE (RoHS)  |
| <b>PET-7042-48V CR</b> | 16-channel Isolated Digital Output Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

3  
3

Ethernet I/O Products



### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DI/Counter: 8 Channels
  - DO: 8 Channels



### Introduction

The ET-7044/PET-7044/PET-7044-48V provides 8 wet contact digital input channels and 8 sink-type digital output channels. It features optical isolation for 3750 V<sub>rms</sub> of transient overvoltage protection but doesn't provide channel-to-channel isolation. Each input channel can be used as a 32-bit counter and each output channel can drive 300 mA load. The power-on value and safe value of digital output channel are programmable. It can safely be used in applications where hazardous voltages are present.

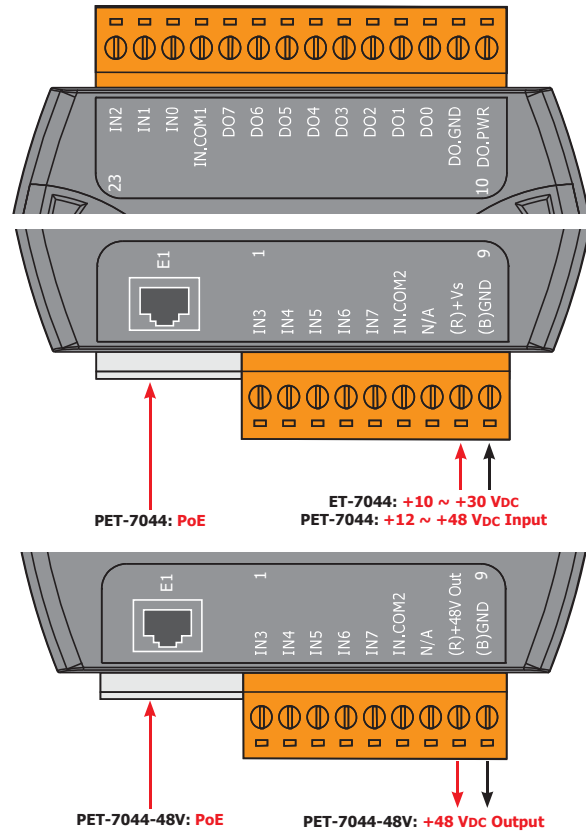
### System Specifications

| Models                       | ET-7044   | PET-7044         | PET-7044-48V              |
|------------------------------|---|------------------|---------------------------|
| <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                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3750 Vrms   |                  | 3750 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.4 W   |                  | 3.0 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |

### I/O Specifications

| Digital Input/Counter    |   |                         |
|--------------------------|---|-------------------------|
| Channels                 | 8   |                         |
| Contact                  | Wet Contact   |                         |
| Sink/Source (NPN/PNP)    | Sink/Source   |                         |
| On Voltage Level         | +10 Vdc ~ +50 Vdc   |                         |
| Off Voltage Level        | +4 Vdc Max.   |                         |
| Input Impedance          | 10 kΩ   |                         |
| Counters                 | Max. Count  | 4,294,967,285 (32 bits) |
|                          | Max. Input Frequency                                      | 500 Hz                  |
|                          | Min. Pulse Width  | 1 ms                    |
| Overvoltage Protection   | +70 Vdc   |                         |
| Digital Output           |   |                         |
| Channels                 | 8   |                         |
| Type                     | Isolated Open Collector                                   |                         |
| Sink/Source (NPN/PNP)    | Sink  |                         |
| Max. Load Current        | 300 mA/channel at 25°C<br>Direct Drive Power Relay Module |                         |
| Load Voltage             | +10 Vdc ~ +40 Vdc   |                         |
| Overvoltage Protection   | 60 Vdc  |                         |
| Overload Protection      | 1.1 A   |                         |
| Short-circuit Protection | Yes   |                         |
| Power-on Value           | Yes, Programmable   |                         |
| Safe Value               | Yes, Programmable   |                         |

### Pin Assignments



3  
3

Ethernet I/O Products

### Wire Connections

| Digital Input/Counter | Readback as 1     | Readback as 0             |
|-----------------------|-------------------|---------------------------|
| Sink                  | +10 ~ +50 Vdc<br> | OPEN or <4 Vdc<br>        |
|                       | Source            | +10 ~ +50 Vdc<br>         |
| Output Type           |                   | ON State<br>Readback as 1 |
| Drive Relay           |                   |                           |
| Resistance Load       |                   |                           |

### Ordering Information

|                        |   |
|------------------------|---|
| <b>ET-7044 CR</b>      | 8-channel DI and 8-channel DO Module (RoHS)   |
| <b>PET-7044 CR</b>     | 8-channel DI and 8-channel DO Module with PoE (RoHS)  |
| <b>PET-7044-48V CR</b> | 8-channel DI and 8-channel DO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |


**ET-7050**
**PET-7050  
PET-7050-48V**

12-channel DI and 6-channel DO Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DI/Counter: 12 Channels
  - DO: 6 Channels



### Introduction

The ET-7050/PET-7050/PET-7050-48V provides 12 wet contact digital input channels and 6 sink-type digital output channels. It features optical isolation for 3750 Vrms of transient overvoltage protection but doesn't provide channel-to-channel isolation. Each input channel can be used as a 32-bit counter and each output channel can drive 100 mA load. The power-on value and safe value of digital output channel are programmable. In some industrial applications, the user can connect the output channel of ET-7050/PET-7050/PET-7050-48V to the RM series relay module to switch inductive loads.

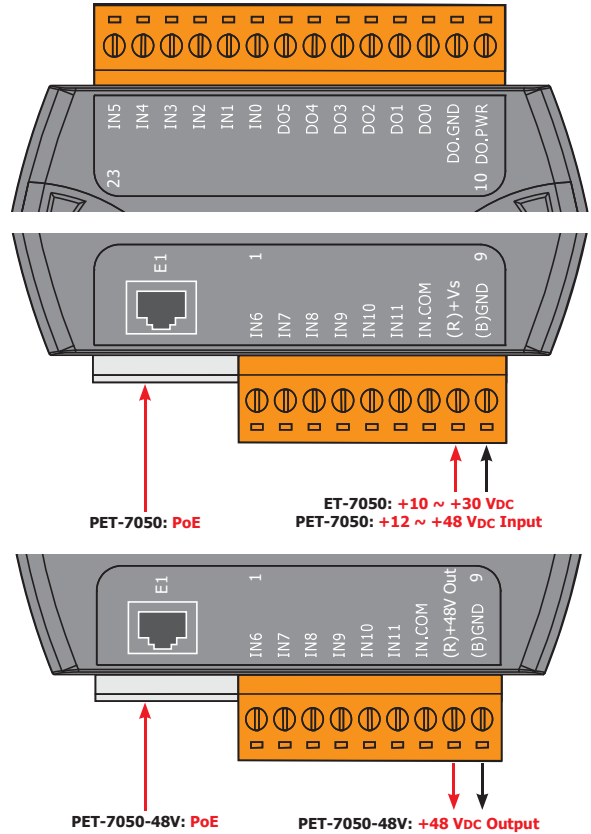
### System Specifications

| Models                       | ET-7050   | PET-7050         | PET-7050-48V              |
|------------------------------|---|------------------|---------------------------|
| <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                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3750 Vrms   |                  | 3750 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.4 W   |                  | 3.0 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |

### I/O Specifications

| Models                       | ET-7050   | PET-7050                | PET-7050-48V |
|------------------------------|---|-------------------------|--------------|
| <b>Digital Input/Counter</b> |   |                         |              |
| Channels                     | 12  |                         |              |
| Contact                      | Wet Contact   |                         |              |
| Sink/Source (NPN/PNP)        | Sink/Source   |                         |              |
| On Voltage Level             | +10 Vdc ~ +50 Vdc   |                         |              |
| Off Voltage Level            | +4 Vdc Max.   |                         |              |
| Input Impedance              | 10 kΩ   |                         |              |
| Counters                     | Max. Count  | 4,294,967,285 (32 bits) |              |
|                              | Max. Input Frequency                                      | 500 Hz                  |              |
|                              | Min. Pulse Width  | 1 ms                    |              |
| Overvoltage Protection       | +70 Vdc   |                         |              |
| <b>Digital Output</b>        |   |                         |              |
| Channels                     | 6   |                         |              |
| Type                         | Isolated Open Collector                                   |                         |              |
| Sink/Source (NPN/PNP)        | Sink  |                         |              |
| Max. Load Current            | 100 mA/channel at 25°C<br>Direct Drive Power Relay Module |                         |              |
| Load Voltage                 | +5 Vdc ~ +30 Vdc  |                         |              |
| Overvoltage Protection       | -   | 60 Vdc                  |              |
| Overload Protection          | -   | 1.3 A                   |              |
| Short-circuit Protection     | -   | Yes                     |              |
| Power-on Value               | Yes, Programmable   |                         |              |
| Safe Value                   | Yes, Programmable   |                         |              |

### Pin Assignments



3  
3  
Ethernet I/O Products

### Wire Connections

| Digital Input/Counter | Readback as 1<br>+10 ~ +50 Vdc | Readback as 0<br>OPEN or <4 Vdc |
|-----------------------|--------------------------------|---------------------------------|
| Sink                  |                                |                                 |
| Source                |                                |                                 |
| Output Type           | ON State<br>Readback as 1      | OFF State<br>Readback as 0      |
| Drive Relay           |                                |                                 |
| Resistance Load       |                                |                                 |

### Ordering Information

|                        |  |
|------------------------|--|
| <b>ET-7050 CR</b>      | 12-channel DI and 6-channel DO Module (RoHS)   |
| <b>PET-7050 CR</b>     | 12-channel DI and 6-channel DO Module with PoE (RoHS)  |
| <b>PET-7050-48V CR</b> | 12-channel DI and 6-channel DO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |




**ET-7051**
**PET-7051  
PET-7051-48V**

16-channel Isolated Digital Input Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DI/Counter: 16 Channels



### Introduction

The ET-7051/PET-7051/PET-7051-48V provides 16 wet contact digital input channels. Each input channel can be used as a 32-bit counter. It features optical isolation for 3750 Vrms of transient overvoltage protection but doesn't provide channel-to-channel isolation. It can safely be used in applications where hazardous voltages are present.

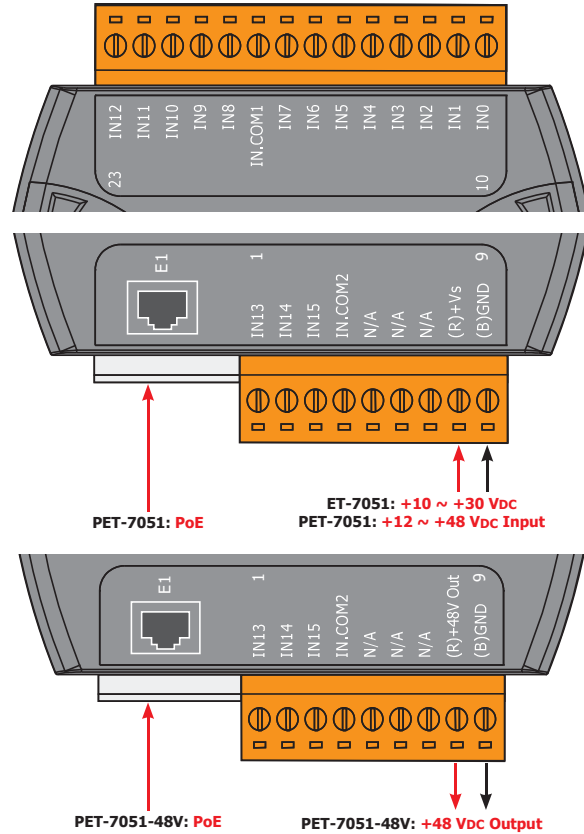
### System Specifications

| Models                       | ET-7051   | PET-7051         | PET-7051-48V              |
|------------------------------|---|------------------|---------------------------|
| <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                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3750 Vrms   |                  | 3750 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.2 W   |                  | 2.8 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |

### I/O Specifications

| Digital Input/Counter  |                      |                         |
|------------------------|----------------------|-------------------------|
| Channels               | 16                   |                         |
| Contact                | Wet Contact          |                         |
| Sink/Source (NPN/PNP)  | Sink/Source          |                         |
| On Voltage Level       | +10 Vdc ~ +50 Vdc    |                         |
| Off Voltage Level      | +4 Vdc Max.          |                         |
| Input Impedance        | 10 kΩ                |                         |
| Counters               | Max. Count           | 4,294,967,285 (32 bits) |
|                        | Max. Input Frequency | 500 Hz                  |
|                        | Min. Pulse Width     | 1 ms                    |
| Overvoltage Protection | +70 Vdc              |                         |

### Pin Assignments



3  
3

Ethernet I/O Products

### Wire Connections

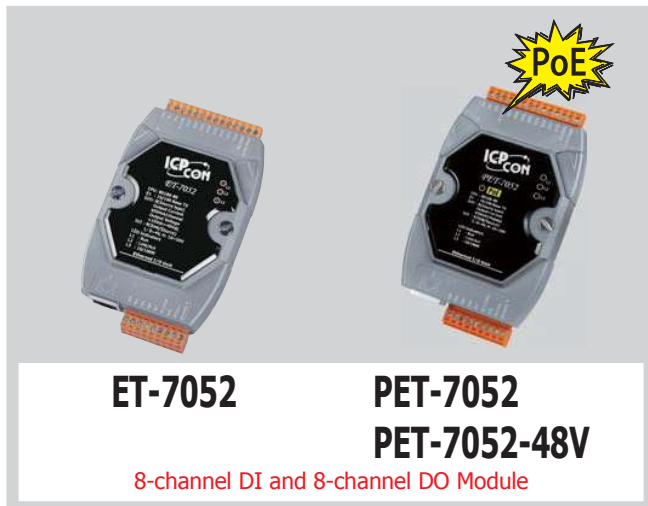
| Digital Input/Counter | Readback as 1<br>+10 ~ +50 Vdc | Readback as 0<br>OPEN or <4 Vdc |
|-----------------------|--------------------------------|---------------------------------|
| Sink                  |                                |                                 |
| Source                |                                |                                 |

### Ordering Information

|                        |   |
|------------------------|---|
| <b>ET-7051 CR</b>      | 16-channel Isolated Digital Input Module (RoHS)   |
| <b>PET-7051 CR</b>     | 16-channel Isolated Digital Input Module with PoE (RoHS)  |
| <b>PET-7051-48V CR</b> | 16-channel Isolated Digital Input Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |


**ET-7052**
**PET-7052  
PET-7052-48V**

8-channel DI and 8-channel DO Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DI/Counter: 8 Channels
  - DO: 8 Channels



### Introduction

The ET-7052/PET-7052/PET-7052-48V provides 8 wet contact digital input channels and 8 source-type digital output channels. It features optical isolation for 3750 Vrms of transient overvoltage protection but doesn't provide channel-to-channel isolation. Each input channel can be used as a 32-bit counter and each output channel can drive 650 mA load. The power-on value and safe value of digital output channel are programmable. It can safely be used in applications where hazardous voltages are present.

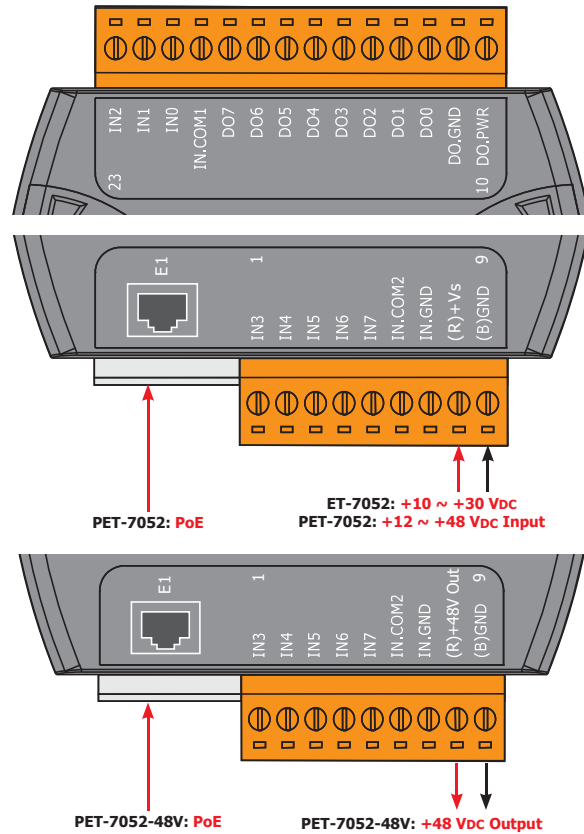
### System Specifications

| Models                       | ET-7052   | PET-7052         | PET-7052-48V              |
|------------------------------|---|------------------|---------------------------|
| <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                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3750 Vrms   |                  | 3750 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.4 W   |                  | 3.0 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |

### I/O Specifications

| Digital Input/Counter    |                         |                         |
|--------------------------|-------------------------|-------------------------|
| Channels                 | 8                       |                         |
| Contact                  | Wet Contact             |                         |
| Sink/Source (NPN/PNP)    | Sink/Source             |                         |
| On Voltage Level         | +10 Vdc ~ +50 Vdc       |                         |
| Off Voltage Level        | +4 Vdc Max.             |                         |
| Input Impedance          | 10 kΩ                   |                         |
| Counters                 | Max. Count              | 4,294,967,285 (32 bits) |
|                          | Max. Input Frequency    | 500 Hz                  |
|                          | Min. Pulse Width        | 1 ms                    |
| Overvoltage Protection   | +70 Vdc                 |                         |
| Digital Output           |                         |                         |
| Channels                 | 8                       |                         |
| Type                     | Isolated Open Collector |                         |
| Sink/Source (NPN/PNP)    | Source                  |                         |
| Max. Load Current        | 650 mA/channel at 25°C  |                         |
| Load Voltage             | +10 Vdc ~ +40 Vdc       |                         |
| Overvoltage Protection   | 47 Vdc                  |                         |
| Overload Protection      | -                       |                         |
| Short-circuit Protection | Yes                     |                         |
| Power-on Value           | Yes, Programmable       |                         |
| Safe Value               | Yes, Programmable       |                         |

### Pin Assignments



3  
3  
Ethernet I/O Products

### Wire Connections

| Digital Input/Counter | Readback as 1          | Readback as 0           |
|-----------------------|------------------------|-------------------------|
| Sink                  | +10 ~ +50 Vdc<br>      | OPEN or <4 Vdc<br>      |
|                       | Source                 | +10 ~ +50 Vdc<br>       |
| Digital Output        | ON State Readback as 1 | OFF State Readback as 0 |
| Source                |                        |                         |

### Ordering Information

|                 |   |
|-----------------|---|
| ET-7052 CR      | 8-channel DI and 8-channel DO Module (RoHS)   |
| PET-7052 CR     | 8-channel DI and 8-channel DO Module with PoE (RoHS)  |
| PET-7052-48V CR | 8-channel DI and 8-channel DO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |


**ET-7053**
**PET-7053  
 PET-7053-48V**

16-channel Isolated Digital Input Module

**Features**

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DI/Counter: 16 Channels


**Introduction**

The ET-7053/PET-7053/PET-7053-48V provides 16 dry contact digital input channels. Each input channel can be used as a 32-bit counter. It features optical isolation for 3750 Vrms of transient overvoltage protection but doesn't provide channel-to-channel isolation. It can safely be used in applications where hazardous voltages are present.

**System Specifications**

| Models                       | ET-7053   | PET-7053         | PET-7053-48V              |
|------------------------------|---|------------------|---------------------------|
| <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                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3750 Vrms   |                  | 3750 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.4 W   |                  | 3.0 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |



### I/O Specifications

| Digital Input/Counter  |                      |                         |
|------------------------|----------------------|-------------------------|
| Channels               | 16                   |                         |
| Contact                | Dry Contact          |                         |
| Sink/Source (NPN/PNP)  | Source               |                         |
| On Voltage Level       | Open                 |                         |
| Off Voltage Level      | Close to GND         |                         |
| Counters               | Max. Count           | 4,294,967,285 (32 bits) |
|                        | Max. Input Frequency | 500 Hz                  |
|                        | Min. Pulse Width     | 1 ms                    |
| Overvoltage Protection | -                    |                         |
| Effective Distance     | 500 M Max.           |                         |

### Wire Connections

| Digital Input/Counter | ON State<br>Readback as 1 |
|-----------------------|---------------------------|
| Dry Contact           |                           |
|                       |                           |

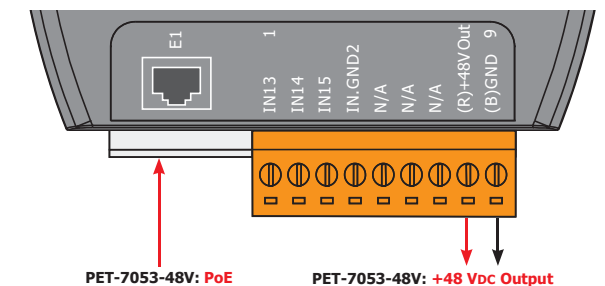
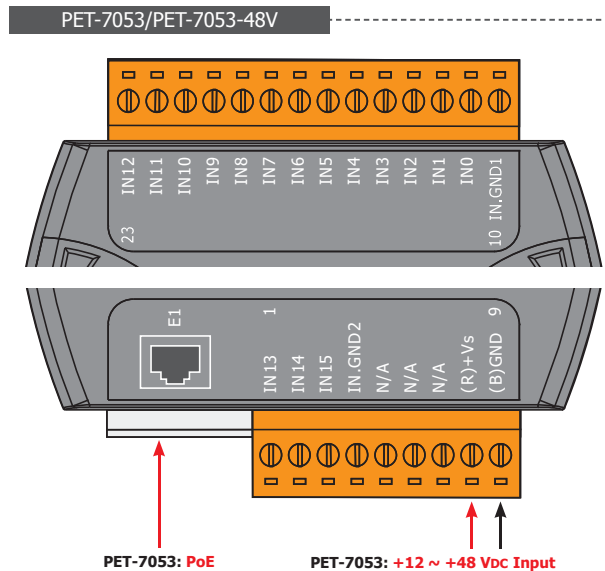
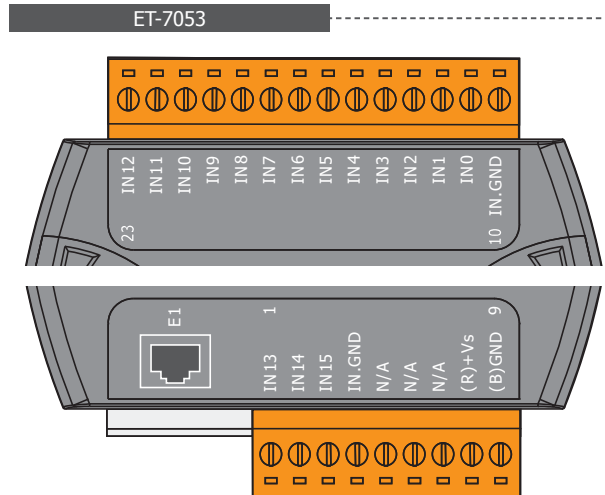
### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |

### Ordering Information

|                 |   |
|-----------------|---|
| ET-7053 CR      | 16-channel Isolated Digital Input Module (RoHS)   |
| PET-7053 CR     | 16-channel Isolated Digital Input Module with PoE (RoHS)  |
| PET-7053-48V CR | 16-channel Isolated Digital Input Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Pin Assignments



3  
3

Ethernet I/O Products

Available soon


**ET-7055**

**PET-7055  
PET-7055-48V**

8-channel DI and 8-channel DO Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DI/Counter: 8 Channels
  - DO: 8 Channels



3

3

Ethernet I/O Products

### Introduction

The ET-7055/PET-7055/PET-7055-48V provides 8 wet contact digital input channels and 8 source-type digital output channels. It features optical isolation for 3750 Vrms of transient overvoltage protection but doesn't provide channel-to-channel isolation. Each input channel can be used as a 32-bit counter and each output channel can drive 650 mA load. The power-on value and safe value of digital output channel are programmable. It can safely be used in applications where hazardous voltages are present.

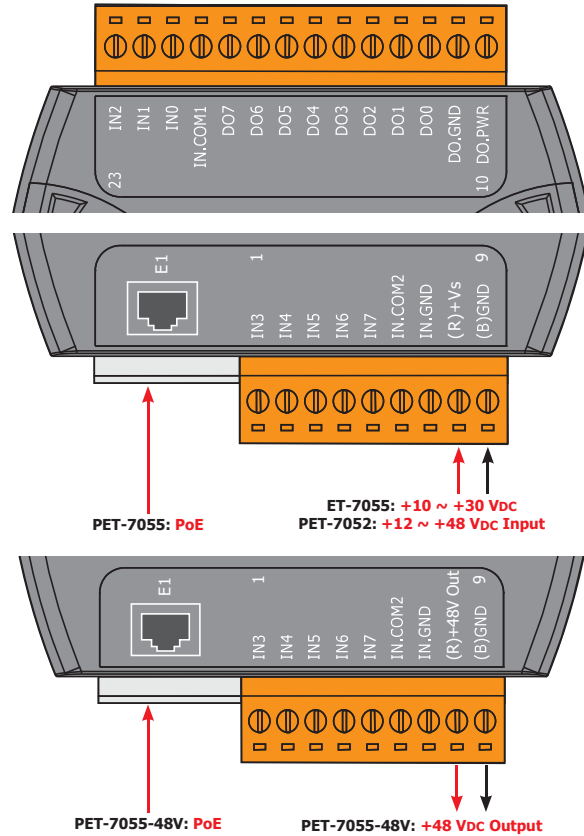
### System Specifications

| Models                       | ET-7055   | PET-7055         | PET-7055-48V              |
|------------------------------|---|------------------|---------------------------|
| <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                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3750 Vrms   |                  | 3750 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.4 W   |                  | 3.0 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |

### I/O Specifications

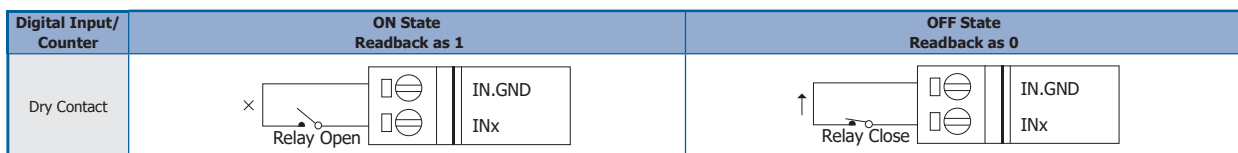
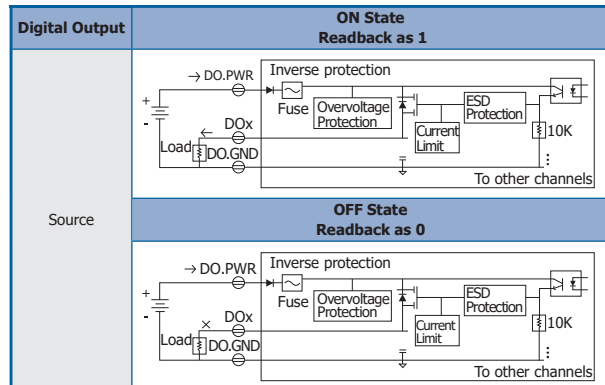
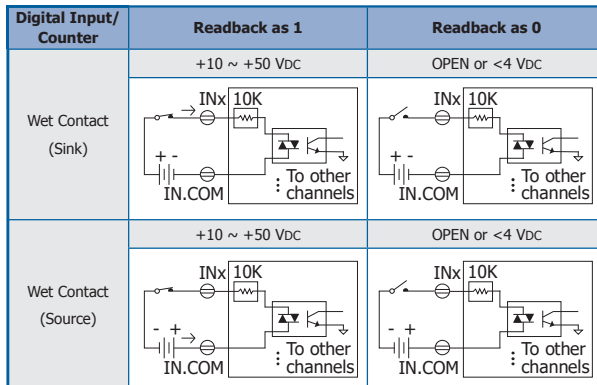
| Digital Input/Counter    |                                 |                         |
|--------------------------|---------------------------------|-------------------------|
| Channels                 | 8                               |                         |
| Contact                  | Dry +Wet                        |                         |
| Sink/Source (NPN/PNP)    | Dry: Source<br>Wet: Sink/Source |                         |
| Wet Contact              | On Voltage Level                | +10 Vdc ~ +50 Vdc       |
|                          | Off Voltage Level               | +4 Vdc Max.             |
| Dry Contact              | On Voltage Level                | Close to GND            |
|                          | Off Voltage Level               | Open                    |
| Input Impedance          | 10 kΩ                           |                         |
| Counters                 | Max. Count                      | 4,294,967,285 (32 bits) |
|                          | Max. Input Frequency            | 500 Hz                  |
|                          | Min. Pulse Width                | 1 ms                    |
| Overvoltage Protection   | +70 Vdc                         |                         |
| Digital Output           |                                 |                         |
| Channels                 | 8                               |                         |
| Type                     | Isolated Open Collector         |                         |
| Sink/Source (NPN/PNP)    | Source                          |                         |
| Max. Load Current        | 650 mA/channel at 25°C          |                         |
| Load Voltage             | +10 Vdc ~ +40 Vdc               |                         |
| Overvoltage Protection   | 47 Vdc                          |                         |
| Overload Protection      | -                               |                         |
| Short-circuit Protection | Yes                             |                         |
| Power-on Value           | Yes, Programmable               |                         |
| Safe Value               | Yes, Programmable               |                         |

### Pin Assignments



3  
3  
Ethernet I/O Products

### Wire Connections



### Ordering Information

|                 |   |
|-----------------|---|
| ET-7055 CR      | 8-channel DI and 8-channel DO Module (RoHS)   |
| PET-7055 CR     | 8-channel DI and 8-channel DO Module with PoE (RoHS)  |
| PET-7055-48V CR | 8-channel DI and 8-channel DO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |



### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DI/Counter: 6 Channels
  - Power Relay: 6 Channels

### Introduction

The ET-7060/PET-7060/PET-7060-48V provides 6 wet contact digital input channels and 6 form A electromechanical relays. It features optical isolation for 3000 Vrms of transient overvoltage protection and doesn't have channel-to-channel isolation. Each input channel can be used as a 32-bit counter. The power-on value and safe value of relay are programmable.

Note: When inductive loads are connected to the relays, a large counter electromotive force may occur when the relay actuates because of the energy stored in the load. These flyback voltages can severely damage the relay contacts and greatly shorten the relay life. Limit these flyback voltages at your inductive load by installing a flyback diode for DC loads or a metal oxide varistor for AC loads.

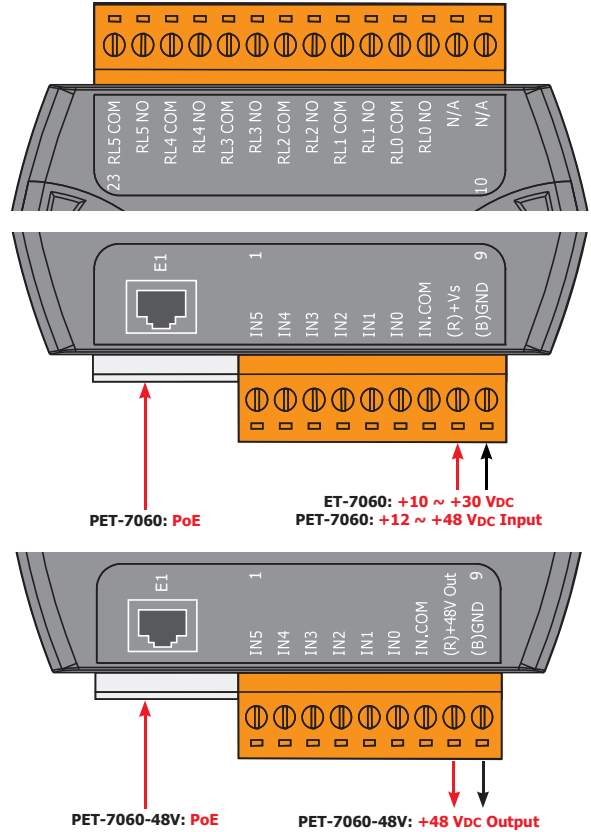
### System Specifications

| Models                       | ET-7060   | PET-7060         | PET-7060-48V              |
|------------------------------|---|------------------|---------------------------|
| <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                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3000 Vrms   |                  | 3000 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.9 W   |                  | 3.5 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |

### I/O Specifications

| Digital Input/Counter            |                                 |   |
|----------------------------------|---------------------------------|---|
| Channels                         | 6                               |   |
| Contact                          | Wet Contact                     |   |
| Sink/Source (NPN/PNP)            | Sink/Source                     |   |
| On Voltage Level                 | +10 Vdc ~ +50 Vdc               |   |
| Off Voltage Level                | +4 Vdc Max.                     |   |
| Input Impedance                  | 10 kΩ                           |   |
| Counters                         | Max. Count                      | 4,294,967,285 (32 bits)   |
|                                  | Max. Input Frequency            | 500 Hz  |
|                                  | Min. Pulse Width                | 1 ms  |
| Overvoltage Protection           | +70 Vdc                         |   |
| Power Relay                      |                                 |   |
| Channels                         | 6                               |   |
| Type                             | Power Relay, Form A (SPST N.O.) |   |
| Operating Voltage Range          | 250 VAC/30 Vdc                  |   |
| Max. Load Current                | 5.0A/channel at 25°C            |   |
| Operate Time                     | 6 ms (Typical)                  |   |
| Release Time                     | 3 ms (Typical)                  |   |
| Electrical Life (Resistive Load) | VDE                             | 5A 250 VAC 30,000 ops (10 ops/minute) at 75°C<br>5A 30 Vdc 70,000 ops (10 ops/minute) at 75°C |
|                                  | UL                              | 5A 250 VAC/30 Vdc 6,000 ops.<br>3A 250 VAC/30 Vdc 100,000 ops.                                |
|                                  | Mechanical Life                 | 20,000,000 ops. at no load (300 ops./minute)  |
| Power-on Value                   | Yes, Programmable               |   |
| Safe Value                       | Yes, Programmable               |   |

### Pin Assignments



3  
3

Ethernet I/O Products

### Wire Connections

| Digital Input/Counter | Readback as 1     | Readback as 0      |
|-----------------------|-------------------|--------------------|
| Sink                  | +10 ~ +50 Vdc<br> | OPEN or <4 Vdc<br> |
|                       | +10 ~ +50 Vdc<br> | OPEN or <4 Vdc<br> |

| Power Relay  | ON State<br>Readback as 1  |
|--------------|----------------------------|
| Relay Output |                            |
|              | OFF State<br>Readback as 0 |
|              |                            |

### Ordering Information

|                        |   |
|------------------------|---|
| <b>ET-7060 CR</b>      | 6-channel Power Relay Output and 6-channel DI Module (RoHS)   |
| <b>PET-7060 CR</b>     | 6-channel Power Relay Output and 6-channel DI Module with PoE (RoHS)  |
| <b>PET-7060-48V CR</b> | 6-channel Power Relay Output and 6-channel DI Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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) |

Available soon


**ET-7062**

**PET-7062  
PET-7062-48V**

2-channel Power Relay Output and 6-channel DI Module

**Features**

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DI/Counter: 6 Channels
  - Power Relay: 2 Channels for switching inductive loads



3

3

Ethernet I/O Products

**Introduction**

The ET-7062/PET-7062/PET-7062-48V provides 6 wet contact digital input channels and 2 power relay output channels. Each input channel can be used as a 32-bit counter. It features optical isolation for 3750 V<sub>rms</sub> of transient overvoltage protection but doesn't provide channel-to-channel isolation. It can safely be used in applications where hazardous voltages are present.

**System Specifications**

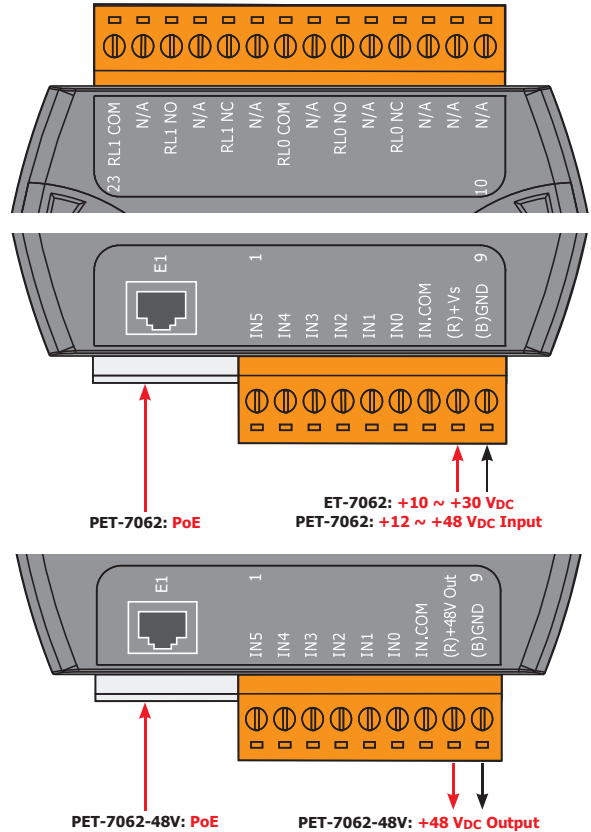
| Models                       | ET-7062   | PET-7062         | PET-7062-48V              |
|------------------------------|---|------------------|---------------------------|
| <b>Software</b>              |   |                  |                           |
| ★ Built-in Web Server        |   | Yes              |                           |
| ★ Web HMI                    |   | Yes              |                           |
| ★ I/O Pair Connection        |   | Yes              |                           |
| <b>Communication</b>         |   |                  |                           |
| ★ Ethernet Port              | 10/100 Base-TX with Auto MDI/MDI-X                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3000 Vrms   |                  | 3000 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.9 W   |                  | 3.5 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |



### I/O Specifications

| Digital Input/Counter            |                                  |                         |   |
|----------------------------------|----------------------------------|-------------------------|---|
| Channels                         | 6                                |                         |   |
| Contact                          | Wet Contact                      |                         |   |
| Sink/Source (NPN/PNP)            | Sink/Source                      |                         |   |
| On Voltage Level                 | +10 Vdc ~ +50 Vdc                |                         |   |
| Off Voltage Level                | +4 Vdc Max.                      |                         |   |
| Input Impedance                  | 10 kΩ                            |                         |   |
| Counters                         | Max. Count                       | 4,294,967,285 (32 bits) |   |
|                                  | Max. Input Frequency             | 500 Hz                  |   |
|                                  | Min. Pulse Width                 | 1 ms                    |   |
| Overvoltage Protection           | +70 Vdc                          |                         |   |
| Power Relay                      |                                  |                         |   |
| Channels                         | 2                                |                         |   |
| Type                             | Power Relay, Form C              |                         |   |
| Operating Voltage Range          | 250 VAC/30 Vdc                   |                         |   |
| Max. Load Current                | 5.0A, TV-5 rated/channel at 25°C |                         |   |
| Operate Time (at nomi.volt)      | 15 ms Max.                       |                         |   |
| Release Time (at nomi.volt)      | 5 ms Max.                        |                         |   |
| Electrical Life (Resistive Load) | UL/CUL                           | 1 Form A                | TV-5 125 VAC<br>5A 125 VAC at 85°C<br>5A 250 VAC at 85°C<br>5A 30 Vdc at 85°C |
|                                  |                                  | 1 Form C                | NO: 5 A 250 VAC<br>NC: 5 A 250 VAC  |
|                                  | TUV                              | 1 Form A                | 5A 250 VAC<br>5A 30 Vdc   |
| Mechanical Life                  | 10,000,000 ops                   |                         |   |
| Electrical Life                  | 50,000 ops                       |                         |   |
| Insulation resistance            | 1000 MΩ min. at 500 Vdc          |                         |   |
| Power-on Value                   | Yes, Programmable                |                         |   |
| Safe Value                       | Yes, Programmable                |                         |   |

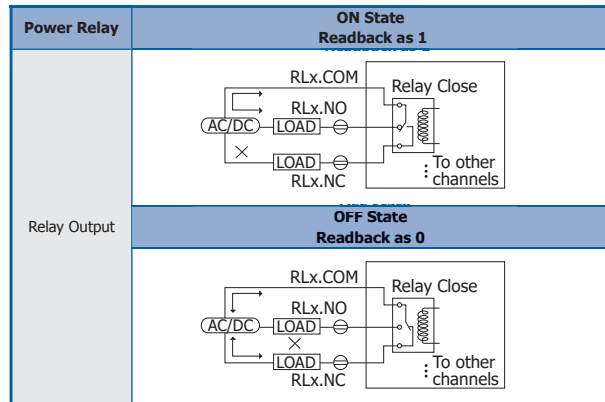
### Pin Assignments



3  
3  
Ethernet I/O Products

### Wire Connections

| Digital Input/Counter | Readback as 1     | Readback as 0      |
|-----------------------|-------------------|--------------------|
| Sink                  | +10 ~ +50 Vdc<br> | OPEN or <4 Vdc<br> |
|                       | Source            | +10 ~ +50 Vdc<br>  |



### Ordering Information

|                        |  |
|------------------------|--|
| <b>ET-7062 CR</b>      | 2-channel Power Relay Output and 6-channel DI Module (RoHS)  |
| <b>PET-7062 CR</b>     | 2-channel Power Relay Output and 6-channel DI Module with PoE (RoHS)   |
| <b>PET-7062-48V CR</b> | 2-channel Power Relay Output and 6-channel DI Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacturer) |

### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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) |


**ET-7065**
**PET-7065  
PET-7065-48V**

6-channel PhotoMOS Relay Output and 6-channel DI Module

**Features**

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DI/Counter: 6 Channels
  - PhotoMOS Relay: 6 Channels


**Introduction**

The ET-7065/PET-7065/PET-7065-48V provides 6 wet contact digital input channels and 6 form A PhotoMOS relays. It features optical isolation for 3000 V<sub>rms</sub> of transient overvoltage protection and doesn't have channel-to-channel isolation. Each input channel can be used as a 32-bit counter. The power-on value and safe value of PhotoMOS relay are programmable. It can safely be used in applications where hazardous voltages are present.

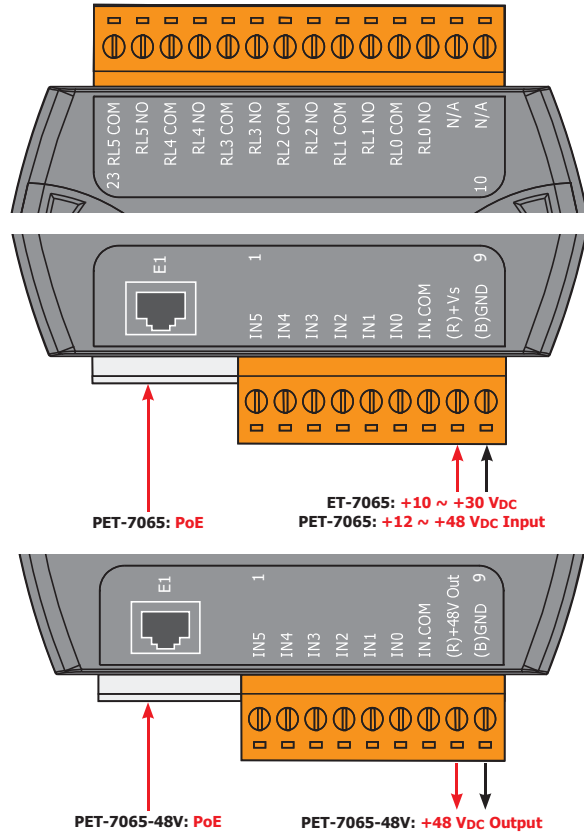
**System Specifications**

| Models                       | ET-7065   | PET-7065         | PET-7065-48V              |
|------------------------------|---|------------------|---------------------------|
| <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                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3000 Vrms   |                  | 3000 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.9 W   |                  | 3.0 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |

### I/O Specifications

| Digital Input/Counter  |   |                         |
|------------------------|---|-------------------------|
| Channels               | 6   |                         |
| Contact                | Wet Contact                                     |                         |
| Sink/Source (NPN/PNP)  | Sink/Source                                     |                         |
| On Voltage Level       | +10 Vdc ~ +50 Vdc                               |                         |
| Off Voltage Level      | +4 Vdc Max.                                     |                         |
| Input Impedance        | 10 kΩ   |                         |
| Counters               | Max. Count                                      | 4,294,967,285 (32 bits) |
|                        | Max. Input Frequency                            | 500 Hz                  |
|                        | Min. Pulse Width                                | 1 ms                    |
| Overvoltage Protection | +70 Vdc   |                         |
| PhotoMOS Relay         |   |                         |
| Channels               | 6   |                         |
| Type                   | PhotoMOS Relay, Form A                          |                         |
| Load Voltage           | 60 Vdc/VAc                                      |                         |
| Max. Load Current      | 60V/1.0A<br>(Operating Temperature -25 ~ +40°C) |                         |
|                        | 60V/0.8A<br>(Operating Temperature +40 ~ +60°C) |                         |
|                        | 60V/0.7A<br>(Operating Temperature +60 ~ +75°C) |                         |
| Operate Time           | 1.3 ms (Typical)                                |                         |
| Release Time           | 0.1 ms (Typical)                                |                         |
| Power-on Value         | Yes, Programmable                               |                         |
| Safe Value             | Yes, Programmable                               |                         |

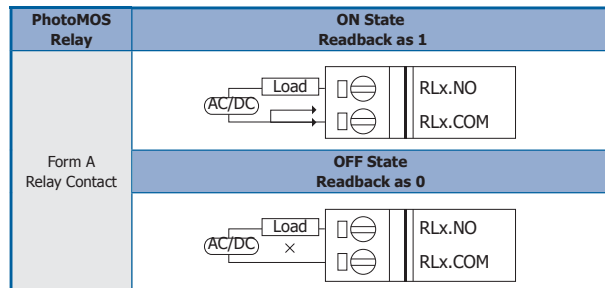
### Pin Assignments



3  
3  
Ethernet I/O Products

### Wire Connections

| Digital Input/Counter | Readback as 1     | Readback as 0      |
|-----------------------|-------------------|--------------------|
| Sink                  | +10 ~ +50 Vdc<br> | OPEN or <4 Vdc<br> |
|                       | Source            | +10 ~ +50 Vdc<br>  |



### Ordering Information

|                        |  |
|------------------------|--|
| <b>ET-7065 CR</b>      | 6-channel PhotoMOS Relay Output and 6-channel DI Module (RoHS)   |
| <b>PET-7065 CR</b>     | 6-channel PhotoMOS Relay Output and 6-channel DI Module with PoE (RoHS)  |
| <b>PET-7065-48V CR</b> | 6-channel PhotoMOS Relay Output and 6-channel DI Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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) |


**ET-7066**
**PET-7066**
**PET-7066-48V**

8-channel PhotoMOS Relay Output Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - PhotoMOS Relay: 8 Channels



### Introduction

The ET-7066/PET-7066/PET-7066-48V provides 8 form A PhotoMOS relays. It features optical isolation for 3000 Vrms of transient overvoltage protection and doesn't have channel-to-channel isolation. The power-on value and safe value of PhotoMOS relay are programmable. It can safely be used in applications where hazardous voltages are present.

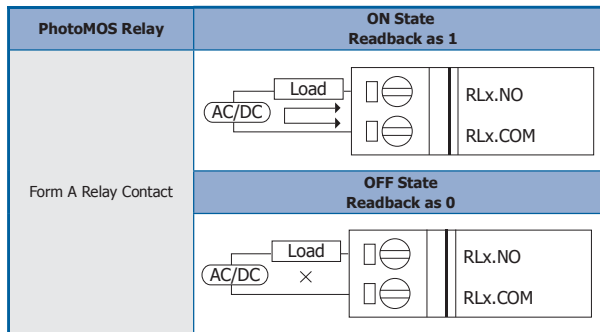
### System Specifications

| Models                       | ET-7066   | PET-7066         | PET-7066-48V              |
|------------------------------|---|------------------|---------------------------|
| <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                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3000 Vrms   |                  | 3000 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 2.4 W   |                  | 2.8 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |

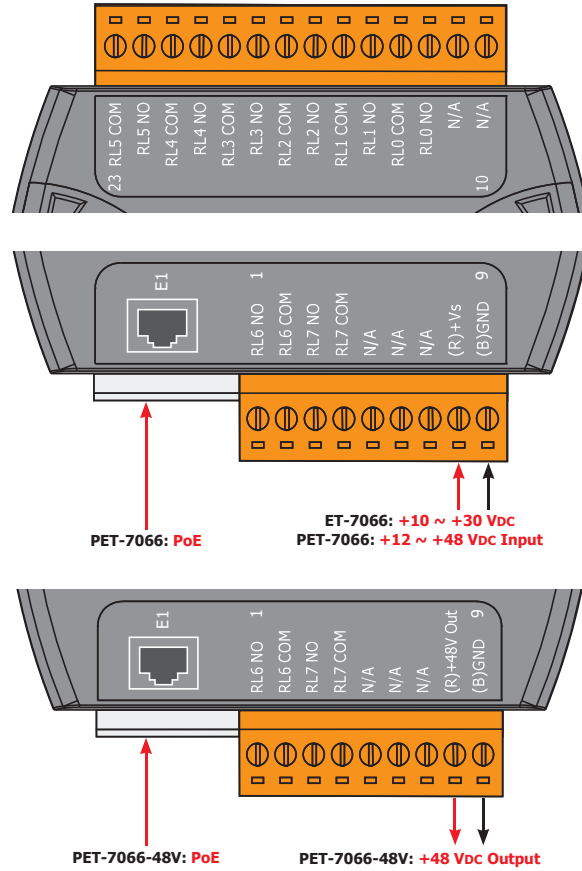
### I/O Specifications

| PhotoMOS Relay |   |
|----------------|---|
| Channels       | 8   |
| Type           | PhotoMOS Relay, Form A                          |
| Load Voltage   | 60 Vdc/VAc                                      |
| Load Current   | 60V/1.0A<br>(Operating Temperature -25 ~ +40°C) |
|                | 60V/0.8A<br>(Operating Temperature +40 ~ +60°C) |
|                | 60V/0.7A<br>(Operating Temperature +60 ~ +75°C) |
| Operate Time   | 1.3 ms (Typical)                                |
| Release Time   | 0.1 ms (Typical)                                |
| Power-on Value | Yes, Programmable                               |
| Safe Value     | Yes, Programmable                               |

### Wire Connections



### Pin Assignments



3  
3

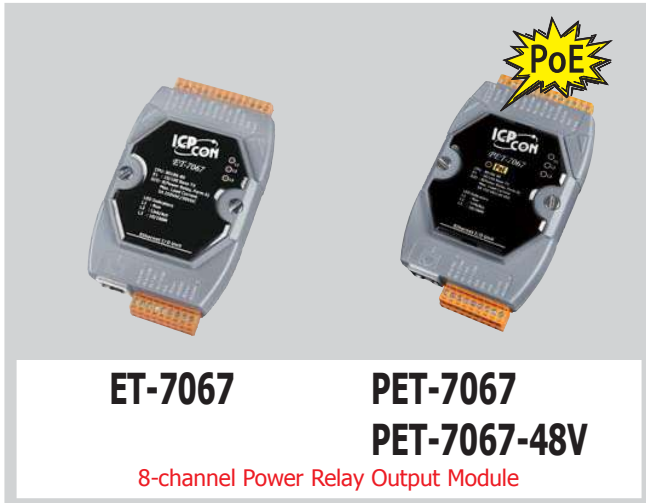
Ethernet I/O Products

### Ordering Information

|                        |   |
|------------------------|---|
| <b>ET-7066 CR</b>      | 8-channel PhotoMOS Relay Output Module (RoHS)   |
| <b>PET-7066 CR</b>     | 8-channel PhotoMOS Relay Output Module with PoE (RoHS)  |
| <b>PET-7066-48V CR</b> | 8-channel PhotoMOS Relay Output Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |


**ET-7067**
**PET-7067**
**PET-7067-48V**

8-channel Power Relay Output Module

### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - Power Relay: 8 Channels



### Introduction

The ET-7067/PET-7067/PET-7067-48V provides 8 form A electromechanical relays. It features optical isolation for 3000 Vrms of transient overvoltage protection and doesn't have channel-to-channel isolation. The power-on value and safe value of relay are programmable. It can safely be used in applications where hazardous voltages are present. The user should choose ET-7063/PET-7063/PET-7063-48V to switch inductive loads instead of ET-7062/PET-7062/PET-7062-48V.

### System Specifications

| Models                       | ET-7067   | PET-7067         | PET-7067-48V              |
|------------------------------|---|------------------|---------------------------|
| <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                      |                  |                           |
| ★ PoE                        | -   |                  | 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>        |   |                  |                           |
| 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 Vdc  |                  | -                         |
| I/O                          | 3000 Vrms   |                  | 3000 Vrms                 |
| <b>EMS Protection</b>        |   |                  |                           |
| ESD (IEC 61000-4-2)          | 4 kV Contact for Each Terminal                          |                  |                           |
| EFT (IEC 61000-4-4)          | +/-2 kV for Power                                       |                  |                           |
| <b>Power</b>                 |   |                  |                           |
| Reverse Polarity Protection  |   | Yes              |                           |
| Powered from Terminal Block  | Yes, 10 ~ 30 Vdc  | Yes, 12 ~ 48 Vdc | -                         |
| Powered from PoE             | -   |                  | Yes, IEEE 802.3af, Class1 |
| Power Output                 | -   | -                | 48 Vdc, 10 W              |
| Consumption                  | 3.2 W   |                  | 3.9 W                     |
| <b>Mechanical</b>            |   |                  |                           |
| Dimensions (W x L x H)       | 72 mm x 123 mm x 35 mm                                  |                  |                           |
| Installation                 | DIN-Rail or Wall Mounting                               |                  |                           |
| <b>Environment</b>           |   |                  |                           |
| Operating Temperature        | -25 ~ +75°C   |                  |                           |
| Storage Temperature          | -30 ~ +80°C   |                  |                           |
| Humidity                     | 10 ~ 90% RH, Non-condensing                             |                  |                           |

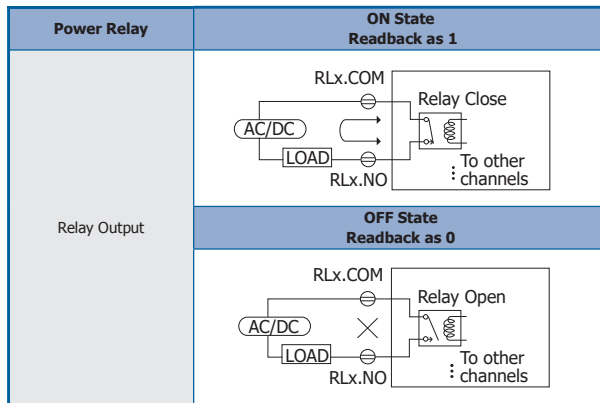


### I/O Specifications

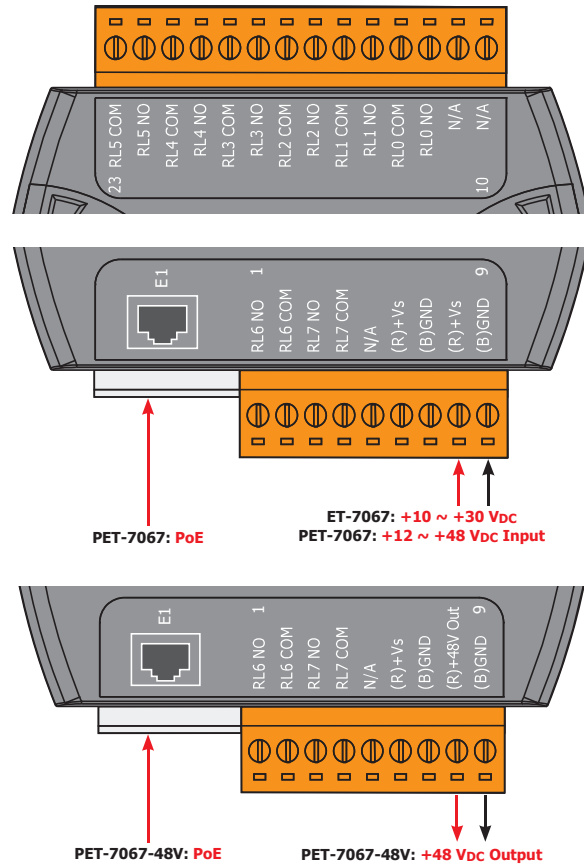
| Power Relay                      |     |   |
|----------------------------------|-----|---|
| Channels                         |     | 8   |
| Type                             |     | Power Relay, Form A (SPST N.O.)   |
| Operating Voltage Range          |     | 250 Vac/30 Vdc  |
| Max. Load Current                |     | 5.0A/channel at 25°C  |
| Operate Time                     |     | 6 ms (Typical)  |
| Release Time                     |     | 3 ms (Typical)  |
| Electrical Life (Resistive Load) | VDE | 5A 250 Vac 30,000 ops (10 ops/minute) at 75°C<br>5A 30 Vdc 70,000 ops (10 ops/minute) at 75°C |
|                                  | UL  | 5A 250 Vac/30 Vdc 6,000 ops.<br>3A 250 Vac/30 Vdc 100,000 ops.                                |
|                                  |     | Mechanical Life   |
| Power-on Value                   |     | Yes, Programmable   |
| Safe Value                       |     | Yes, Programmable   |

★  
★

### Wire Connections



### Pin Assignments



3  
3

Ethernet I/O Products

### Ordering Information

|                        |  |
|------------------------|--|
| <b>ET-7067 CR</b>      | 8-channel Power Relay Output Module (RoHS)   |
| <b>PET-7067 CR</b>     | 8-channel Power Relay Output Module with PoE (RoHS)  |
| <b>PET-7067-48V CR</b> | 8-channel Power Relay Output Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |

## 3.4. PEE-7000/PEE-7000-48V Series (Web based)

3  
4

Ethernet I/O Products

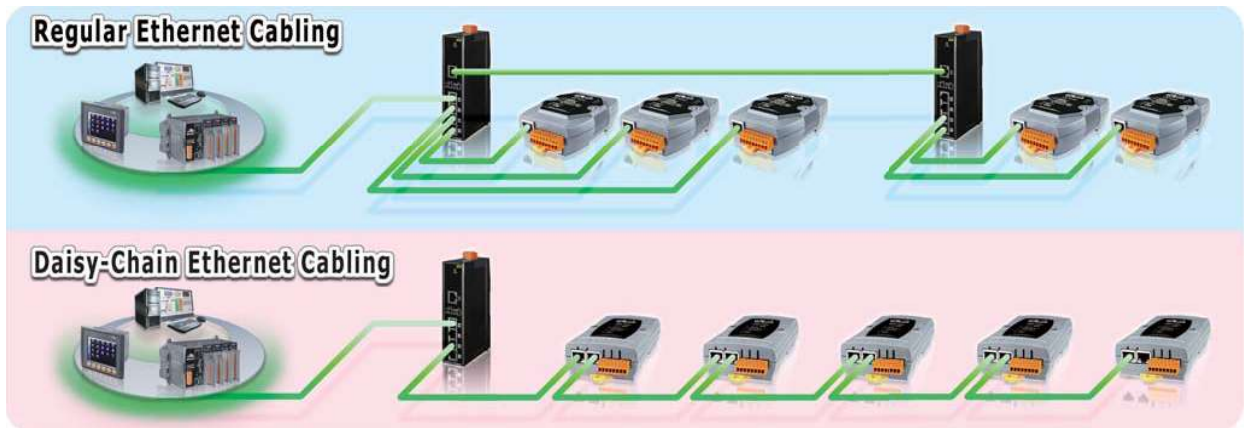


The functionality of the PEE-7000 series modules is almost the same as the PET-7000 series. The main difference is that the PEE-7000 series has a built-in two-port Ethernet switch to form a daisy-chain topology. Which allows PEE-7000 series to connect in series to each other or other Ethernet devices. Users can easily simplify the cabling and save installation space with the feature.

### • Features

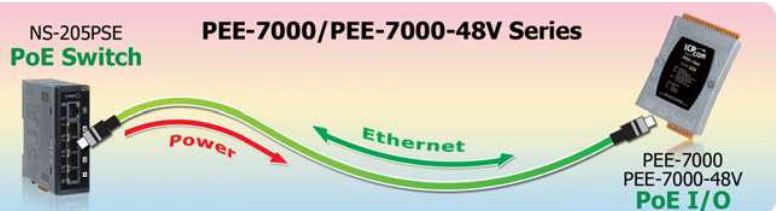
#### 1. Daisy-Chain Ethernet Cabling

The PEE-7000 Series has a built-in two-port Ethernet switch to implement daisy-chain topology. The cabling is much easier and total costs of cable and switch are significantly reduced.

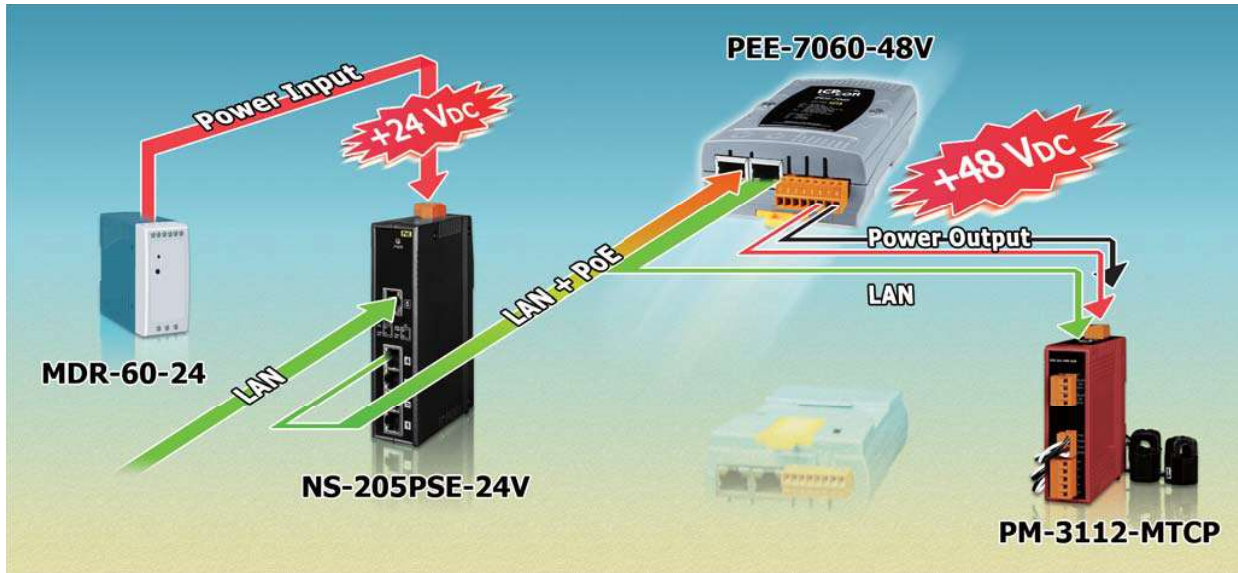


#### 2. Power over Ethernet (PoE)

The PEE-7000 series module can be powered by an IEEE802.3af compliant PoE switch. Both Ethernet and power can be carried by an Ethernet cable eliminating the need for additional wiring and power supply.



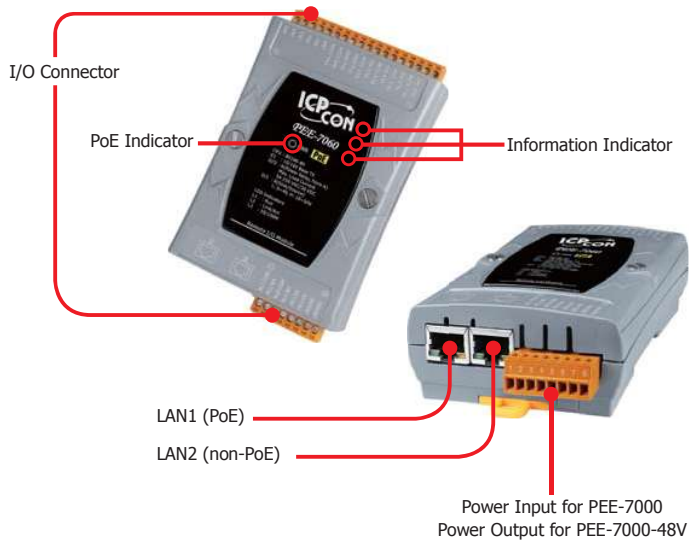
• PoE Splitter



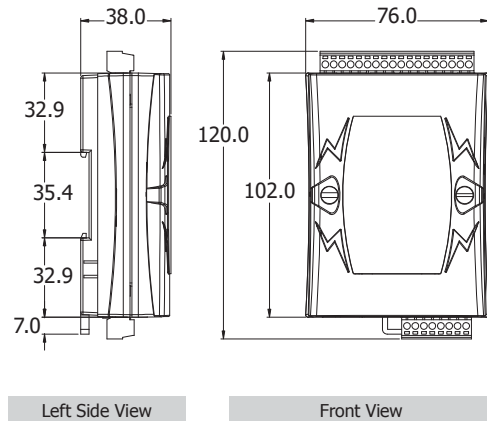
3  
4

Ethernet I/O Products

• Appearance



• Dimensions (Units: mm)



• Selection Guide

| Model Name               | DI      |                                   | DO      |  |
|--------------------------|---------|-----------------------------------|---------|--|
|                          | Channel | Contact                           | Channel | Type   |
| PEE-7052<br>PEE-7052-48V | 8       | Wet (Sink,Source)<br>Dry (Source) | 8       | Open Collector (Source),<br>650 mA/channel       |
| PEE-7060<br>PEE-7060-48V | 6       | Wet (Sink,Source)<br>Dry (Source) | 6       | Power Relay<br>Form A (SPST N.O.), 5.0 A/channel |
| PEE-7067<br>PEE-7067-48V | -       | -                                 | 8       | Power Relay<br>Form A (SPST N.O.), 5.0 A/channel |

Note: The I/O configurations of PEE-7000/PEE-7000-48V series is the same as ET-7000/PET-7000/PET-7000-48V series. Any comment, call manufacture.





### Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Two Ethernet Ports for Daisy-Chain Topology
- Built-in PoE Splitter
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
  - DI/Counter: 6 Channels
  - Power Relay: 6 Channels



### Introduction

The PEE-7060/PEE-7060-48V provides 6 (wet, dry) contact digital input channels and 6 form A electromechanical relays. It features optical isolation for 3000 V<sub>rms</sub> of transient overvoltage protection and doesn't have channel-to-channel isolation. Each input channel can be used as a 32-bit counter. The power-on value and safe value of relay are programmable.

It offers two Ethernet switch ports to form a daisy-chain topology. Which allows PEE-7060/PEE-7060-48V series to connect in series to each other or other Ethernet devices. Users can easily simplify the cabling and save installation space with the feature.

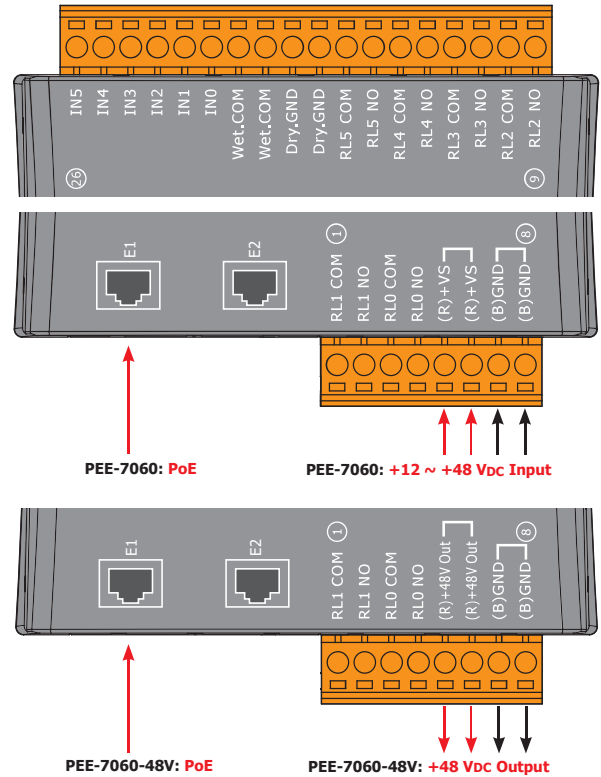
### System Specifications

| Models                        | PEE-7060  | PEE-7060-48V               |
|-------------------------------|---|----------------------------|
| <b>Software</b>               |   |                            |
| ★ Built-in Web Server         |   | Yes                        |
| ★ Web HMI                     |   | Yes                        |
| ★ I/O Pair Connection         |   | Yes                        |
| <b>Communication</b>          |   |                            |
| ★ Ethernet Port               | 2-Port 10/100 Base-TX Ethernet Switch, RJ-45 x 2 (Auto-negotiating, Auto-MDI/MDIX, LED indicator) |                            |
| ★ PoE                         | Yes   | Yes (PoE Splitter)         |
| ★ 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 Port 1 Link/Act) |   | Yes                        |
| L3 (Ethernet Port 2 Link/Act) |   | Yes                        |
| PoE Power                     |   | Yes                        |
| <b>2-Way Isolation</b>        |   |                            |
| Ethernet                      |   | -                          |
| I/O                           | 3000 V <sub>rms</sub>   |                            |
| <b>EMS Protection</b>         |   |                            |
| ESD (IEC 61000-4-2)           | 4 kV Contact for Each Terminal  |                            |
| EFT (IEC 61000-4-4)           | +/-2 kV for Power   |                            |
| <b>Power</b>                  |   |                            |
| Reverse Polarity Protection   |   | Yes                        |
| Powered from Terminal Block   | Yes, 12 ~ 48 Vdc  | -                          |
| Powered from PoE              |   | Yes, IEEE 802.3af, Class I |
| Power Output                  | -   | 48 Vdc, 10 W               |
| Consumption                   | 3.5 W   |                            |
| <b>Mechanical</b>             |   |                            |
| Dimensions (W x L x H)        | 76 mm x 120 mm x 38 mm  |                            |
| Installation                  | DIN-Rail or Wall Mounting   |                            |
| <b>Environment</b>            |   |                            |
| Operating Temperature         | -25 ~ +75°C   |                            |
| Storage Temperature           | -30 ~ +80°C   |                            |
| Humidity                      | 10 ~ 90% RH, Non-condensing   |                            |

### I/O Specifications

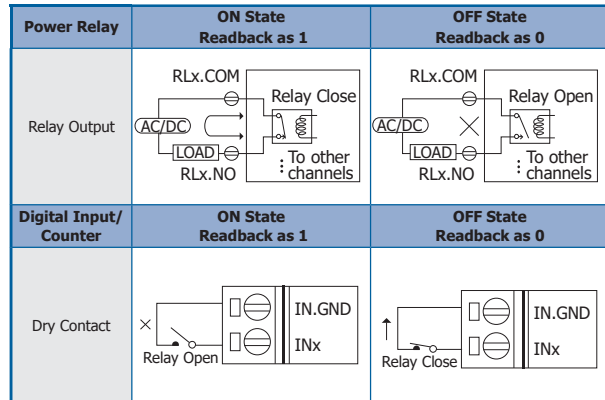
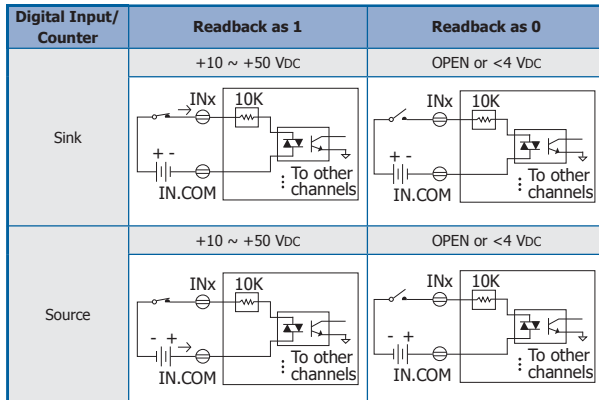
| Digital Input/Counter            |  |  |
|----------------------------------|--|--|
| Channels                         | 6  |  |
| Contact                          | Dry +Wet                                     |  |
| Sink/Source (NPN/PNP)            | Dry: Source<br>Wet: Sink/Source              |  |
| Wet Contact                      | On Voltage Level                             | +10 Vdc ~ +50 Vdc  |
|                                  | Off Voltage Level                            | +4 Vdc Max.  |
| Dry Contact                      | On Voltage Level                             | Close to GND   |
|                                  | Off Voltage Level                            | Open   |
| Input Impedance                  | 10 kΩ  |  |
| Counters                         | Max. Count                                   | 4,294,967,285 (32 bits)  |
|                                  | Max. Input Frequency                         | 500 Hz   |
|                                  | Min. Pulse Width                             | 1 ms   |
| Overvoltage Protection           | +70 Vdc                                      |  |
| Power Relay                      |  |  |
| Channels                         | 6  |  |
| Type                             | Power Relay, Form A (SPST N.O.)              |  |
| Operating Voltage Range          | 250 VAC/30 Vdc                               |  |
| Max. Load Current                | 5.0A/channel at 25°C                         |  |
| Operate Time                     | 6 ms (Typical)                               |  |
| Release Time                     | 3 ms (Typical)                               |  |
| Electrical Life (Resistive Load) | VDE  | 5A 250 VAC 30,000 ops (10 ops/minute) at 75°C                  |
|                                  |  | 5A 30 Vdc 70,000 ops (10 ops/minute) at 75°C                   |
|                                  | UL   | 5A 250 VAC/30 Vdc 6,000 ops.<br>3A 250 VAC/30 Vdc 100,000 ops. |
| Mechanical Life                  | 20,000,000 ops. at no load (300 ops./minute) |  |
| Power-on Value                   | Yes, Programmable                            |  |
| Safe Value                       | Yes, Programmable                            |  |

### Pin Assignments



3  
4  
Ethernet I/O Products

### Wire Connections



### Ordering Information

|                        |   |
|------------------------|---|
| <b>PEE-7060 CR</b>     | 6-channel Power Relay Output and 6-channel DI Module with PoE (RoHS)  |
| <b>PEE-7060-48V CR</b> | 6-channel Power Relay Output and 6-channel DI Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture) |

### Accessories

|  |                  |  |
|--|------------------|--|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 Vdc ~ +56 Vdc (RoHS)  |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 48 Vdc Input (RoHS) |
|  | NS-205PSE-24V CR | Unmanaged Ethernet Switch with 4-PoE and 1 RJ45 uplink; requires a 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)                             |

## 3.5. tET/tPET Series Modules (IP based)

### • Introduction

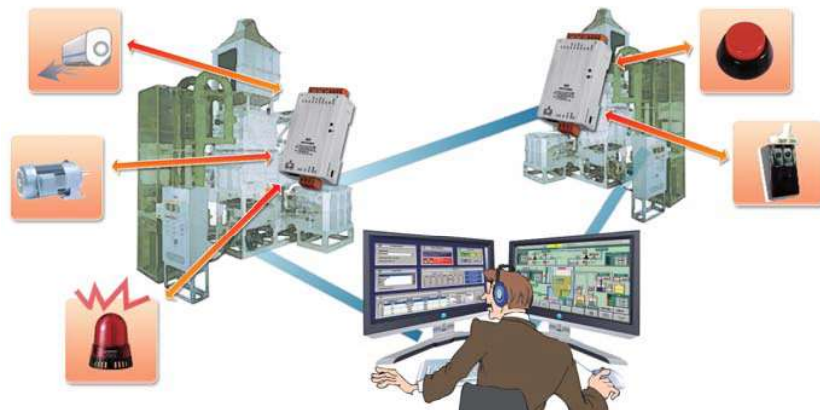


The functionality of the tET/tPET series modules is almost the same as the PET-7000. The major difference is that the PET-7000 module supports user-defined web HMI interface and more connections, while the tET/tPET series supports fixed web interface for configuration, higher speed of 32-bit DI counters, frequency measurement, PWM digital output and low power consumption. Especially the tET/tPET series features tiny form factor and low channel count that are suitable in distributed I/O points applications, such as room control and monitor... etc.

Push mode is a new way to transfer local DI status, immediately and automatically, to remote device or computer once the DI status changes. Without busy polling, push mode effectively reduces the network loading and improves the performance of the whole system. tET/tPET series supports both polling and push mode to transfer the I/O data over the network. No programming is required in the tET/tPET series, and the push mode can be easily enabled through the web configuration interface. The solution makes the user set up system easily and quickly, and the system work more efficient.

### • Applications

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



### • Features

#### 1. DIO Pair-Connection (Mirror)

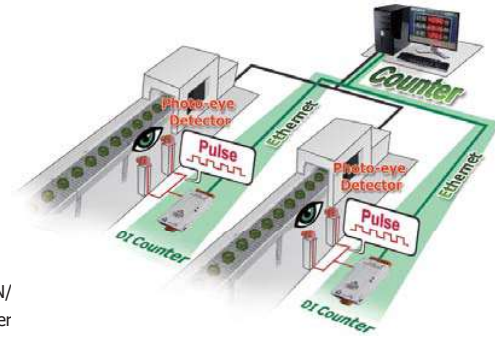
The tET/tPET series Ethernet I/O modules support various I/O types, like photo-isolated digital input, power relay, PhotoMOS relay, and open collector output. The module can be used to create DI to DO pair-connection (mirror) through the Ethernet. Once the configuration is completed, the modules can automatically read the local DI status and write to remote DO channels via the Modbus TCP protocol in the background.





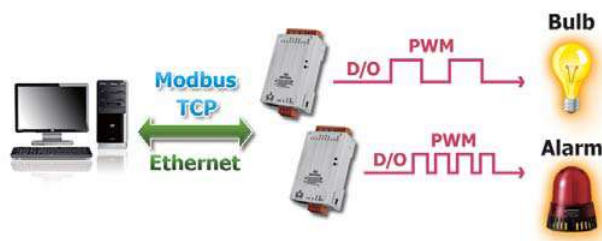
## 2. 32-bit High Speed Digital Counter

Polling the remote DI status back and then counting the ON/OFF changes in host computer may get quantity errors caused by communication delay. The tET/tPET series module has Built-in 32-bit counter function; it counts the DI ON/OFF changes in site to prevent counting errors caused by the communication latency. The 32-bit counter of the tET/tPET modules can count up to 4,294,967,295 and accept a frequency up to 3,500 Hz (without low pass filter), so it is suitable for more applications such as production counting, button or switch ON/OFF counting, event counting... etc.



## 3. Frequency Measurement

The tET/tPET module also supports frequency measurement function; it counts the DI ON/OFF changes in a certain time period and then calculates the frequency automatically. Rather than polling remote DI status back and then computing the frequency in the host PC, our module can directly count out the frequency in site. This reduces the frequency errors caused by communication latency between two ends, and also reduces the network loadings. In order to applying for more applications, this module provides 3 scan modes (0.1s, 1s and single-pulse) and 4 moving average levels for user to select the best way in their applications. This feature can be used for rotation and speed measurements... etc.



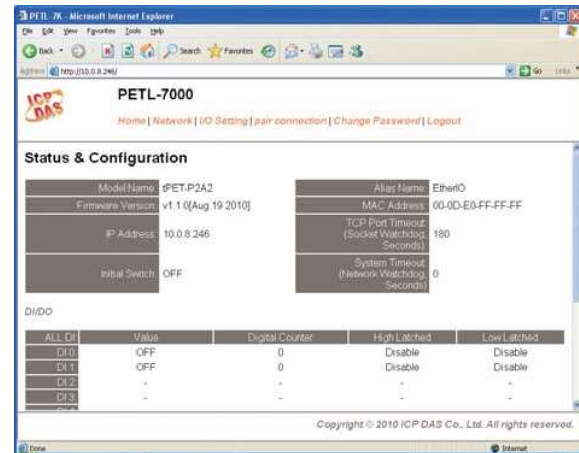
## 4. PWM (Pulse Width Modulation) Digital Output

The DOs on the tET/tPET series provide PWM (pulse width modulation) function that can be used in applications such as alarm light, flash light controls... etc. Once the configuration is finished, the module will automatically and continuously switch the DO output ON and OFF. This removes the busy control by remote host and also reduces the network loadings. Users can set different frequency and duty cycle for the PWM function in each digital output channel. In addition, the DO channels can work independently or simultaneously. This function reduces the complexity of the control system and enhances the timing accuracy of pulse output.

## 5. Easy Network Configuration

DHCP minimizes configuration errors caused by manual IP address configuration, such as address conflicts caused by the assignment of an IP address to more than one computer or device at the same time. The tET/tPET series module supports the DHCP client function, which allows the tET/tPET to easily obtain the necessary TCP/IP configuration information from a DHCP server. The module also contains a UDP responder that transmits its IP address information to a UDP search from the eSearch utility program, making local management more efficient.

The series of Ethernet I/O modules features a powerful 32-bit MCU to enable efficient handling of network traffic. It also has a Built-in web server that provides an intuitive web management interface to allow users to modify the settings of the module including DHCP/Static IP, gateway and mask.



## 6. Dual Watchdog with Power-on and Safe Value

The module provides dual watchdog: module watchdog (hardware function) and host watchdog (software function). The module watchdog automatically resets the module if the built-in firmware is operating abnormally, while the host watchdog sets the digital output with predefined safe-value when there is no communication between the module and the host (PC or PLC) for a period of time (watchdog timeout). The dual watchdog is an important feature that ensures the module operates continuously, even in harsh environments.

## 7. PoE (Power over Ethernet)

The tPET series module offers true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch such as the NS-205PSE. If there is no PoE switch on site, the module will also accept power input from a DC adapter.

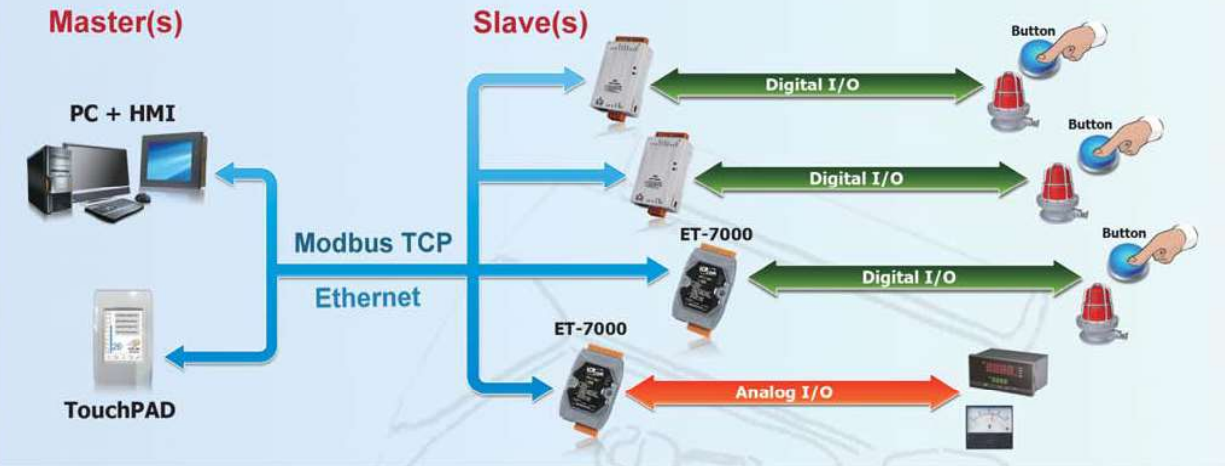
## 8. Low Power Consumption



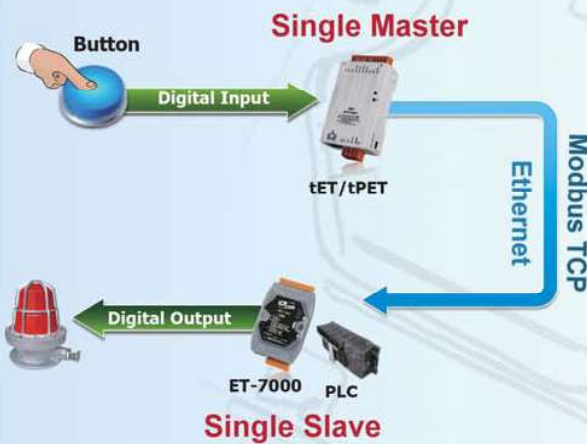
The tET/tPET series is designed for ultra-low power consumption, reducing hidden costs from increasing fuel and electricity prices, especially when you have a huge amount of devices installed. Reducing the amount of electricity consumed by choosing energy-efficient equipment can have a positive impact on maintaining a green environment.

The module is equipped with removable terminal block connectors to allow easy wiring. For maximum space savings, the tET/tPET series is offered in an amazing tiny form-factor; this makes them can be easily installed in anywhere, even directly embedded into a machine.

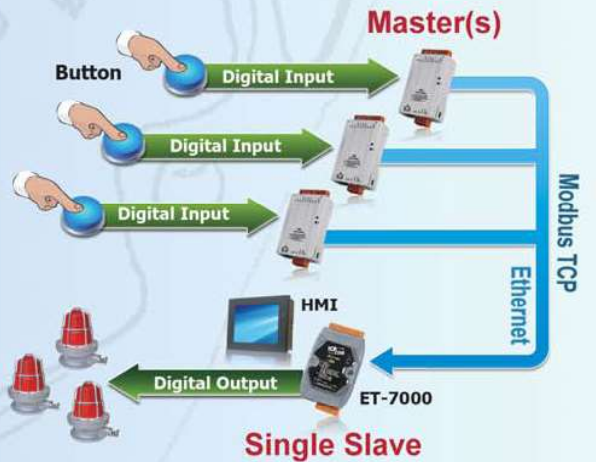
**1 Polling: Masters poll tET/tPET DIO modules**



**2 Push: tET/tPET module pushes DI to remote DO**



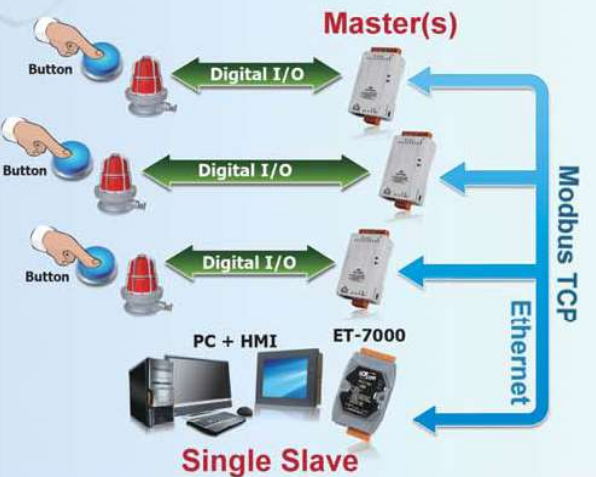
**3 Push: tET/tPET modules push DI to remote DO**



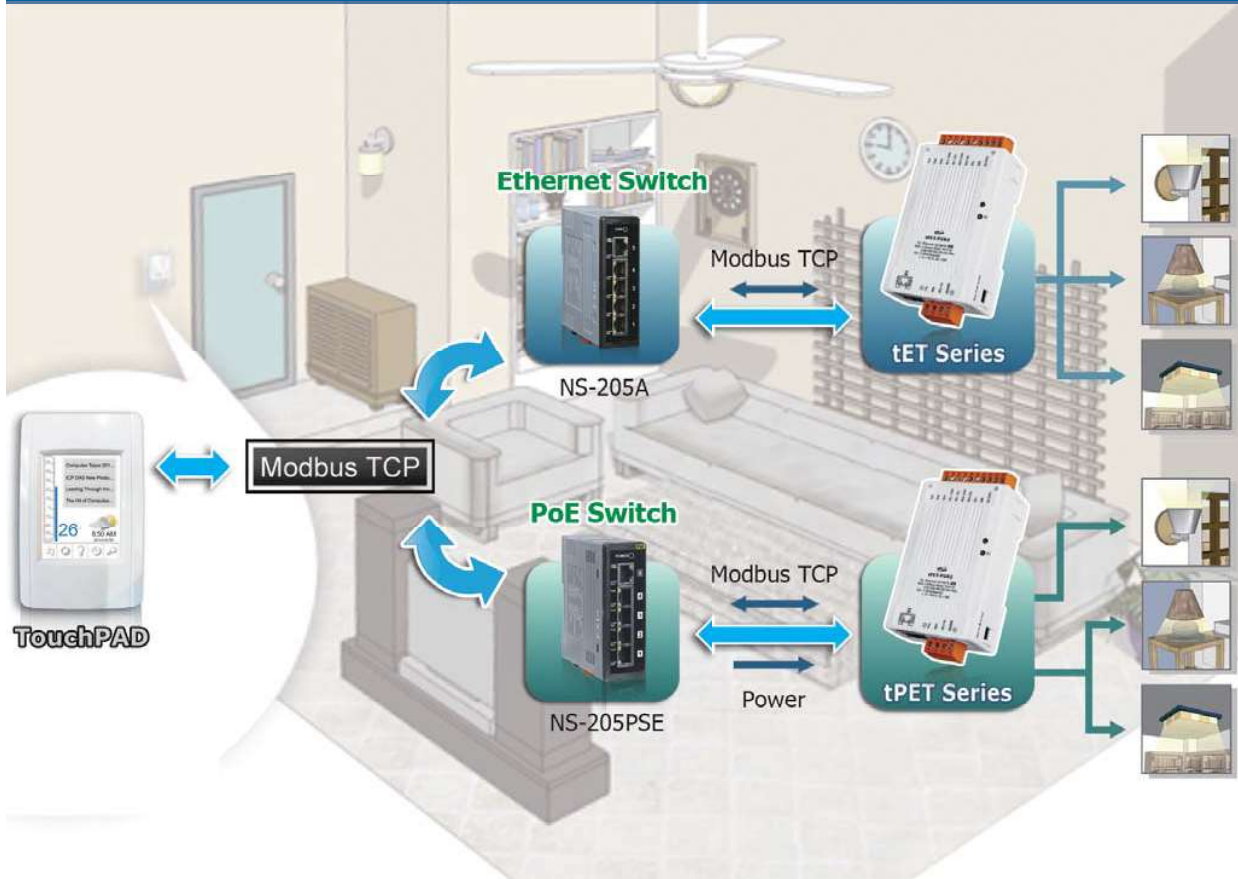
**4 Polling: tET/tPET DIO pair-connection**



**5 Polling: tET/tPET modules poll remote DIO**



• Selection Guide



tET/tPET Selection Guide

| Digital I/O |           |         |         |             |         |                |             |
|-------------|-----------|---------|---------|-------------|---------|----------------|-------------|
| Model Name  |           | DI      |         |             | DO      |                |             |
| Ethernet    | PoE       | Channel | Contact | Sink/Source | Channel | Type           | Sink/Source |
| tET-P6      | tPET-P6   | 6       | Wet     | Sink/Source | -       | -              | -           |
| tET-C4      | tPET-C4   | -       | -       | -           | 4       | Open Collector | Sink/NPN    |
| tET-A4      | tPET-A4   | -       | -       | -           | 4       | Open Emitter   | Source/PNP  |
| tET-P2C2    | tPET-P2C2 | 2       | Wet     | Sink/Source | 2       | Open Collector | Sink/NPN    |
| tET-P2A2    | tPET-P2A2 | 2       | Wet     | Sink/Source | 2       | Open Emitter   | Source/PNP  |

| Relay Output/Digital Input |             |              |                |                    |                   |         |         |             |
|----------------------------|-------------|--------------|----------------|--------------------|-------------------|---------|---------|-------------|
| Model Name                 |             | Relay Output |                |                    |                   | DI      |         |             |
| Ethernet                   | PoE         | Channel      | Relay          | Type               | Max. Load Current | Channel | Contact | Sink/Source |
| tET-P2POR2                 | tPET-P2POR2 | 2            | PhotoMOS Relay | Form A             | 1.0 A/channel     | 2       | Wet     | Sink/Source |
| tET-P2R2                   | tPET-P2R2   | 2            | Power Relay    | Form A (SPST N.O.) | 5.0 A/channel     | 2       | Wet     | Sink/Source |



### Features

- Cost-effective Tiny Ethernet I/O Modules (Modbus TCP/UDP)
- 10/100 Base-TX Ethernet, RJ-45 x1 (Auto-negotiating, Auto MDI/MDIX, LED Indicators)
- Contains a Powerful 32-bit MCU
- Includes Redundant Power Inputs: PoE and DC Input
- Supports UDP Responder for Device Discovery
- Supports Web Configuration and Firmware Update Via Ethernet
- Supports Latched DI, 32-bit DI Counters and Frequency Measurement
- Supports I/O Pair-connection Through the Ethernet
- Dual-watchdog with Power-on and Safe Value
- Made from Fire-retardant Materials (UL94-V0 Level)
- Low Power Consumption





### System Specifications




| Model Name                  | tET Series   | tPET Series                        |
|-----------------------------|--|------------------------------------|
| <b>Software</b>             |  |                                    |
| Built-in Web Server         | Yes  |                                    |
| I/O Pair Connection         | Yes, Supports Polling and Push modes   |                                    |
| <b>Communication</b>        |  |                                    |
| Ethernet Port               | 10/100 Base-TX, 8-Pin RJ-45 x1 (Auto-negotiating, Auto-MDI/MDIX, LED indicators) |                                    |
| Protocol                    | Modbus TCP, Modbus UDP, HTTP, DHCP, BOOTP and TFTP                               |                                    |
| Security                    | IP filter (whitelist) and Password (web)   |                                    |
| Dual Watchdog               | Yes, Module (2 seconds) and Host (programmable)                                  |                                    |
| <b>LED Indicators</b>       |  |                                    |
| S1                          | System Running (Red)   | PoE (Green)                        |
| E1                          | Link/Act (Green), 10/100 M (Yellow)  |                                    |
| <b>EMS Protection</b>       |  |                                    |
| ESD (IEC 61000-4-2)         | ±4 kV Contact for Each Terminal  |                                    |
| EFT (IEC 61000-4-4)         | ±2 kV for Power and Signal   |                                    |
| <b>Mechanical</b>           |  |                                    |
| Dimensions (W x L x H)      | 52 mm x 98 mm x 27 mm  |                                    |
| Installation                | DIN-Rail   |                                    |
| <b>Power Requirements</b>   |  |                                    |
| Powered from Terminal Block | Yes, +12 ~ 48 VDC (non-regulated)  |                                    |
| Powered from PoE            | -  | Yes, IEEE 802.3af, Class 1         |
| Consumption                 | 0.04 A @ 24 Vdc Max. for tET-P2R2  | 0.03 A @ 48 Vdc Max. for tPET-P2R2 |
| <b>Environment</b>          |  |                                    |
| Operating Temperature       | -25 ~ +75°C  |                                    |
| Storage Temperature         | -30 ~ +80°C  |                                    |
| Humidity                    | 10 ~ 90% RH, Non-condensing  |                                    |



## I/O Specifications

### Digital Input/Output Series

| Model Name               | tET-C4/tPET-C4  | tET-A4/tPET-A4  |
|--------------------------|---|---|
| Pictures                 |  |  |
| <b>Digital Output</b>    |   |   |
| Channels                 | 4   |   |
| Type                     | Open Collector  | Open Emitter  |
| Sink/Source (NPN/PNP)    | Sink  | Source  |
| Load Voltage             | +5 VDC ~ +30 VDC  | +10 VDC ~ +40 VDC   |
| Max. Load Current        | 100 mA/channel  | 650 mA/channel  |
| PWM                      | 100 Hz Max. (High/Low duty cycle range = 5 ~ 65,535 ms)                           |   |
| Overvoltage Protection   | +60 VDC   | +47 VDC   |
| Short Circuit Protection | -   | Yes   |
| Isolation                | 3750 Vrms   |   |

| Model Name               | tET-P6/tPET-P6  | tET-P2C2/tPET-P2C2  | tET-P2A2/tPET-P2A2  |
|--------------------------|---|---|---|
| Pictures                 |  |  |  |
| <b>Digital Input</b>     |   |   |   |
| Channels                 | 6   | 2   |   |
| Contact                  | Wet Contact   |   |   |
| Sink/Source (NPN/PNP)    | Sink/Source   |   |   |
| On Voltage Level         | +10 Vdc ~ +50 VDC   |   |   |
| Off Voltage Level        | +4 VDC Max.   |   |   |
| Input Impedance          | 10 kΩ   |   |   |
| Counters                 | Max. Count: 4,294,967,285 (32 bits)   |   |   |
|                          | Max. Input Frequency: 3.5 kHz   |   |   |
|                          | Min. Pulse Width: 0.15 ms (without low pass filter)                                 |   |   |
| Overvoltage Protection   | +70 VDC   |   |   |
| Isolation                | 3750 Vrms   |   |   |
| <b>Digital Output</b>    |   |   |   |
| Channels                 |   |   | 2   |
| Type                     | Open Collector  |   | Open Emitter  |
| Sink/Source (NPN/PNP)    | Sink  |   | Source  |
| Load Voltage             | +5 VDC ~ +30 VDC  |   | +10 VDC ~ +40 VDC   |
| Max. Load Current        | 100 mA/channel  |   | 650 mA/channel  |
| PWM                      | 100 Hz Max. (High/Low duty cycle range = 5 ~ 65,535 ms)                             |   |   |
| Overvoltage Protection   | +60 VDC   |   | +47 VDC   |
| Short Circuit Protection | -   |   | Yes   |
| Isolation                | 3750 Vrms   |   |   |

3



5

Ethernet I/O Products

Digital Input/Relay Output Series

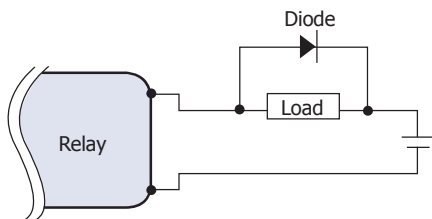
3  
5

Ethernet I/O Products

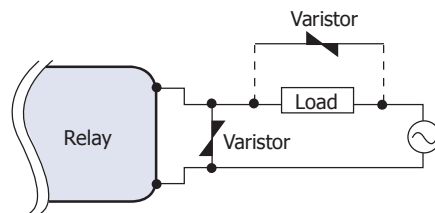
| Model Name                            |  | tET-P2POR2/tPET-P2POR2  | tET-P2R2/tPET-P2R2  |
|---------------------------------------|--|---|---|
| Pictures                              |  |  |  |
| <b>PhotoMOS/Power Relay Output</b>    |  |   |   |
| Channels                              |  | 2   | 2   |
| Type                                  |  | PhotoMOS Relay, Form A (SPST N.O.)  | Power Relay, Form A (SPST N.O.)   |
| Load Voltage                          |  | 60 VDC/VAC  | 250 VAC/30 VDC  |
| Max. Load Current                     |  | 60 V/1.0 A (Operating Temperature -25 ~ -40°C)                                    | 5.0 A/channel at 25°C   |
|                                       |  | 60 V/0.8 A (Operating Temperature +40 ~ +60°C)                                    |   |
|                                       |  | 60 V/0.7 A (Operating Temperature +60 ~ +75°C)                                    |   |
| Operate Time                          |  | 1.3 ms (Typical)  | 6 ms  |
| Release Time                          |  | 0.1 ms (Typical)  | 3 ms  |
| PWM                                   |  | 50 Hz Max. (High/Low duty cycle range = 10 ~ 65,535 ms)                           |   |
| Electrical Endurance (Resistive load) |  | Long Life and No Spike  | 5 A 250 VAC 30,000 ops (10 ops/minute) at 75°C                                      |
|                                       |  |   | 5 A 30 Vdc 70,000 ops (10 ops/minute) at 75°C                                       |
|                                       |  |   | 5 A 250 VAC/30 VDC 6,000 ops  |
|                                       |  |   | 3 A 250 VAC/30 VDC 100,000 ops  |
| Mechanical Endurance                  |  | -   | 20,000,000 ops. At no load (300 ops./ minute)                                       |
| Isolation                             |  | 3000 Vrms   |   |
| <b>Digital Input</b>                  |  |   |   |
| Channels                              |  | 2   |   |
| Contact                               |  | Wet Contact   |   |
| Sink/Source (NPN/PNP)                 |  | Sink/Source   |   |
| On Voltage Level                      |  | +10 Vdc ~ +50 Vdc   |   |
| Off Voltage Level                     |  | +4 Vdc Max.   |   |
| Input Impedance                       |  | 10 kΩ   |   |
| Counters                              |  | Max. Count: 4,294,967,285 (32 bits)   |   |
|                                       |  | Max. Input Frequency: 3.5 kHz   |   |
|                                       |  | Min. Pulse Width: 0.15 ms (without low pass filter)                               |   |
| Overvoltage Protection                |  | +70 VDC   |   |
| Isolation                             |  | 3750 Vrms   |   |

**Note:** When inductive loads are connected to the relays, a large counter electromotive force may occur when the relay actuates because of the energy stored in the load. These flyback voltages can severely damage the relay contacts and greatly shorten the relay life. Limit these flyback voltages at your inductive load by installing a flyback diode for DC loads or a metal oxide varistor for AC loads.

for DC loads



for AC loads

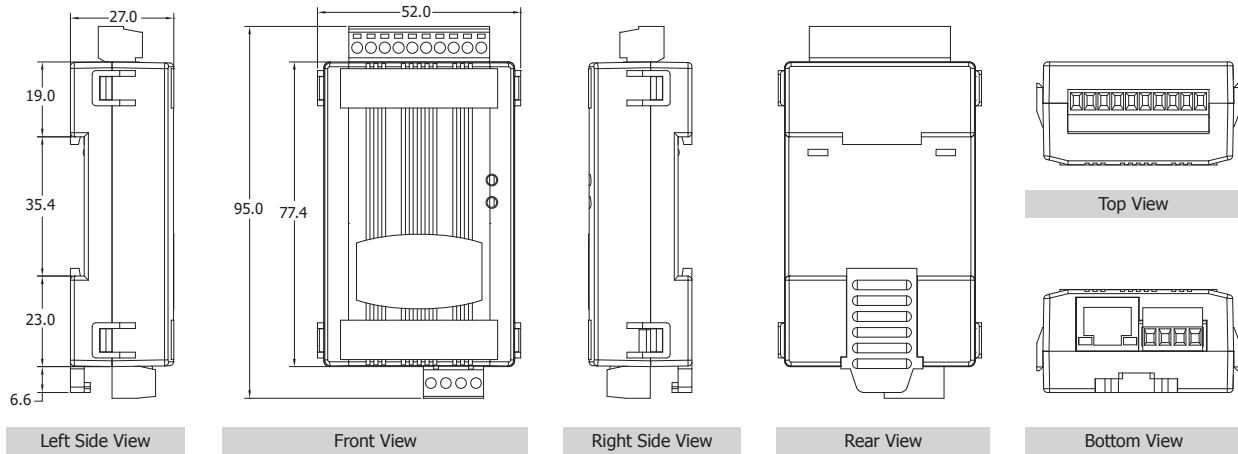


**Varistor Selection**

| Operating Voltage | Varistor Voltage | Max. Peak Current |
|-------------------|------------------|-------------------|
| 100 ~ 120 VAC     | 240 ~ 270 VAC    | > 1000 A          |
| 200 ~ 240 VAC     | 440 ~ 470 VAC    | > 1000 A          |









■ Dimensions (Units: mm)



■ Ordering Information

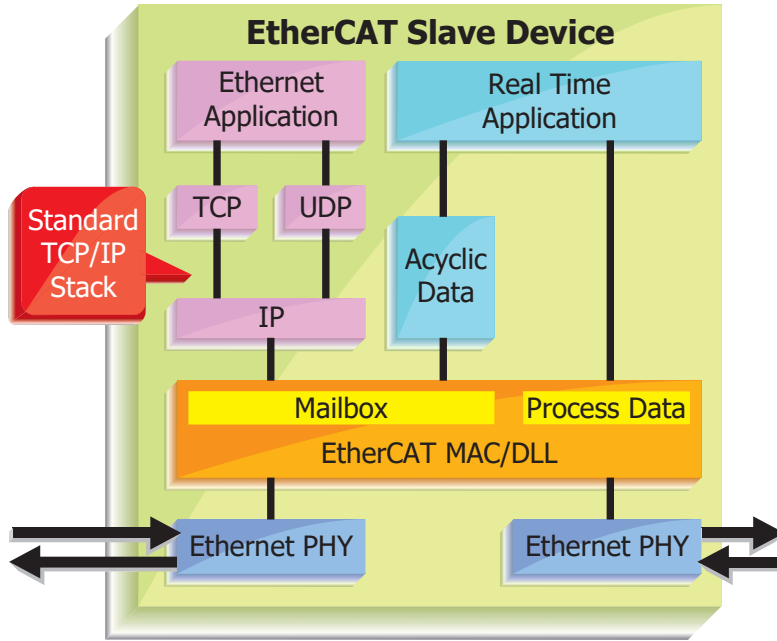
| tET Series     |  |
|----------------|--|
| tET-P6 CR      | Tiny Ethernet module with 6-channel DI (RoHS)  |
| tET-C4 CR      | Tiny Ethernet module with 4-channel DO (NPN, Sink) (RoHS)                              |
| tET-A4 CR      | Tiny Ethernet module with 4-channel DO (PNP, Source) (RoHS)                            |
| tET-P2C2 CR    | Tiny Ethernet module with 2-channel DI and 2-channel DO (NPN, Sink) (RoHS)             |
| tET-P2A2 CR    | Tiny Ethernet module with 2-channel DI and 2-channel DO (PNP, Source) (RoHS)           |
| tET-P2POR2 CR  | Tiny Ethernet module with 2-channel DI and 2-channel Form A PhotoMos relay (RoHS)      |
| tET-P2R2 CR    | Tiny Ethernet module with 2-channel DI and 2-channel Form A relay (RoHS)               |
| tPET Series    |  |
| tPET-P6 CR     | Tiny Ethernet module with PoE, and 6-channel DI (RoHS)                                 |
| tPET-C4 CR     | Tiny Ethernet module with PoE, and 4-channel DO (NPN, Sink) (RoHS)                     |
| tPET-A4 CR     | Tiny Ethernet module with PoE, and 4-channel DO (PNP, Source) (RoHS)                   |
| tPET-P2C2 CR   | Tiny Ethernet module with PoE, 2-channel DI and 2-channel DO (NPN, Sink) (RoHS)        |
| tPET-P2A2 CR   | Tiny Ethernet module with PoE, 2-channel DI and 2-channel DO (PNP, Source) (RoHS)      |
| tPET-P2POR2 CR | Tiny Ethernet module with PoE, 2-channel DI and 2-channel Form A PhotoMos relay (RoHS) |
| tPET-P2R2 CR   | Tiny Ethernet module with PoE, 2-channel DI and 2-channel Form A power relay (RoHS)    |

■ Related Products

|   |                  |   |
|---|------------------|---|
|  | NS-205A CR       | Unmanaged 5-port Industrial Ethernet Switch with Power Input +12 VDC ~ +56 VDC (RoHS) |
|  | NS-205PSE CR     | Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)                  |
|  | NS-205PSE-24V CR | Unmanaged 5-Port 10/100 Mbps PoE (PSE) Ethernet Switch; 24 Vdc Input (RoHS)           |
|  | DIN-KA52F CR     | 24 V/1.04 A, 25 W Power Supply with DIN-Rail Mounting (RoHS)                          |
|  | DIN-KA52F-48 CR  | 48 V/0.52 A, 25 W Power Supply with Din-Rail Mounting (RoHS, for NS-205PSE)           |
|  | GPSU06U-6        | 24 V/0.25 A (max) Power Supply  |

## 3.6. EtherCAT Products

### • Introduction



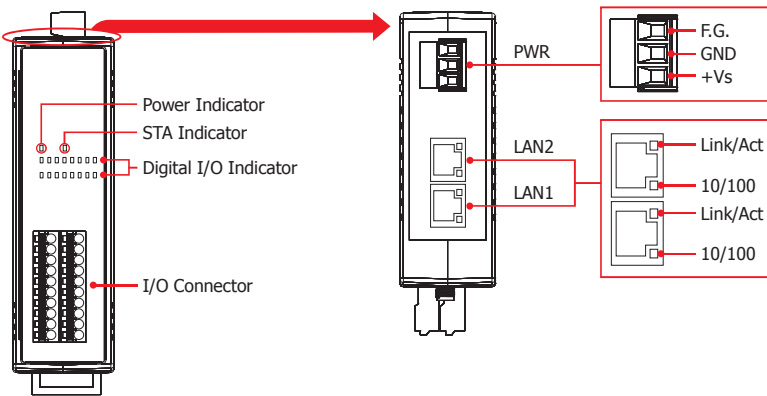
EtherCAT (Ethernet for Control Automation Technology) is an open, high-performance Ethernet-based fieldbus system that makes internet technologies available at the I/O level.

With EtherCAT, the controller can update the input and/or output information at the time when the data is needed.

The ECAT-2000 is an Industrial EtherCAT Remote I/O module series. It is equipped with the EtherCAT protocol, and allows daisy chain connection, making it possible to transfer data much faster during process control and other industrial automation applications. Daisy chain connectivity provides a more scalable system with fewer wires to help avoid interference common in factory settings.

3  
6  
Ethernet I/O Products

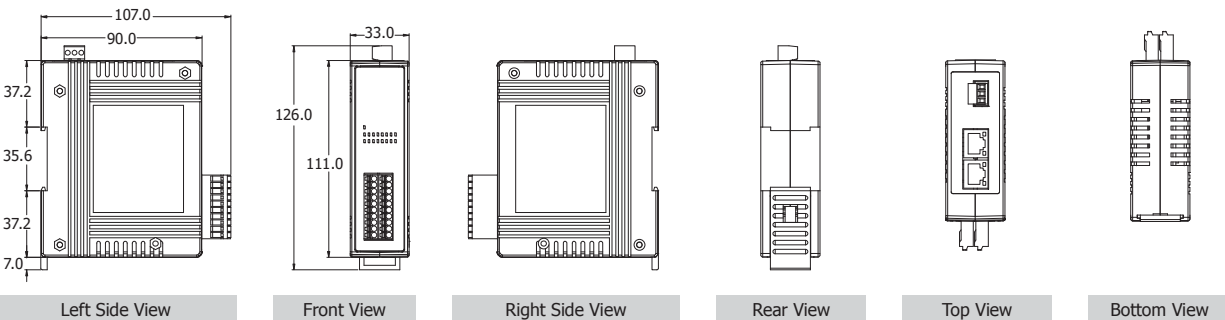
### • Appearance



### • Features

- Transfer protocol: EtherCAT
- Full compliance with Ethernet standards
- High efficiency & short refresh cycle
- 10/100 Base-TX Ethernet, RJ-45 x 2
- Support Daisy Chain connection
- Removable terminal block connector
- LED display to indicate the I/O status
- Compact design saves space and simplifies installation

### • Dimensions (Units: mm)



## • Selection Guide

| Product   | Interface                                   | Description  |
|-----------|---|--|
| ECAT-2045 | EtherCAT I/O device, 16 DOs                 | Isolated 16-channel DO EtherCAT I/O module                           |
| ECAT-2051 | EtherCAT I/O device, 16 DIs                 | Isolated 16-channel DI EtherCAT I/O module                           |
| ECAT-2055 | EtherCAT I/O device, 8 DIs, 8 DOs           | Isolated 8-channel DI and 8-channel DO EtherCAT I/O module           |
| ECAT-2060 | EtherCAT I/O device, 6 DIs, 6 relay outputs | Isolated 6-channel DI and 6-channel relay output EtherCAT I/O module |

### Isolated 16-channel DO Module

**Available soon**  
**ECAT-2045**



The ECAT-2045 is one of the ECAT-2000 Industrial EtherCAT Remote I/O module series. It provides 16-channel isolated digital outputs with 3750 V<sub>rms</sub> field to logic isolation, and is comprehensively used in many applications.

- 10/100 Base-TX Ethernet, RJ-45 x 2
- Support Daisy Chain connection
- Removable terminal block connector
- Do load voltage: +10 ~ +40 Vdc
- Do load current: 700 mA max.
- Provide short-circuit protection on DO channels
- 4 kV Contact ESD protection for any terminal
- Wide range of power input (+10 ~ +30 Vdc) and operating temperature (-25 ~ +75°C)

### Isolated 16-channel DI Module

**Available soon**  
**ECAT-2051**



The ECAT-2051 is one of the ECAT-2000 Industrial EtherCAT Remote I/O module series. It provides 16-channel isolated digital inputs with wide range of input voltage, and is comprehensively used in many applications.

- 10/100 Base-TX Ethernet, RJ-45 x 2
- Support Daisy Chain connection
- Removable terminal block connector
- DI ON/OFF voltage level: +10 ~ +50 Vdc / +4V max.
- 4 kV Contact ESD protection for any terminal
- Wide range of power input (+10 ~ +30 Vdc) and operating temperature (-25 ~ +75°C)

### Isolated 8-channel DI & 8-channel DO Module

**Available soon**  
**ECAT-2055**



The ECAT-2055 is one of the ECAT-2000 Industrial EtherCAT Remote I/O module series. It provides 8 digital inputs and 8 digital outputs, and is suited in various industrial applications

- 10/100 Base-TX Ethernet, RJ-45 x 2
- Support Daisy Chain connection
- Removable terminal block connector
- Do load voltage: +10 ~ +40 Vdc
- Do load current: 700 mA max.
- Provide short-circuit protection on DO channels
- DI ON/OFF voltage level: +10 ~ +50 Vdc / +4V max.
- 4 kV Contact ESD protection for any terminal
- Wide range of power input (+10 ~ +30 Vdc) and operating temperature (-25 ~ +75°C)

### Isolated 6-channel DI & 6 Relay Output Module

**Available soon**  
**ECAT-2060**



The ECAT-2060 is one of the ECAT-2000 Industrial EtherCAT Remote I/O module series. It provides 6 digital inputs and 6 relay outputs, and is suited in various industrial applications

- 10/100 Base-TX Ethernet, RJ-45 x 2
- Support Daisy Chain connection
- Removable terminal block connector
- Relay contact rating: 0.6 A @ 125 VAC, 2 A @ 30 VDC
- Relay operating time / release time: 3 ms / 2 ms (typical)
- Relay minimum life: 500,000 ops
- DI ON/OFF voltage level: +4 ~ +30 Vdc / +1V max.
- 4 kV Contact ESD protection for any terminal
- Wide range of power input (+10 ~ +30 Vdc) and operating temperature (-25 ~ +75°C)

3

6

Ethernet I/O Products

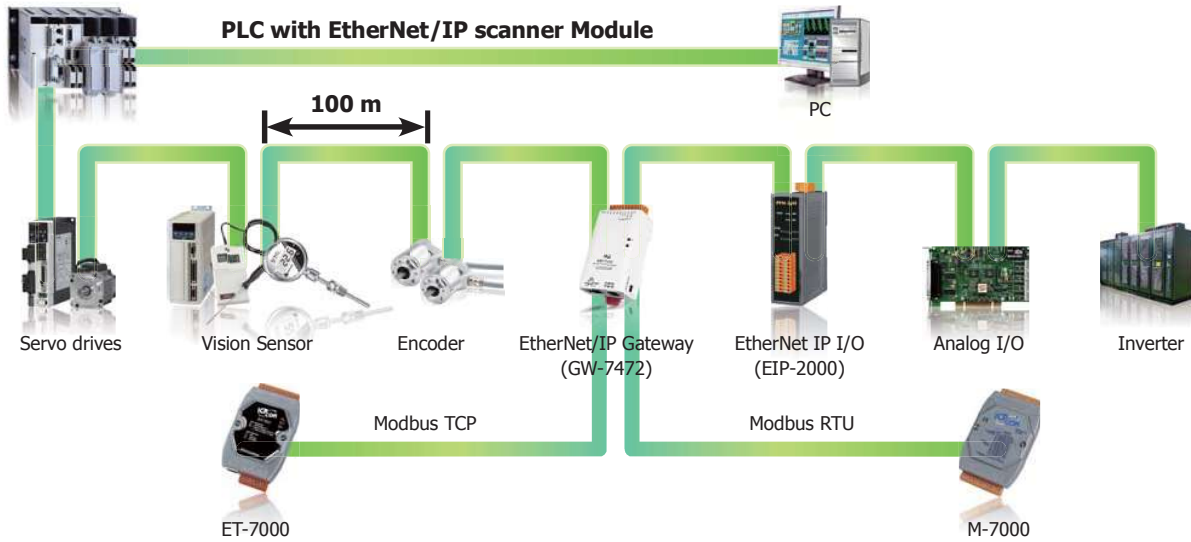
## 3.7. EtherNet/IP Products

### • Introduction

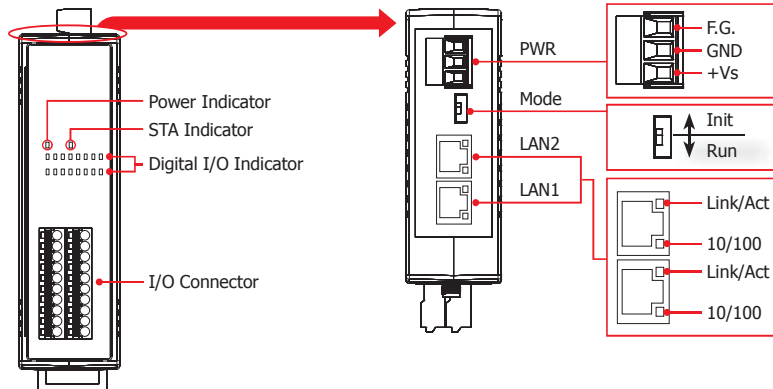
EtherNet/IP is one of the open network standards; it uses all of the protocols of traditional Ethernet including the Transport Control Protocol (TCP), the Internet Protocol (IP) and the media access and signaling technologies. Building on standard Ethernet technologies means that EtherNet/IP will work transparently with all the standard Ethernet devices found today. The EIP-2000 is an Industrial EtherNet/IP Remote I/O module series. It is equipped with the EtherNet/IP protocol, and allows daisy chain connection, making it possible to transfer data much faster during process control and other industrial automation applications.

3  
7

Ethernet I/O Products



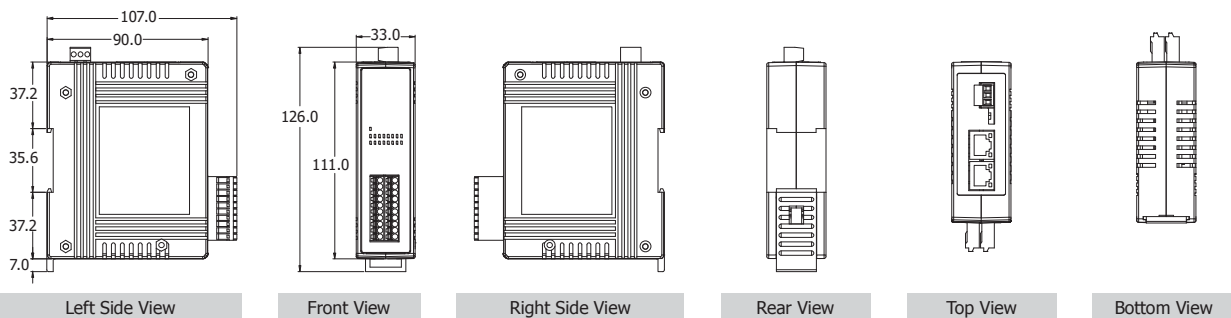
### • Appearance



### • Features

- Transfer protocol: EtherNet/IP
- 10/100 Base-TX Ethernet, RJ-45 x 2
- Support ARP, TCP, UDP, ICMP, DHCP, BOOTP and TFTP protocols
- Support Daisy Chain connection
- Easy firmware update via Ethernet
- Removable terminal block connector
- RoHS compliant with Halogen-free
- LED display to indicate the I/O status

### • Dimensions (Units: mm)



## • Built-in Multi-function I/O

- All Digital Output modules provide additional functions which can be configured by EIP-2000 Utility:
  - Power-On-Value  
On boot up, DO status is set to the Power-On-Value for few seconds.
  - Safe-Value and Safe-Delay  
If the EtherNet/IP connection disconnected, the DO status with remain the last status for certain seconds which is set by Safe Delay then set to Safe-Value.
  - All-in-one Module  
Various I/O components are mixed with multiple channels in a single module, which provides the most cost effective I/O usage and enhances performance of the I/O operations.
- All Digital Input modules provide additional functions:
  - DI counters  
Every DI channels can be used as DI status and 32-bit low speed (5kHz) counters. The counts can be transferred or set zero by EtherNet/IP.

3

7

Ethernet I/O Products

## • Selection Guide

| Product  | Interface                                      | Description   |
|----------|--|---|
| EIP-2055 | EtherNet/IP I/O device, 8 DIs, 8 DOs           | Isolated 8-ch DI and 8-ch DO EtherNet/IP I/O module           |
| EIP-2060 | EtherNet/IP I/O device, 6 DIs, 6 relay outputs | Isolated 8-ch DI and 4-ch relay output EtherNet/IP I/O module |

### Isolated 8-channel DI & 8-channel DO Module

**Available soon**  
**EIP-2055**



The EIP-2055 is one of the EIP-2000 Industrial EtherNet/IP Remote I/O module series. It provides 8 digital input and 8 digital output. The digital I/O of EIP-2055 supports built-in I/O functions such as DI counter and DO safe value...etc.

- 10/100 Base-TX Ethernet, RJ-45 x 2
- Support ARP, TCP, UDP, ICMP, DHCP, BOOTP and TFTP protocols
- Support Daisy Chain connection
- Easy firmware update via Ethernet
- LED display to indicate the I/O status
- Do load voltage: +10 ~ +40 Vdc
- Do load current: 700 mA max.
- Provide short-circuit protection on DO channels
- DI ON/OFF voltage level: +10 ~ +50 Vdc / +4V max.
- 4 kV Contact ESD protection for any terminal
- Built-in Multi-function I/O:
  - Power-On-Value.
  - Safe-Value and Safe-Delay.
  - DI counters.

### Isolated 6-channel DI & 6 Relay Output Module

**Available soon**  
**EIP-2060**

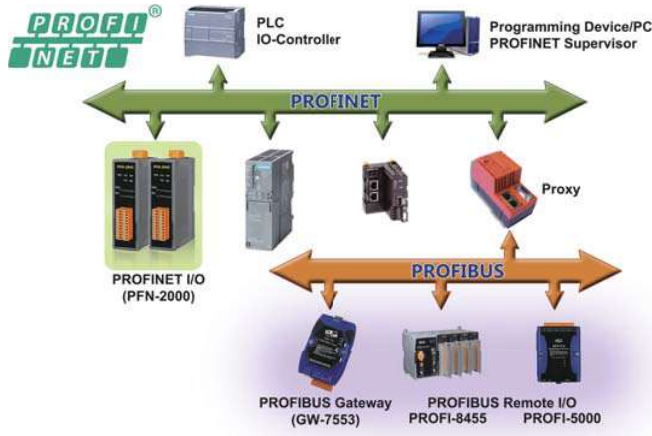


The EIP-2060 is one of the EIP-2000 Industrial EtherNet/IP Remote I/O module series. It provides 6 digital input and 6 relay output. The digital I/O of EIP-2060 supports built-in I/O functions such as DI counter and DO safe value...etc.

- 10/100 Base-TX Ethernet, RJ-45 x 2
- Support ARP, TCP, UDP, ICMP, DHCP, BOOTP and TFTP protocols
- Support Daisy Chain connection
- Easy firmware update via Ethernet
- LED display to indicate the I/O status
- Relay contact rating: 0.6 A @ 125 VAC, 2 A @ 30 Vdc
- Relay operating time / release time: 3 ms / 2 ms (typical)
- Relay minimum life: 500,000 ops
- DI ON/OFF voltage level: +4 ~ +30 Vdc / +1V max.
- 4 kV Contact ESD protection for any terminal
- Built-in Multi-function I/O:
  - Power-On-Value.
  - Safe-Value and Safe-Delay.
  - DI counters.

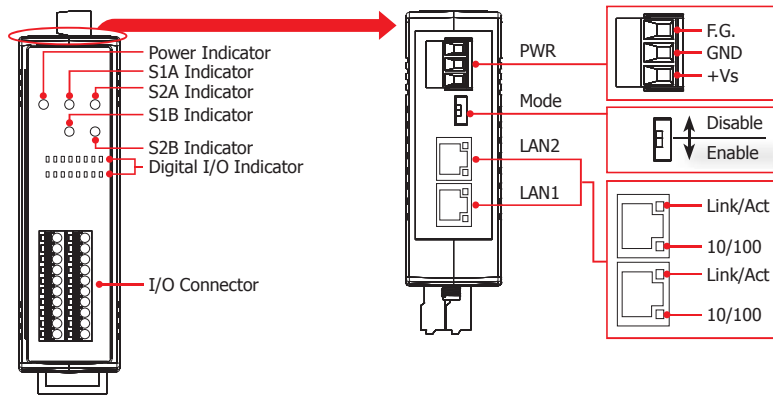
# 3.8. PROFINET Products

## • Introduction



PROFINET is the Ethernet based Automation Standard of PROFIBUS & PROFINET International (PI). It satisfies all requirements of automation technology. It is fit for factory automation, process automation, safety applications and motion control applications, etc. PROFINET allows existing field bus systems such as PROFIBUS DP, PROFIBUS PA, AS-Interface, INTERBUS and DeviceNet to be integrated without changes to existing field devices. It means the investments of field devices and applications are all protected.

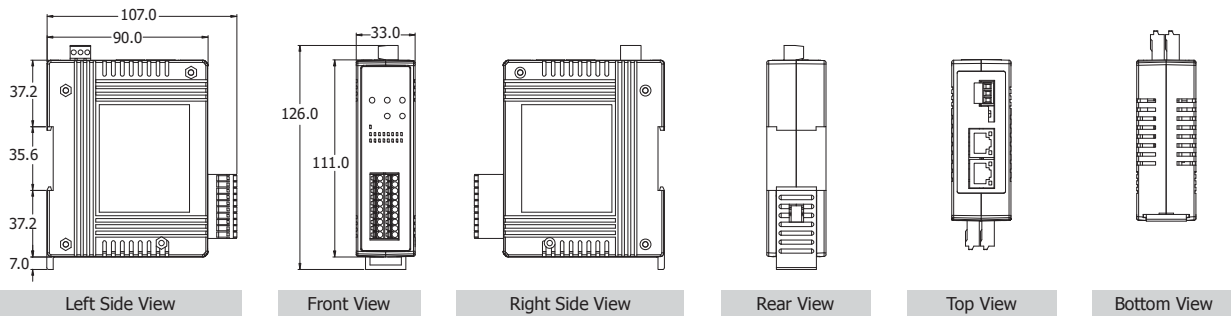
## • Appearance



## • Features

- Transfer protocol: PROFINET I/O
- 10/100 Base-TX Ethernet, RJ-45 x 2
- Supported Ethernet services: ICMP, IGMP, ARP, DHCP, TELNET, TFTP, SNMP, VLAN Priority Tagging
- Supported PROFINET services: RTC, RTA, CL-RPC, DCP, LLDP, I & M
- PROFINET Conformance Class B and RT Class 1
- Cyclic Time: 1ms (min)
- Alarm Type: Process, Diagnostic, Return of Sub Module
- Generic GSDML File Provided

## • Dimensions (Units: mm)



## • Selection Guide

| Product  | Interface                                   | Description  |
|----------|---|--|
| PFN-2045 | PROFINET I/O device, 16 DOs                 | Isolated 16-ch DO PROFINET I/O module                      |
| PFN-2051 | PROFINET I/O device, 16 DIs                 | Isolated 16-ch DI PROFINET I/O module                      |
| PFN-2052 | PROFINET I/O device, 8 DIs                  | Ch-to-ch Isolated 8-ch DI PROFINET I/O module              |
| PFN-2053 | PROFINET I/O device, 16 DIs                 | 16-ch Dry Contact DI PROFINET I/O module                   |
| PFN-2055 | PROFINET I/O device, 8 DIs, 8 DOs           | Isolated 8-ch DI and 8-ch DO PROFINET I/O module           |
| PFN-2060 | PROFINET I/O device, 8 DIs, 4 relay outputs | Isolated 8-ch DI and 4-ch relay output PROFINET I/O module |



**Isolated 16-channel DO Module****Available soon**  
**PFN-2045**

The PFN-2045 is a DO device which follows the standard PROFINET I/O protocol. It provides 16-channel isolated digital outputs with 3750 V<sub>rms</sub> field to logic isolation. You can be access and configure it by using the GSDML file in any standard PROFINET Engineering tool.

- Protocol: PROFINET I/O Device
- PROFINET Conformance Class B and RT Class 1
- Cyclic Time: 1 ms (min)
- Generic GSDML File Provided (Version 2.25)
- Do load voltage: +10 ~ +40 Vdc
- Do load current: 700 mA max.
- Provide short-circuit protection on DO channels
- 4 kV Contact ESD protection for any terminal
- Wide range of power input (+10 ~ +30 Vdc) and operating temperature (-25 ~ +75°C)

**Isolated 16-channel DI Module****Available soon**  
**PFN-2051**

The PFN-2051 is specially designed for PROFINET I/O device. It provides 16-channel isolated digital inputs with wide range of input voltage, and is comprehensively used in many applications. Through the GSDML file, it is easy to communicate with any standard PROFINET I/O controller.

- Protocol: PROFINET I/O Device
- PROFINET Conformance Class B and RT Class 1
- Cyclic Time: 1 ms (min)
- Generic GSDML File Provided (Version 2.25)
- DI ON/OFF voltage level: +10 ~ +50 Vdc / +4V max.
- 4 kV Contact ESD protection for any terminal
- Wide range of power input (+10 ~ +30 Vdc) and operating temperature (-25 ~ +75°C)

**Channel-to-channel Isolated 8-channel DI Module****Available soon**  
**PFN-2052**

The PFN-2052 is specially designed for the I/O device of PROFINET protocol. There are 8-channel isolated digital inputs with 5000 V<sub>rms</sub> field to logic isolation in the PFN-2052. The GSDML file of the PFN-2052 help you building the PROFINET network with the standard PROFINET I/O controller easily and quickly.

- Protocol: PROFINET I/O Device
- PROFINET Conformance Class B and RT Class 1
- Cyclic Time: 1 ms (min)
- Generic GSDML File Provided (Version 2.25)
- DI ON/OFF voltage level: +4 ~ +30 V / +1V max.
- 5000 V<sub>rms</sub> isolation protection on each DI channel
- 4 kV Contact ESD protection for any terminal
- Wide range of power input (+10 ~ +30 Vdc) and operating temperature (-25 ~ +75°C)

**16-channel DI Module****Available soon**  
**PFN-2053**

The PFN-2053 is a standard PROFINET I/O devices. It provide the GSDML file for standard PROFINET Engineering tool. There are 16-channel dry contact non-isolated digital inputs in the PFN-2053. This type of DI module is usually applied with the switch, such as limit switch, button, photo switch, and so forth.

- Protocol: PROFINET I/O Device
- PROFINET Conformance Class B and RT Class 1
- Cyclic Time: 1 ms (min)
- Generic GSDML File Provided (Version 2.25)
- DI ON/OFF voltage level: Open/close to IN.COM
- Input type: Dry Contact, Source
- 4 kV Contact ESD protection for any terminal
- Wide range of power input (+10 ~ +30 Vdc) and operating temperature (-25 ~ +75°C)

**Isolated 8-channel DI & 8-channel DO Module****Available soon**  
**PFN-2055**

The PFN-2055 is specially designed for PROFINET I/O device. It has 8-channel isolated digital inputs and 8-channel isolated digital outputs, and is suited in various industrial applications. You can access and configure it by using the GSDML file in any PROFINET Engineering tool.

- Protocol: PROFINET I/O Device
- PROFINET Conformance Class B and RT Class 1
- Cyclic Time: 1ms (min)
- Generic GSDML File Provided (Version 2.25)
- Do load voltage: +10 ~ +40 Vdc
- Do load current: 700 mA max.
- Provide short-circuit protection on DO channels
- DI ON/OFF voltage level: +10 ~ +50 Vdc/+4V max.
- 4 kV Contact ESD protection for any terminal
- Wide range of power input (+10 ~ +30 Vdc) and operating temperature (-25 ~ +75°C)

**Isolated 8-channel DI & 4 Relay Output Module****Available soon**  
**PFN-2060**







The PFN-2060 is a standard PROFINET I/O devices. Through the GSDML file, it can be easily applied with any standard PROFINET IO controller. It provides 8-channel isolated digital inputs and 4-channel relay outputs. Therefore, you don't need to install the additional relay by yourself. It saves not only the installation space, but the time for wiring.







- Protocol: PROFINET I/O Device
- PROFINET Conformance Class B and RT Class 1
- Cyclic Time: 1 ms (min)
- Generic GSDML File Provided (Version 2.25)
- Relay contact rating: 0.6 A @ 125 VAc, 2 A @ 30 Vdc
- Relay operating time/release time: 3 ms/2 ms (typical)
- Relay minimum life: 500,000 ops
- DI ON/OFF voltage level: +4 ~ +30 Vdc/+1V max.
- 4 kV Contact ESD protection for any terminal
- Wide range of power input (+10 ~ +30 Vdc) and operating temperature (-25 ~ +75°C)







### 3.9. Ethernet/Fiber Switch

3  
9

Ethernet I/O Products

| Unmanaged Industrial PoE Ethernet Switch |   |   |  |   |   |  |
|--|---|---|--|---|---|--|
| Model Name                               | NS-105PSE   | NS-105PSE-24V   | NS-205PSE-24V  | NSM-205PSE-24V  | NSM-210PSE-24V  | NSM-208PSE-M12   |
| Pictures                                 | Available soon<br> | Available soon<br> | NEW<br> | NEW<br> | Available soon<br> | NEW<br> |
| Speed                                    | 10/100 M  |   |  |   |   |  |
| Ethernet Port                            | 1   | 1   | 1  | 1   | 2   | -  |
| Ethernet Port with PoE                   | 4   | 4   | 4  | 4   | 8   | 8  |
| Casing                                   | Plastic   |   |  | Metal with IP30   |   | Metal with IP40  |
| Operating Temperature                    | -40 ~ +75°C   |   |  |   |   |  |
| Power Input                              | +46 Vdc ~ +53 Vdc   |   | +18 Vdc ~ +32 Vdc  |   |   | +46 Vdc ~ +53 Vdc  |
| Dimensions (W x L x H ) (Units: mm)      | 76 x 38 x 118   | 76 x 38 x 118   | 31 x 113 x 157   | 25 x 119 x 168  | 25 x 119 x 168  | 190 x 56 x 100   |

| Unmanaged Industrial Ethernet Switch |  |  |   |   |  |  |
|--------------------------------------|--|--|---|---|--|--|
| Model Name                           | NS-208-IP67  | NS-205A  | NS-105A   | NS-208A   | NSM-208A   | NSM-208-M12  |
| Pictures                             | NEW<br> | NEW<br> | Available soon<br> | NEW<br> | NEW<br> | NEW<br> |
| Speed                                | 10/100 M   |  |   |   |  |  |
| Port                                 | 8  | 5  | 5   | 8   | 8  | 8  |
| Casing                               | Plastic  |  |   | Metal   |  | Metal with IP40  |
| Operating Temperature                | -10 ~ +60°C  |  | -40 ~ +75°C   |   |  |  |
| Power Input                          | +12 Vdc ~ +53 Vdc  | +12 Vdc ~ +56 Vdc  | +12 Vdc ~ +48 Vdc   |   |  | +12 Vdc ~ +53 Vdc  |
| Dimensions (W x L x H ) (Units: mm)  | 190 x 155 x 104  | 33 x 78 x 107  | 76 x 38 x 118   | 31 x 113 x 157  | 25 x 119 x 168   | 190 x 56 x 100   |

| Unmanaged Industrial 10/100 Base-T(X) with 100 Base-FX Fiber Switch |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| Model Name  | NSM-205AFT-T   | NSM-205AFC-T   | NSM-205AFCS-T  | NSM-206AFT-T  | NSM-206AFC-T   | NSM-206AFCS-T  |  |
| Pictures  | NEW<br> | NEW<br> | NEW<br> | NEW<br> | NEW<br> | NEW<br> |  |
| Fiber Port  | Mode   | Multit-mode  | Multit-mode  | Single-mode   | Multit-mode  | Single-mode  |  |
|   | Connector  | ST   | SC   | SC  | ST   | SC   |  |
|   | Speed  | 100 M  |  |   |  |  |  |
| Ethernet  | Port   | 1  |  |   | 2  |  |  |
|   | Speed  | 10/100 M   |  |   |  |  |  |
| Ethernet  | Port   | 4  |  |   |  |  |  |
|   | Casing   | Metal  |  |   |  |  |  |
| Operating Temperature   | -30 ~ +75°C  |  |  |   |  |  |  |
| Power Input   | +12 Vdc ~ +48 Vdc  |  |  |   |  |  |  |
| Dimensions (W x L x H ) (Units: mm)                                 | 25 x 133 x 168   |  |  |   |  |  |  |

**High Reliability Industrial Ethernet Switch Catalog**

- Managed Ethernet Switches
- Unmanaged Ethernet Switches PoE Ethernet Switches
- Media Converters
- Real-time Redundant Ring Ethernet Switches
- IP67 Waterproof Switches
- Cyber-Ring Ethernet Self-healing Technology

