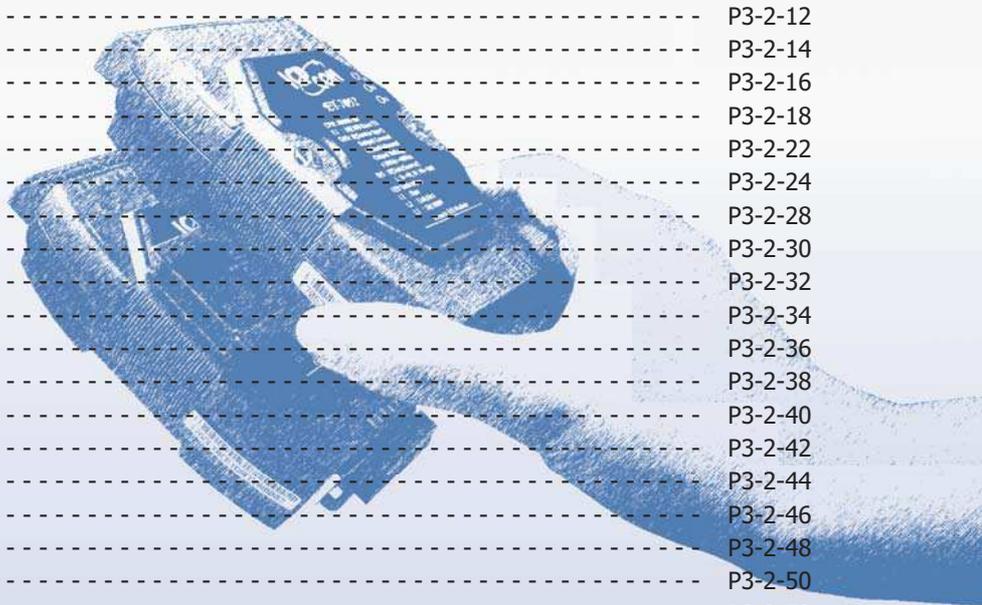


Ethernet Remote I/O Modules

3

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| 3.1. Ethernet I/O products | P3-1-1 |
| 3.2. ET-7000/PET-7000 Series (Web based) | P3-2-1 |
| <ul style="list-style-type: none"> ● Introduction ----- P3-2-1 ● Applications ----- P3-2-1 ● Features----- P3-2-1 ● Software Support ----- P3-2-3 ● Selection Guide ----- P3-2-4 ● ET-7002/PET-7002 ----- P3-2-6 ● ET-7005/PET-7005 ----- P3-2-8 ● ET-7015/PET-7015 ----- P3-2-10 ● ET-7016/PET-7016 ----- P3-2-12 ● ET-7017/PET-7017 ----- P3-2-14 ● ET-7017-10/PET-7017-10 ----- P3-2-16 ● ET-7018Z/PET-7018Z ----- P3-2-18 ● ET-7019/PET-7019 ----- P3-2-22 ● ET-7019Z/PET-7019Z ----- P3-2-24 ● ET-7026/PET-7026 ----- P3-2-28 ● ET-7042/PET-7042 ----- P3-2-30 ● ET-7044/PET-7044 ----- P3-2-32 ● ET-7050/PET-7050 ----- P3-2-34 ● ET-7051/PET-7051 ----- P3-2-36 ● ET-7052/PET-7052 ----- P3-2-38 ● ET-7053/PET-7053 ----- P3-2-40 ● ET-7055/PET-7055 ----- P3-2-42 ● ET-7060/PET-7060 ----- P3-2-44 ● ET-7062/PET-7062 ----- P3-2-46 ● ET-7065/PET-7065 ----- P3-2-48 ● ET-7066/PET-7066 ----- P3-2-50 ● ET-7067/PET-7067 ----- P3-2-52 | |
| 3.3. tET/tPET Series Modules (IP based) | P3-3-1 |
| <ul style="list-style-type: none"> ● Introduction ----- P3-3-1 ● Applications ----- P3-3-1 ● Features----- P3-3-1 ● Selection Guide ----- P3-3-4 | |
| 3.4. Ethernet/Fiber Switch | P3-4-1 |



3.1. Ethernet I/O products

3

Ethernet Remote I/O Modules

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 modules, such as palm-size ET-7000/PET- 7000 series (ch3.2) and tiny-size tET/tPET series (Ch3.3). 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 can also provide some ODM modules.

| Model Name | tET/tPET Series | ET-7000/PET-7000 Series |
|------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Pictures |  |  |
| Communication | | |
| Ethernet | 10/100 M, RJ-45 x1 | |
| 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) |
| I/O | | |
| I/O pins | 10 pins | 21 pins |
| DI Counter | 32-bit, 3.5 kHz | 32-bit, 500 Hz |
| Pair Connection | Yes (Polling/Push Mode) | Yes (Polling Mode) |
| Mechanical | | |
| Dimensions (W x L x D) | 52 mm x 98 mm x 27 mm | 72 mm x 123 mm x 35 mm |

1

Ethernet I/O products

Further more, we also developed ET-87Pn, 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. With its patented technology, namely auto configuration and hot swap, it saves lots of labor on the set up and maintenance of the automation systems. Reliable 3-piece construction enables users to hot swap modules during operation, without rewiring. All I/O module data are backed up in the non-volatile memory of the ET-87Pn. After hot-swapping a module, all settings are automatically loaded to recover.



Features

- Two Ethernet Ports for Daisy-Chain Topology
- LAN Bypass Feature
- Hot Swap
- Auto Configuration
- Easy Duplicate System
- Easy Maintenance and Diagnosis
- DCON Protocol

For more details of, refer to **Compact PAC Product Catalog**



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

• Introduction

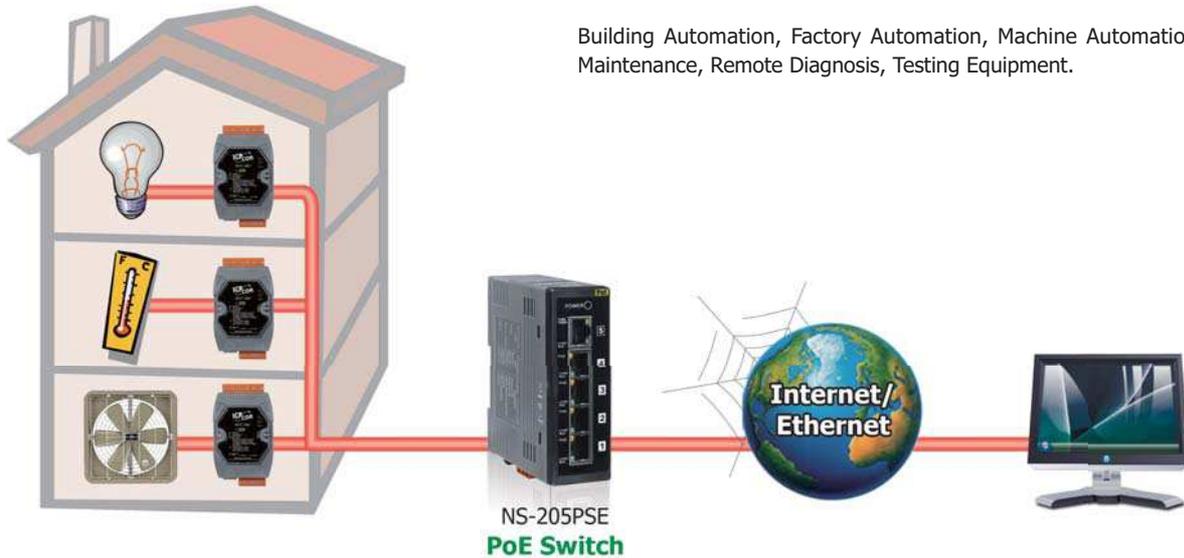


The ET-7000/PET-7000, a web-based Ethernet I/O module, features a Built-in web server which allows configuration, I/O monitoring and I/O control by simply using a regular web browser. Remote control is as easy as surfing the Internet.

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

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

• Applications



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

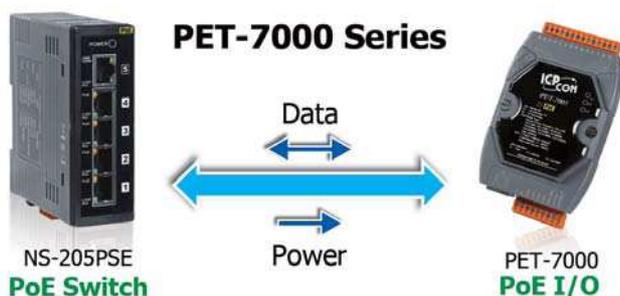
• Features

1. Power over Ethernet (PoE)

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

2. 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.

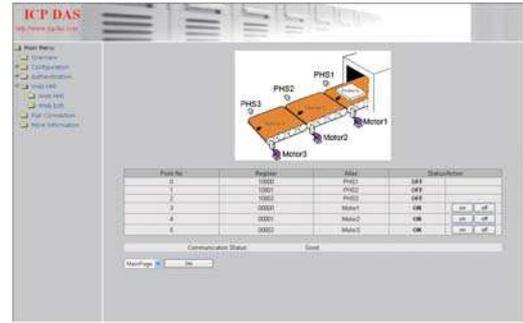


3. Web HMI

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.

4. 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.



5. 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.

6. 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

7. Dual Watchdog

The Dual Watchdog is 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.

8. Power-on Value and Safe Value

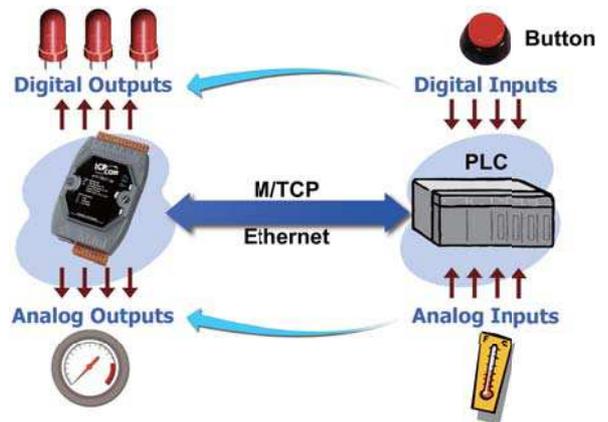
Besides setting by the set AO,DO commands, the AO,DO can be set under two other conditions.

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.

9. 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.

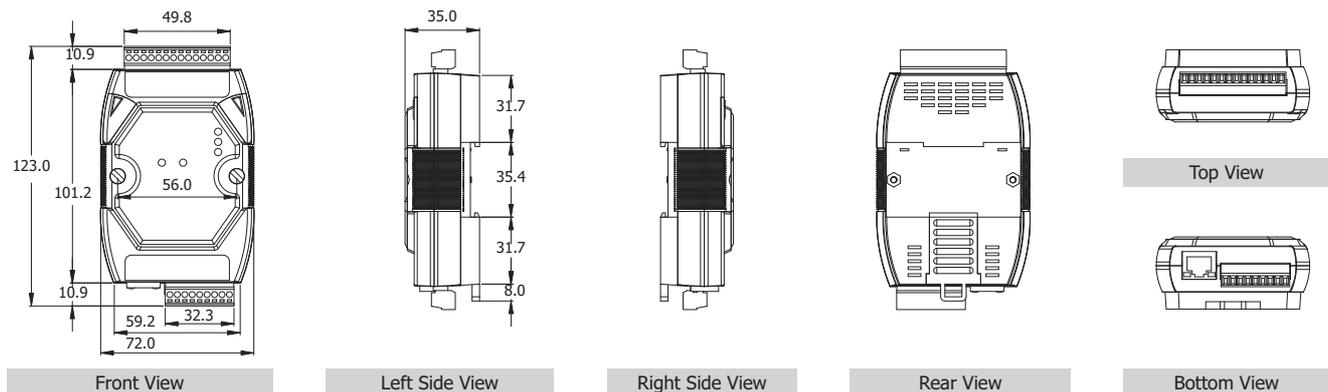


10. Highly Reliable Under Harsh Environmen

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



11. Mechanical



• 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!

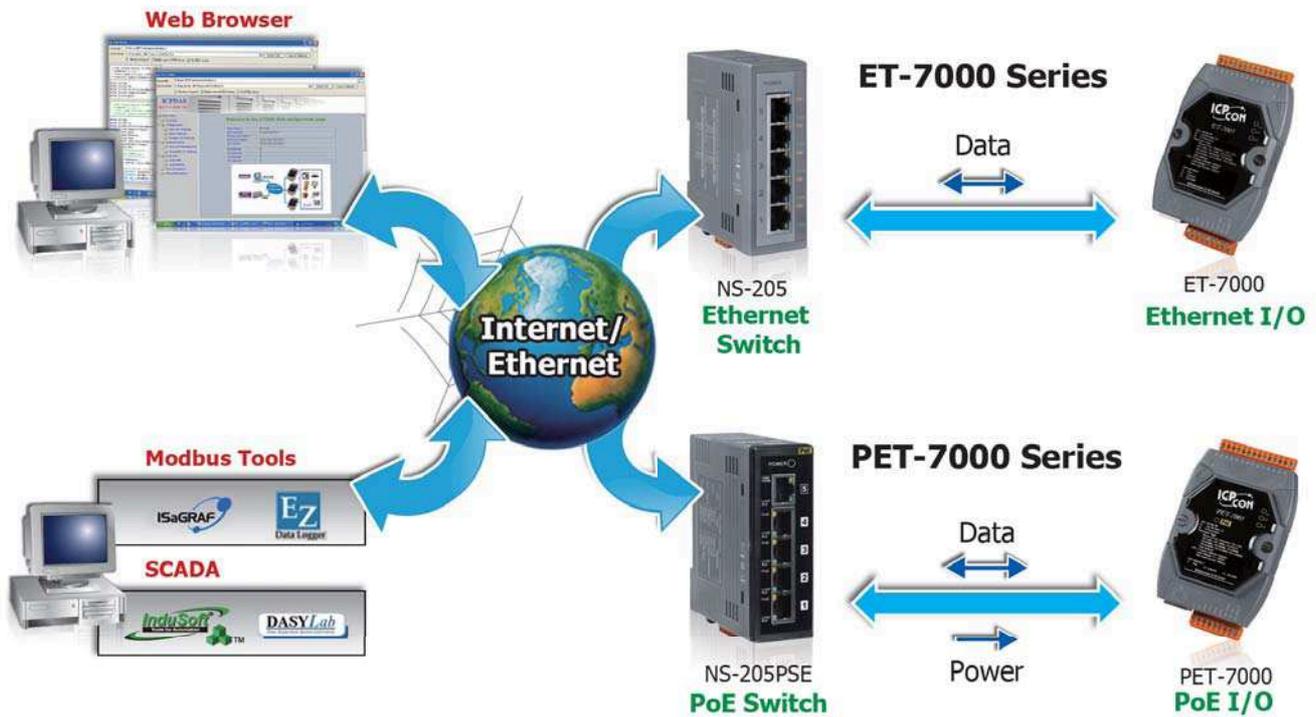
EZ Data Logger is a small data logger software. It can be applied to small remote I/O system. With its user-friendly interface, users can quickly and easily build a data logger software without any programming skill.

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 |
| WES 2009, Windows XP/Vista/7 | VS .NET 2005/2008 | nModbus.dll and Demos |
| | LabView | Demos |
| Linux | C | Libraries and Demos |

• Selection Guide


 Analog Input Model

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



Multifunction 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 PET-7002 | 3 | +/- 150 mV, +/- 500 mV, +/- 1 V, +/- 5 V, +/-10 V, + 0 mA ~ + 20 mA, +/- 20 mA, 4 ~ 20 mA | - | - | - | 6 | Wet (Sink,Source) | 3 | Power Relay (Form A) |
| ET-7016 PET-7016 | 2 | +/- 15 mV, +/- 50 mV, +/- 100 mV, +/- 500 mV, +/- 1 V, +/- 2.5 V, 0 ~ 20 mA, +/- 20 mA, 4 ~ 20mA | Strain Gague, Load Cell, Full-Bridge, Half-Bridge, Quarter-Bridge | 1 | 0 ~ 10V | 2 | Wet (Sink,Source) | 2 | Open Collector (Sink) |
| ET-7026 PET-7026 | 6 | +/- 150 mV, +/- 500 mV, +/- 1 V, +/- 5 V, +/-10 V, 0 ~ 20 mA, +/- 20 mA, 4 ~ 20mA | - | 2 | 0 ~ 5 V, +/- 5 V, 0 ~ 10 V, +/- 10 V, 0 ~ 20 mA, 4 ~ 20 mA | 2 | Dry (Source), Wet (Sink,Source) | 2 | Open Collector (Sink) |



Digital I/O

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



Relay Output & Digital Input

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



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 V_{rms} Overvoltage Protection
 - DI/Counter: 6 Channels
 - Power Relay: 3 Channels



Introduction

The ET-7002/PET-7002 is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7002/PET-7002 offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7002 features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7002 a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

The ET-7002/PET-7002 is a multi-function module, there are 3-channel analog inputs, 6-channel digital inputs and 3-channel Relay outputs module.. It provides programmable input range on all 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 an individual range and has 240 V_{rms} high overvoltage protection. Jumper selectable for voltage or current of inputs, ET-7002/PET-7002 is fully RoHS-compliant and has qualification for 4 kV ESD protection as well as 2500 V_{dc} intra-module isolation.

Applications

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

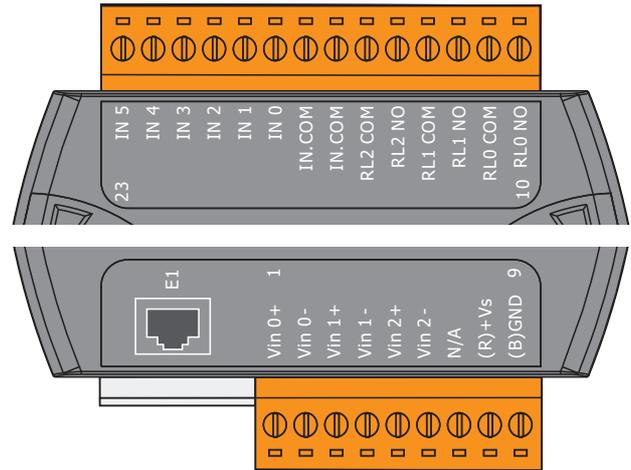
System Specifications

| Models | ET-7002 | PET-7002 |
|------------------------------|--------------------------------------------------------------|------------------------------|
| Software | | |
| ✓ Built-in Web Server | Yes | |
| ✓ Web HMI | Yes | |
| ✓ I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| ✓ PoE | - | Yes |
| ✓ Protocol | Modbus TCP, Modbus UDP | |
| ✓ Security | ID, Password and IP Filter | |
| ✓ Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 2500 V _{dc} | 2500 V _{dc} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal and 8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | +/-4 kV for Power | |
| Surge (IEC 61000-4-5) | +/-4 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 1.7 W | |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

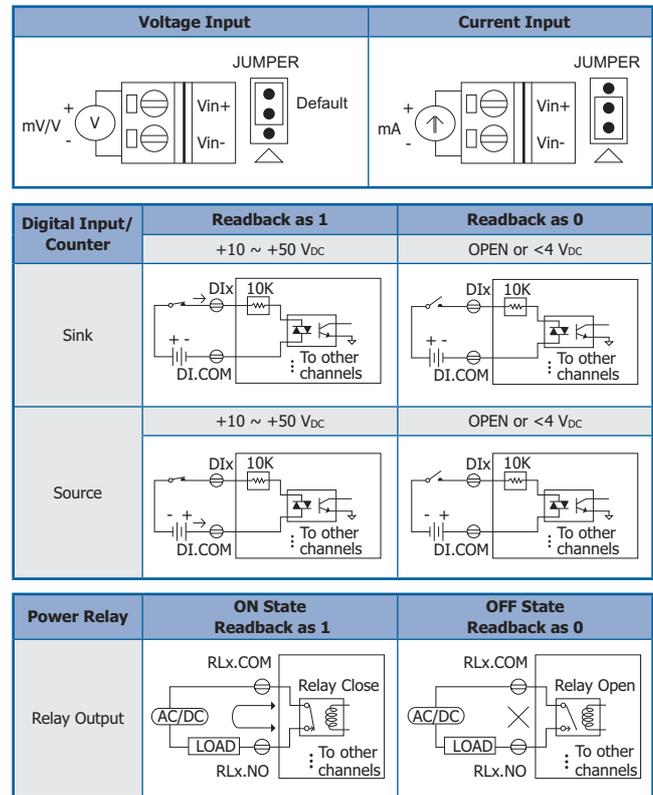
I/O Specifications

| Analog Input | | |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Channels | 3 (Differential) | |
| Type | +/- 150 mV, +/- 500 mV, +/- 1V, +/- 5 V, +/-10 V + 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 μ V/ $^{\circ}$ C | |
| Span Drift | +/-25 ppm/ $^{\circ}$ C | |
| Overvoltage Protection | 240 V _{rms} | |
| Overcurrent Protection | 50 mA Max. at 110 V _{oc} /V _{ac} Max. | |
| Input Impedance | Voltage | 2 M Ω |
| | Current | 124 Ω |
| 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 V _{dc} ~ +50 V _{dc} | |
| Off Voltage Level | +4 V _{dc} Max. | |
| Input Impedance | 10 K Ω , 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 V _{dc} | |
| Power Relay | | |
| Channels | 3 | |
| Type | Power Relay, Form A (SPST N.O.) | |
| Operating Voltage Range | 250 V _{ac} /30 V _{dc} | |
| Max. Load Current | 5.0A/channel at 25 $^{\circ}$ C | |
| Operate Time | 6 ms (Typical) | |
| Release Time | 3 ms (Typical) | |
| Electrical Life (Resistive load) | VDE: | 5 A @ 250 V _{ac} 30,000 ops (10 ops/minute) at 75 $^{\circ}$ C. 5 A @ 30 V _{dc} 70,000 ops (10 ops/minute) at 75 $^{\circ}$ C. |
| | UL: | 5 A @ 250 V _{ac} /30 V _{dc} 6,000 ops. 3 A @ 250 V _{ac} /30 V _{dc} 100,000 ops. |
| | Mechanical Life | 20,000,000 ops. at no load (300 ops./minute). |
| Intra-module Isolation, Field-to-Logic | 3750 V _{dc} | |
| Power-on Value | Yes, Programmable | |
| Safe Value | Yes, Programmable | |

Pin Assignments



Wire Connections



Ordering Information

| | |
|-------------|-------------------------------------------------------|
| ET-7002 CR | 3-channel Analog Input and DIO Module (RoHS) |
| PET-7002 CR | 3-channel Analog Input and DIO Module with PoE (RoHS) |

Accessories

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

| | | |
|--|-----------------|------------------------------------------------------------|
| | MDR-20-24 CR | 24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS) |
| | DIN-KA52F-48 CR | 48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS) |



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

The ET-7005/PET-7005 is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7005/PET-7005 offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7005 features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7005 a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

ET-7005/PET-7005 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 V_{oc} intra-module isolation and 110 V_{oc}/V_{ac} overvoltage protection for thermistor on ET-7005/PET-7005 makes itself running with higher reliability.

Applications

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

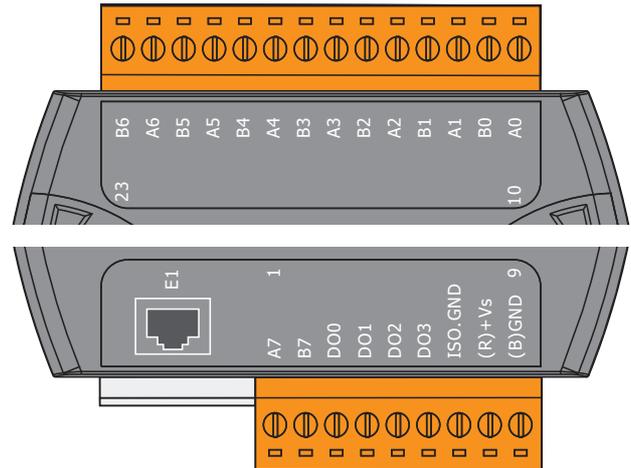
System Specifications

| Models | ET-7005 | PET-7005 |
|------------------------------|--------------------------------------------------------------|------------------------------|
| Software | | |
| ✓ Built-in Web Server | Yes | |
| ✓ Web HMI | Yes | |
| ✓ I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| ✓ PoE | - | Yes |
| ✓ Protocol | Modbus TCP, Modbus UDP | |
| ✓ Security | ID, Password and IP Filter | |
| ✓ Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{oc} | - |
| I/O | 2500 V _{oc} | 2500 V _{oc} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal and 8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | +/-4 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{oc} | Yes, 12 ~ 48 V _{oc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.1 W | 3.0 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

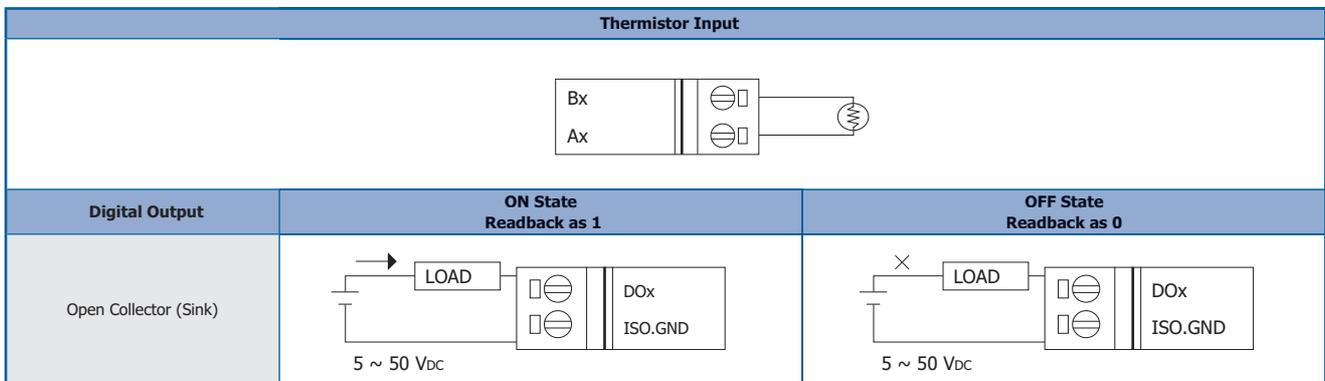
I/O Specifications

| Thermistor Input | |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Channels | 8 (Differential) |
| Sensor Type | 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 μ V/ $^{\circ}$ C |
| Span Drift | +/-25 ppm/ $^{\circ}$ C |
| Overvoltage Protection | 110 V _{dc} /V _{ac} |
| 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 V _{dc} ~ 50 V _{dc} |
| Overvoltage Protection | 60 V _{dc} |
| Overload Protection | 1.4 A |
| Short-circuit Protection | Yes |
| Power-on Value | Yes, Programmable |
| Safe Value | Yes, Programmable |

Pin Assignments



Wire Connections



Ordering Information

| | |
|--------------------|----------------------------------------------------------|
| ET-7005 CR | 8-channel Thermistor Input and DO Module (RoHS) |
| PET-7005 CR | 8-channel Thermistor Input and DO Module with PoE (RoHS) |

Accessories

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

| | |
|-----------------|------------------------------------------------------------|
| MDR-20-24 CR | 24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS) |
| DIN-KA52F-48 CR | 48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS) |



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

The ET-7015/PET-7015 is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7015/PET-7015 offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7015 features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7015 a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

ET-7015/PET-7015 is specifically designed for long-distance RTD measurement. It features automatic compensation for three-wire RTD so that it can measure right regardless of the length of wires and provide 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.

Applications

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

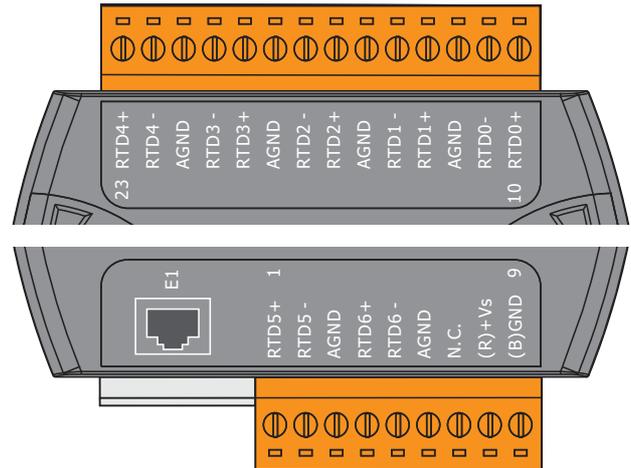
System Specifications

| Models | ET-7015 | PET-7015 |
|------------------------------|--------------------------------------------------------------|---------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 Vdc | - |
| I/O | 2500 Vdc | 2500 Vdc |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal and 8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | +/-4 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 Vdc | Yes, 12 ~ 48 Vdc |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.0 W | 2.6 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| 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 μ V/ $^{\circ}$ C |
| Span Drift | +/-20 μ V/ $^{\circ}$ C |
| Common Mode Rejection | 150 dB |
| Normal Mode Rejection | 100 dB |
| Input Impedance | >1M Ω |
| Open Wire Detection | Yes |
| 3-wire RTD Lead Resistance Elimination | Yes |

Pin Assignments



Wire Connections

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

Ordering Information

| | |
|-------------|--------------------------------------------|
| ET-7015 CR | 7-channel RTD Input Module (RoHS) |
| PET-7015 CR | 7-channel RTD Input Module with PoE (RoHS) |

Accessories

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



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
 - AO: 1 Channels
 - DI/Counter: 2 Channels
 - DO: 2 Channels



Introduction

The ET-7016/PET-7016 is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7016/PET-7016 offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7016 features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7016 a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

The ET-7016/PET-7016 is a strain gauge module providing are 2 analog input channels, 1 excitation voltage output channel, 2 digital input channels and 2 digital output channels module. It provides a programmable input range on all analog 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.

Applications

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

System Specifications

| Models | ET-7016 | PET-7016 |
|------------------------------|--------------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 2500 V _{dc} | 2500 V _{dc} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal and 8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | +/-4 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 4.2 W | 5.3 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| 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 μ V/ $^{\circ}$ C | |
| Span Drift | +/-25 ppm/ $^{\circ}$ C | |
| Overvoltage Protection | 30 V _{dc} | |
| Input Impedance | Voltage Input: >400 k Ω , Current Input: 125 Ω | |
| 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 V _{dc} Max. | |
| On Voltage Level | +3.5 V _{dc} ~ +50 V _{dc} | |
| Counters | Channels | 2 |
| | Max. Count | 4,294,967,285 (32-bit) |
| | Max. Input Frequency | 100 Hz |
| | Min. Pulse Width | 5 ms |
| Overvoltage Protection | 70 V _{dc} | |
| Digital Output | | |
| Channels | 2 | |
| Type | Isolated Open Collector | |
| Sink/Source (NPN/PNP) | Sink | |
| Max. Load Current | 700 mA/Channel | |
| Load Voltage | + 5 V _{dc} ~ + 50 V _{dc} | |
| Overvoltage Protection | 60 V _{dc} | |
| Overload Protection | 1.4 A | |
| Short-circuit Protection | Yes | |
| Power-on Value | Yes, Programmable | |
| Safe Value | Yes, Programmable | |

Excitation Voltage

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

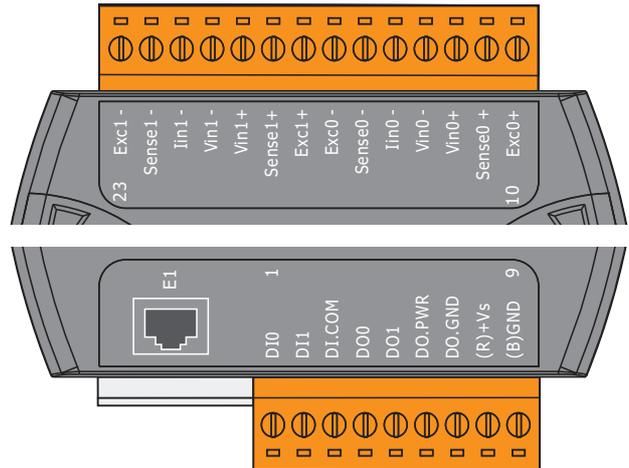
Ordering Information

| | |
|--------------------|-------------------------------------------------------|
| ET-7016 CR | 2-channel Strain Gauge and DIO Module (RoHS) |
| PET-7016 CR | 2-channel Strain Gauge and DIO Module with PoE (RoHS) |

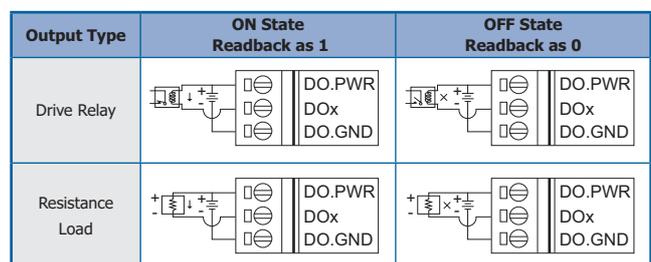
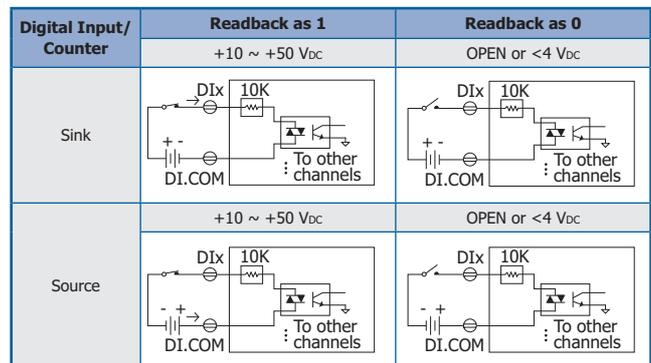
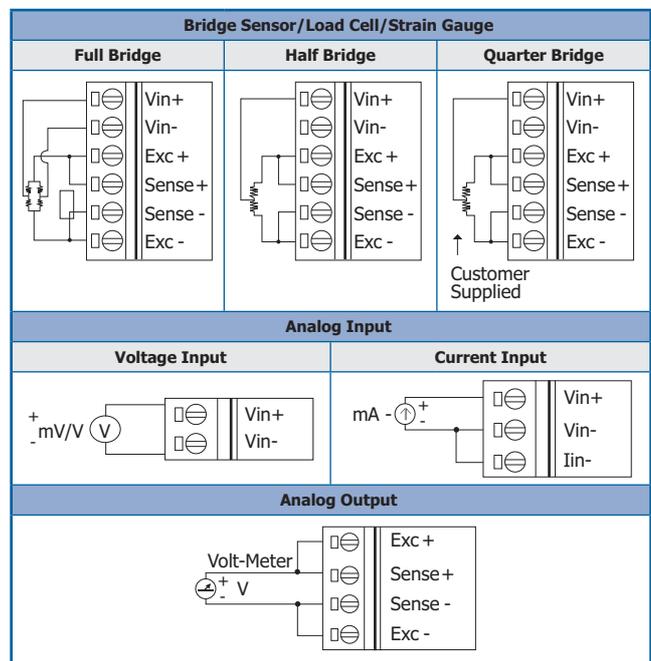
Accessories

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

Pin Assignments



Wire Connections





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 V_{rms} Overvoltage Protection
 - DO: 4 Channels



Introduction

The ET-7017/PET-7017 is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7017/PET-7017 offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7017 features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7017 a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

The ET-7017/PET-7017 is a 16-bit, 8-channel differential analog inputs and 4-channel digital outputs module that provides programmable input range on all analog channels (+/-150 mV, +/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-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 V_{rms} high overvoltage protection. Jumper selectable for voltage or current input. 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 V_{dc} intra-module isolation.

Applications

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

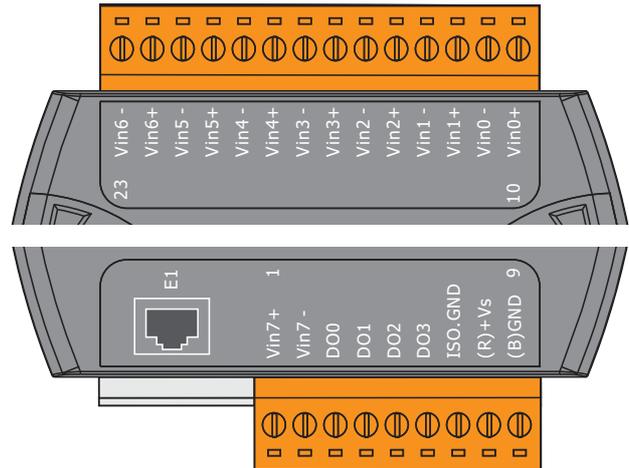
System Specifications

| Models | ET-7017 | PET-7017 |
|------------------------------|--------------------------------------------------------------|------------------------------|
| Software | | |
| ✓ Built-in Web Server | Yes | |
| ✓ Web HMI | Yes | |
| ✓ I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| ✓ PoE | - | Yes |
| ✓ Protocol | Modbus TCP, Modbus UDP | |
| ✓ Security | ID, Password and IP Filter | |
| ✓ Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 2500 V _{dc} | 2500 V _{dc} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal and 8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | +/-4 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.6 W | 3.1 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

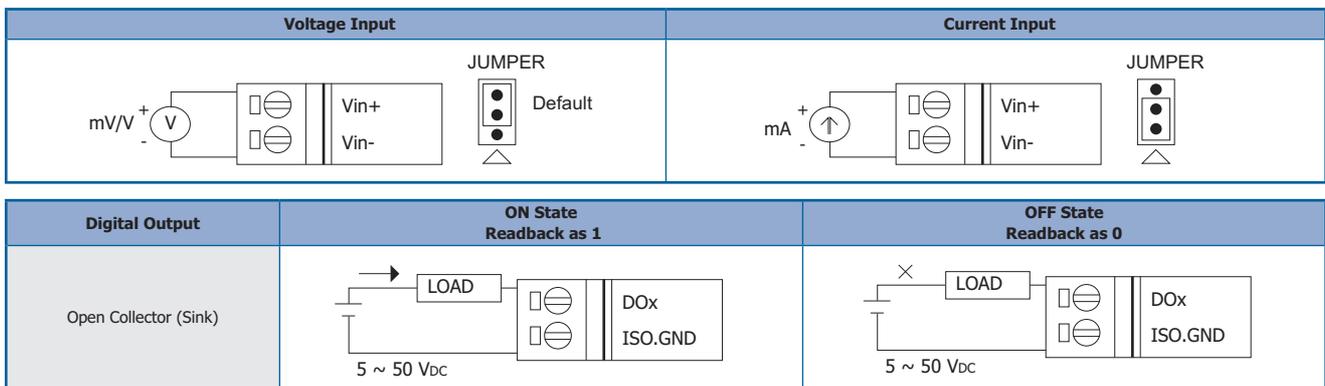
I/O Specifications

| Analog Input | | |
|----------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------|
| Channels | 8 (Differential) | |
| Type | +/-150 mV, +/-500 mV, +/-1V, +/-5V, +/-10V +/-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 μ V/ $^{\circ}$ C | |
| Span Drift | +/-25 ppm/ $^{\circ}$ C | |
| Overvoltage Protection | 240 V_{rms} | |
| Input Impedance | Voltage | 2 M Ω |
| | Current | 125 Ω |
| 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 V_{dc} ~ 50 V_{dc} | |
| Overvoltage Protection | 60 V_{dc} | |
| Overload Protection | 1.4 A | |
| Short-circuit Protection | Yes | |
| Power-on Value | Yes, Programmable | |
| Safe Value | Yes, Programmable | |

Pin Assignments



Wire Connections



Ordering Information

| | |
|--------------------|------------------------------------------------------|
| ET-7017 CR | 8-channel Analog Input and DO Module (RoHS) |
| PET-7017 CR | 8-channel Analog Input and DO Module with PoE (RoHS) |

Accessories

| | | | |
|------------------|---------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------|
| NS-205 CR | Unmanaged 5-port Industrial Ethernet Switch; requires a 24 V_{dc} Input (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 V_{dc} 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 V_{dc} 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
 - AI: 10/20 Channels with 240 V_{rms} Overvoltage Protection



Introduction

The ET-7017-10/PET-7017-10 is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7017-10/PET-7017-10 offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7017-10 features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7017-10 a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

The ET-7017-10 is a 16-bit, 10-channel differential or 20-channel single-ended analog inputs module that 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 V_{rms} high overvoltage protection. Jumper selectable for voltage or current input. 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 V_{oc} intra-module isolation.

Applications

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

System Specifications

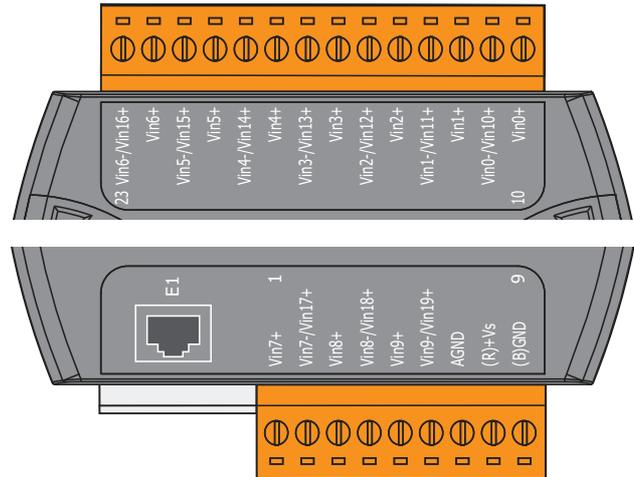
| Models | ET-7017-10 | PET-7017-10 |
|------------------------------|--------------------------------------------------------------|------------------------------|
| Software | | |
| ✓ Built-in Web Server | Yes | |
| ✓ Web HMI | Yes | |
| ✓ I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| ✓ PoE | - | Yes |
| ✓ Protocol | Modbus TCP, Modbus UDP | |
| ✓ Security | ID, Password and IP Filter | |
| ✓ Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 2500 V _{dc} | 2500 V _{dc} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal and 8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | +/-4 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.6 W | 3.8 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

I/O Specifications

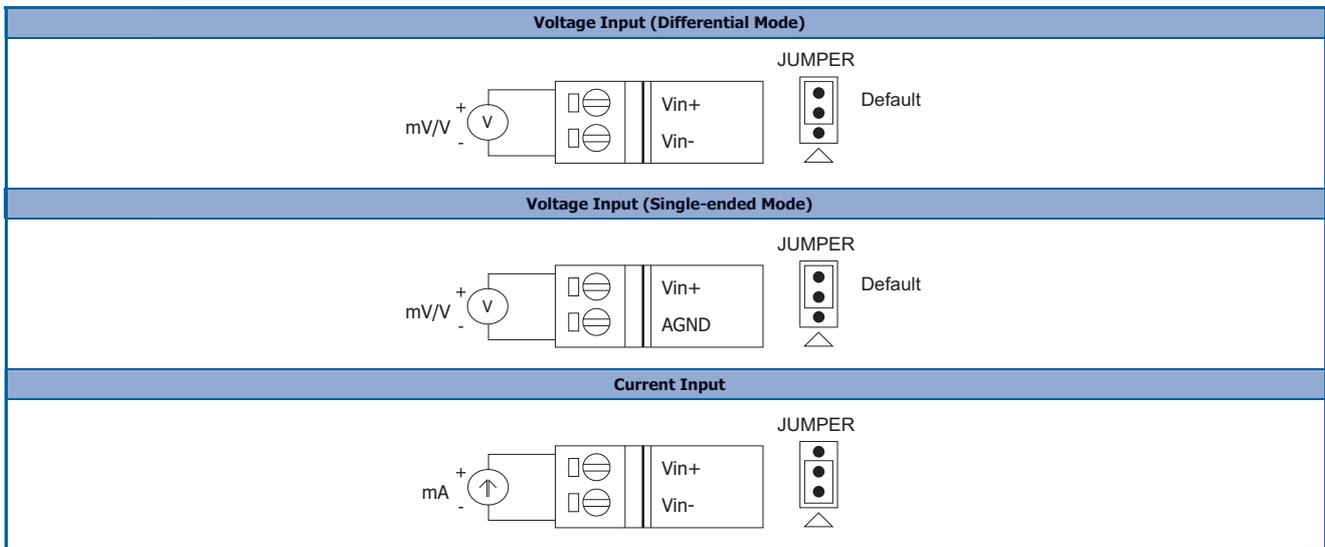
| Analog Input | | |
|----------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Channels | 10 differential or 20 single-ended (Note1), software selectable | |
| Type | +/-150 mV, +/-500 mV, +/-1V, +/-5V, +/-10V +/-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 μ V/ $^{\circ}$ C | |
| Span Drift | +/-25 ppm/ $^{\circ}$ C | |
| Overvoltage Protection | Differential | 240 V_{rms} |
| | Single-ended | 150 V_{rms} |
| Input Impedance | Voltage | 2 M Ω (Differential), 1 M Ω (Single-ended) |
| | Current | 125 Ω |
| Common Mode Rejection | 86 dB Min. | |
| Normal Mode Rejection | 100 dB | |

Note1: Differential mode can be used for voltage input and current input.
Single-Ended mode can be used for voltage input only.

Pin Assignments



Wire Connections



Ordering Information

| | |
|-------------|---------------------------------------------------|
| ET-7017-10 | 10/20-channel Analog Input Module (RoHS) |
| PET-7017-10 | 10/20-channel Analog Input Module with PoE (RoHS) |

Accessories

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

| | |
|--|-------------------------------------------------------------------------------|
| | MDR-20-24 CR 24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS) |
| | DIN-KA52F-48 CR 48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS) |



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
 - DO: 6 Channels



Introduction

The ET-7018Z/PET-7018Z is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7018Z/PET-7018Z offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7018Z features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7018Z a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

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 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 be 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.

Applications

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

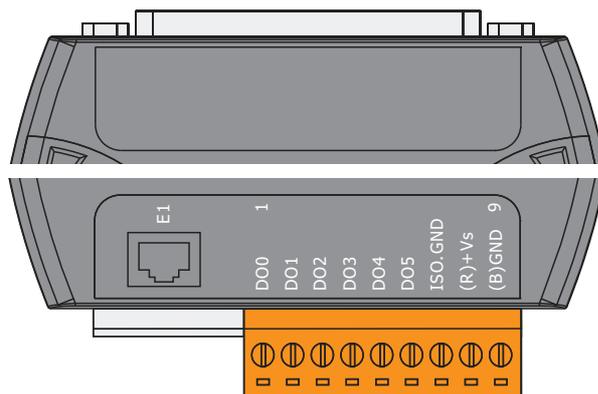
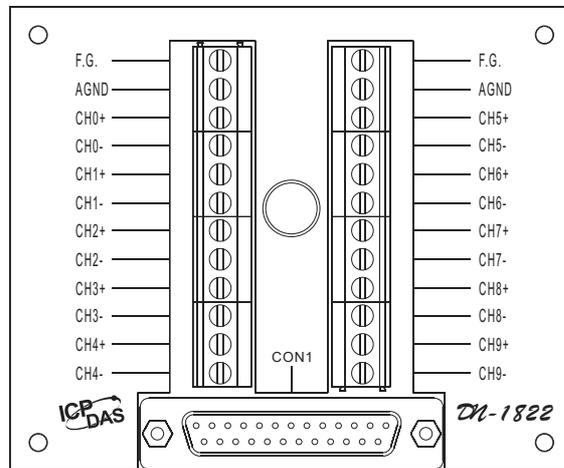
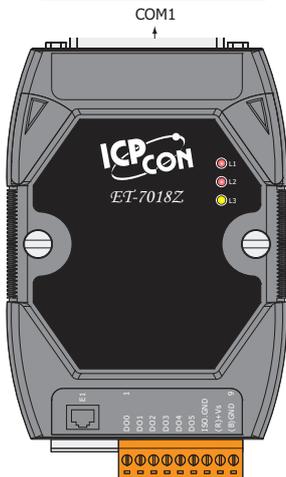
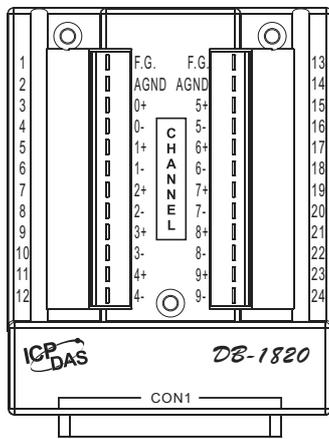
System Specifications

| Models | ET-7018Z | PET-7018Z |
|------------------------------|--------------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{oc} | - |
| I/O | 2500 V _{oc} | 2500 V _{oc} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal and 8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | +/-4 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{oc} | Yes, 12 ~ 48 V _{oc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.0 W | 3.0 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 116 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

I/O Specifications

| Thermocouple Input | |
|----------------------------------------|----------------------------------------------------------------------------|
| Channels | 10 (Differential) |
| Sensor Type | +/-15 mV, +/-50 mV, +/-100 mV, +/-500 mV, +/-1 V, +/-2.5 V |
| | +/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA (Requires Optional External 125 Ω Resistor) |
| | Thermocouple (J, K, T, E, R, S, B, N, C, L, M, and L _{DIN43710}) |
| Individual Channel Configuration | Yes |
| Resolution | 16-bit |
| Sampling Rate | 10 Samples/Second (Total) |
| Accuracy | +/-0.1% of FSR or better |
| Zero Drift | +/-0.5 μV/°C |
| Span Drift | +/-25 ppm/°C |
| Over Voltage Protection | 240 V _{rms} |
| Input Impedance | >300 kΩ |
| Common Mode Rejection | 150 dB Min. |
| Normal Mode Rejection | 100 dB |
| Temperature Output Consistency | Yes |
| Stable Temperature Output in the Field | Yes |
| Open Wire Detection | Yes |
| Digital Output | |
| Channels | 6 |
| Type | Isolated Open Collector |
| Sink/Source (NPN/PNP) | Sink |
| Max. Load Current | 700 mA/Channel |
| Load Voltage | 5 V _{bc} ~ 50 V _{bc} |
| Overvoltage Protection | 60 V _{bc} |
| Overload Protection | 1.4 A |
| Short-circuit Protection | Yes |
| Power-on Value | Yes, Programmable |
| Safe Value | Yes, Programmable |

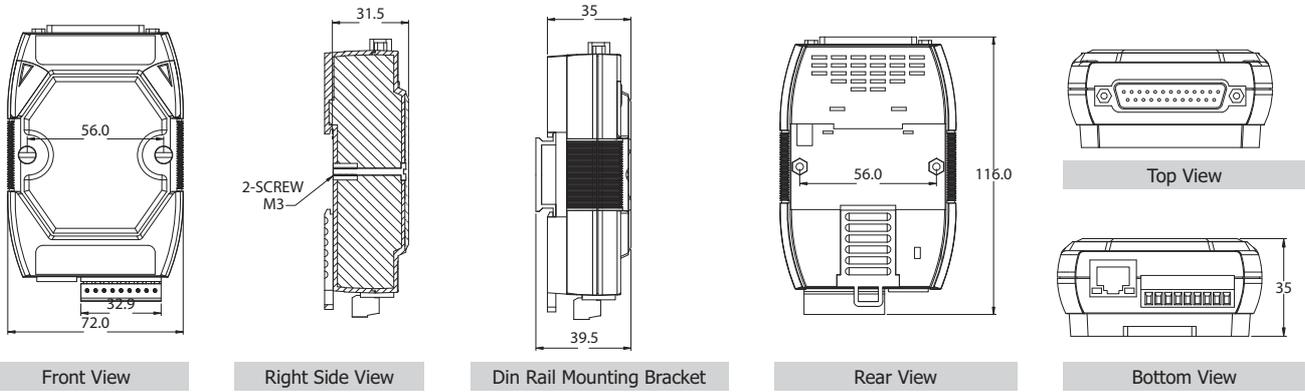
Pin Assignments



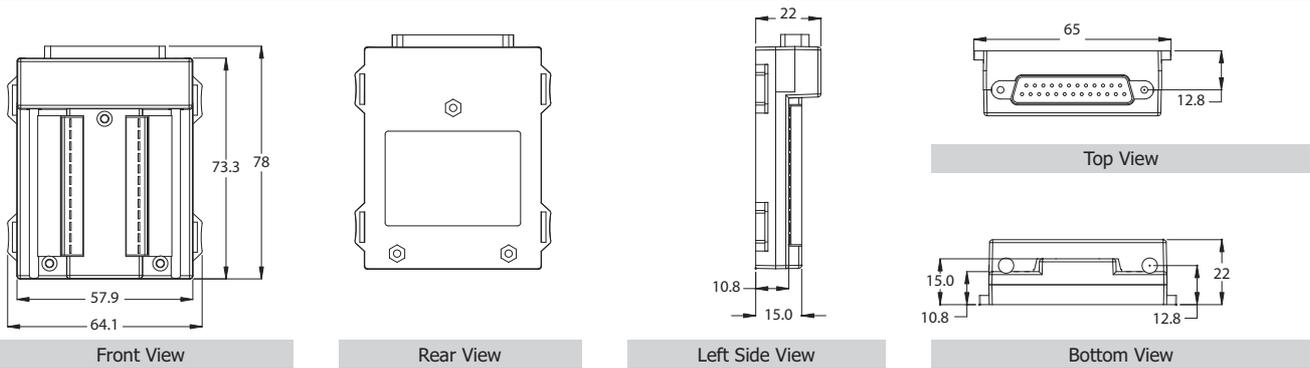
Wire Connections

| Voltage Input (Default) | | Thermocouple Input (Default) |
|-------------------------|------------------------|----------------------------------------------------------------------------------------------------|
| | | |
| Current Input | | |
| | | Note: When connecting to a current source, an optional external 125 Ω resistor is required. |
| Digital Output | ON State Readback as 1 | OFF State Readback as 0 |
| Open Collector (Sink) | | |

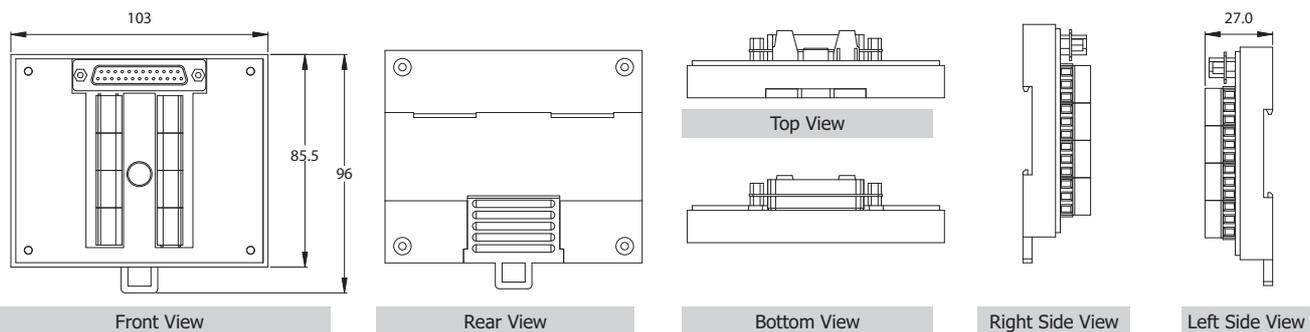
Dimensions (Units: mm)



DN-1820



DN-1822



Ordering Information

| | |
|------------------------|---------------------------------------------------------------------------------------------------|
| ET-7018Z/S CR | 10-channel Thermocouple Input Module with DB-1820 Daughter Board (RoHS) |
| PET-7018Z/S CR | 10-channel Thermocouple Input Module with DB-1820 Daughter Board with PoE (RoHS) |
| ET-7018Z/S2 CR | 10-channel Thermocouple Input Module with DN-1822 Daughter Board and a 1.8m Cable (RoHS) |
| PET-7018Z/S2 CR | 10-channel Thermocouple Input Module with DN-1822 Daughter Board and a 1.8m Cable with PoE (RoHS) |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>ET-7018Z/S = DB-1820 Connects to the ET-7018Z Directly PET-7018Z/S = DB-1820 Connects to the PET-7018Z Directly</p> |  <p>ET-7018Z/S2 = DN-1822 Connects to the ET-7018Z Directly PET-7018Z/S2 = DN-1822 Connects to the PET-7018Z Directly</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Accessories

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

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



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 V_{rms} Overvoltage Protection
 - DO: 4 Channels



Introduction

The ET-7019/PET-7019 is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7019/PET-7019 offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7019 features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7019 a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

ET-7019/PET-7019 features an extremely excellent protection mechanism where overvoltage protection is up to 240 V_{rms}. 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 kept in this model; choosing to measure current or voltage is 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. What's more, ET-7019/PET-7019 also got open thermocouple detection and many protection mechanisms. The 4 digital output can be set alarm output with Short-circuit protection and overload protection.

Applications

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

System Specifications

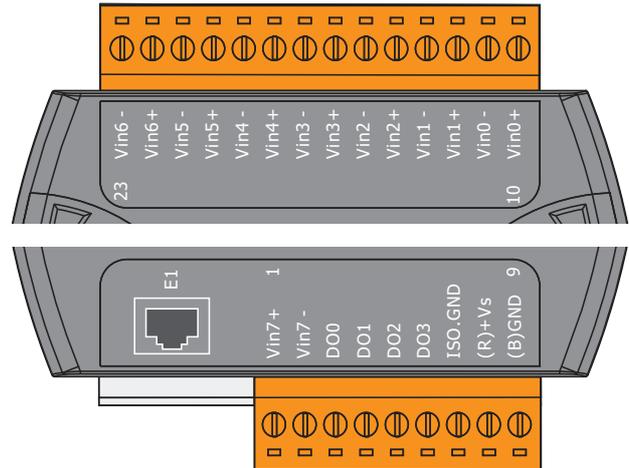
| Models | ET-7019 | PET-7019 |
|------------------------------|--------------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 2500 V _{dc} | 2500 V _{dc} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal and 8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | +/- 4 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.4 W | 3.4 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

I/O Specifications

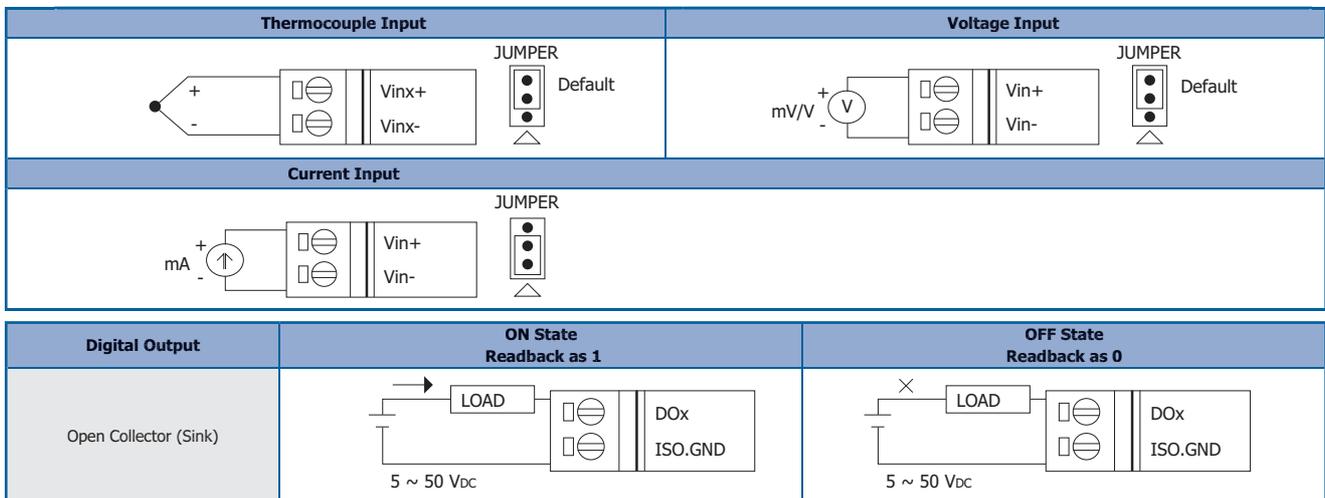
| Analog Input | |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Channels | 8 (Differential) |
| Sensor Type | +/-15 mV, +/-50 mV, +/-100 mV, +/-150 mV, +/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-20 mA, 0~20 mA, 4~20 mA Thermocouple (J, K, T, E, R, S, B, N, C, L, M, , and L _{DIN43710}) |
| Individual Channel Configuration | Yes |
| Resolution | 16-bit |
| Sampling Rate | 10 samples/Second total |
| Accuracy | +/-0.1 % or better |
| Zero Drift | +/-10 µV/°C |
| Span Drift | +/-25 ppm/°C |
| Overvoltage Protection | 240 V _{rms} |
| Input Impedance | Voltage >1 MΩ Current 125 Ω |
| 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 V _{dc} ~ 50 V _{dc} |
| Overvoltage Protection | 60 V _{dc} |
| Overload Protection | 1.4 A |
| Short-circuit Protection | Yes |
| Power-on Value | Yes, Programmable |
| Safe Value | Yes, Programmable |

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

Pin Assignment



Wire Connections



Ordering Information

| | |
|-------------|------------------------------------------------------|
| ET-7019 CR | 8-channel Analog Input and DO Module (RoHS) |
| PET-7019 CR | 8-channel Analog Input and DO Module with PoE (RoHS) |

Accessories

| | | | | | |
|--|------------------|----------------------------------------------------------------------------------------------------|--|-----------------|------------------------------------------------------------|
| | NS-205 CR | Unmanaged 5-port Industrial Ethernet Switch; requires a 24 V _{dc} Input (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 V _{dc} 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 V _{dc} 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
 - AI: 10 Channels with 240 V_{rms} Overvoltage Protection
 - DO: 6 Channels



Introduction

The ET-7019Z/PET-7019Z is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7019Z/PET-7019Z offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7019Z features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7019Z a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

The "Z" version is another milestone in the development of the thermocouple series and is a testament to the excellence of ICP DAS products. The ET-7019Z/PET-7019Z 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 be 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.

Applications

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

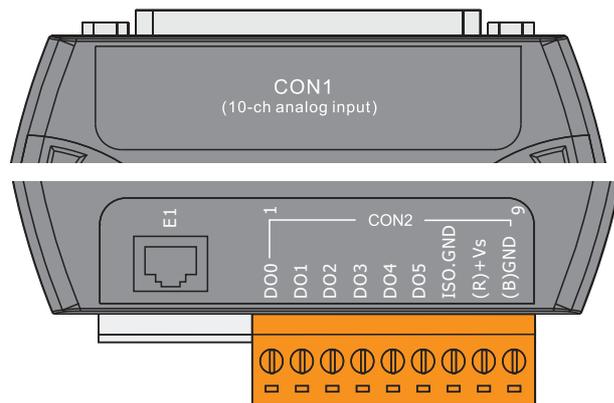
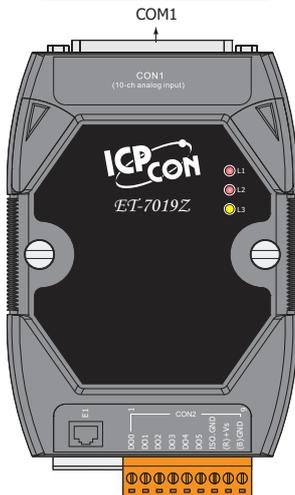
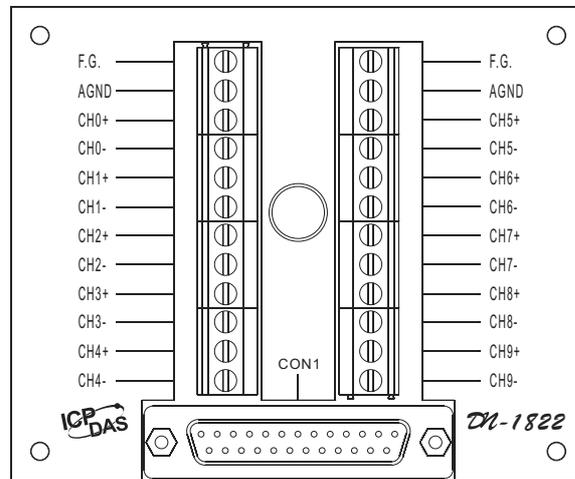
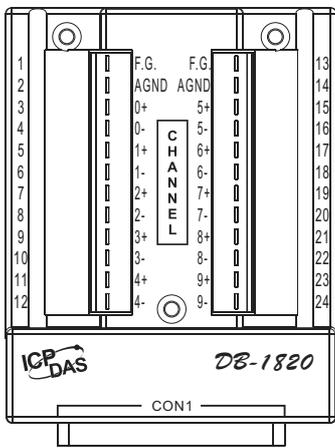
System Specifications

| Models | ET-7019Z | PET-7019Z |
|------------------------------|--------------------------------------------------------------|------------------------------|
| Software | | |
| ✓ Built-in Web Server | Yes | |
| ✓ Web HMI | Yes | |
| ✓ I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| ✓ PoE | - | Yes |
| ✓ Protocol | Modbus TCP, Modbus UDP | |
| ✓ Security | ID, Password and IP Filter | |
| ✓ Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 2500 V _{dc} | 2500 V _{dc} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal and 8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | +/-4 kV for Power | |
| Surge (IEC 61000-4-5) | +/-3 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.5 W | 3.5 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 116 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

I/O Specifications

| Analog Input | |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Channels | 10 (Differential) |
| Sensor Type | +/-15 mV, +/-50 mV, +/-100 mV, +/-150 mV, +/-500 mV, +/-1 V, +/-2.5 V, +/-5 V, +/-10 V, +/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA (Jumper Selectable) Thermocouple (J, K, T, E, R, S, B, N, C, L, M, and L _{DIN43710}) |
| Individual Channel Configuration | Yes |
| Resolution | 16-bit |
| Sampling Rate | 10 Samples/Second (Total) |
| Accuracy | +/-0.1% of FSR or better |
| Zero Drift | +/-0.5 μ V/ $^{\circ}$ C |
| Span Drift | +/-25 ppm/ $^{\circ}$ C |
| Over Voltage Protection | 240 V _{rms} |
| Input Impedance | >300 k Ω |
| Common Mode Rejection | 86 dB Min. |
| Normal Mode Rejection | 100 dB |
| Temperature Output Consistency | Yes |
| Stable Temperature Output in the Field | Yes |
| Open Wire Detection | Yes |
| Digital Output | |
| Channels | 6 |
| Type | Isolated Open Collector |
| Sink/Source (NPN/PNP) | Sink |
| Max. Load Current | 700 mA/Channel |
| Load Voltage | 5 V _{dc} ~ 50 V _{dc} |
| Overvoltage Protection | 60 V _{dc} |
| Overload Protection | 1.4 A |
| Short-circuit Protection | Yes |
| Power-on Value | Yes, Programmable |
| Safe Value | Yes, Programmable |

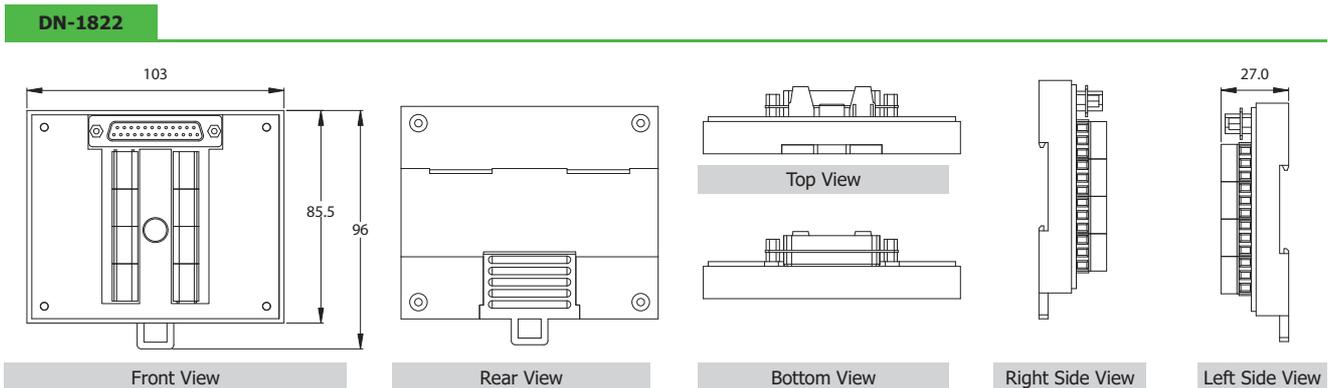
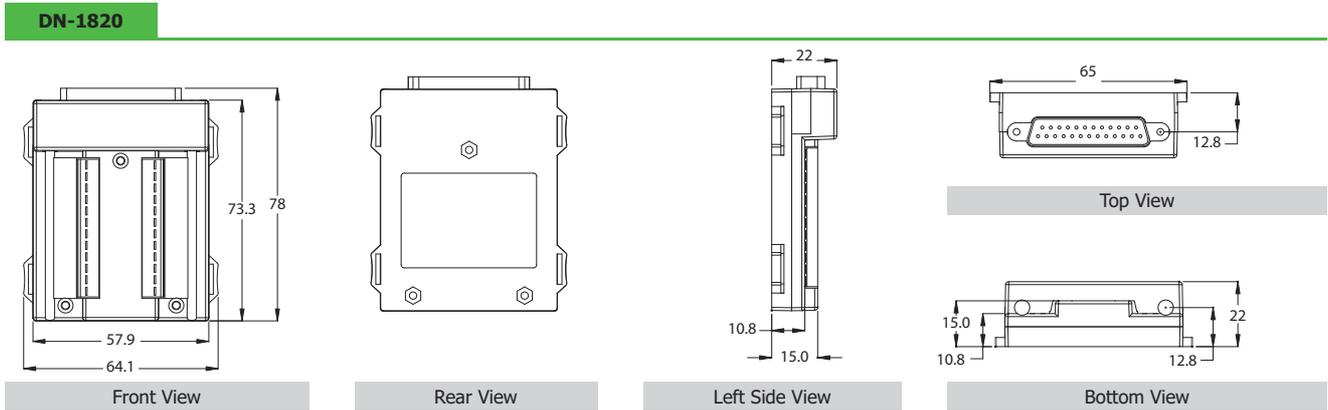
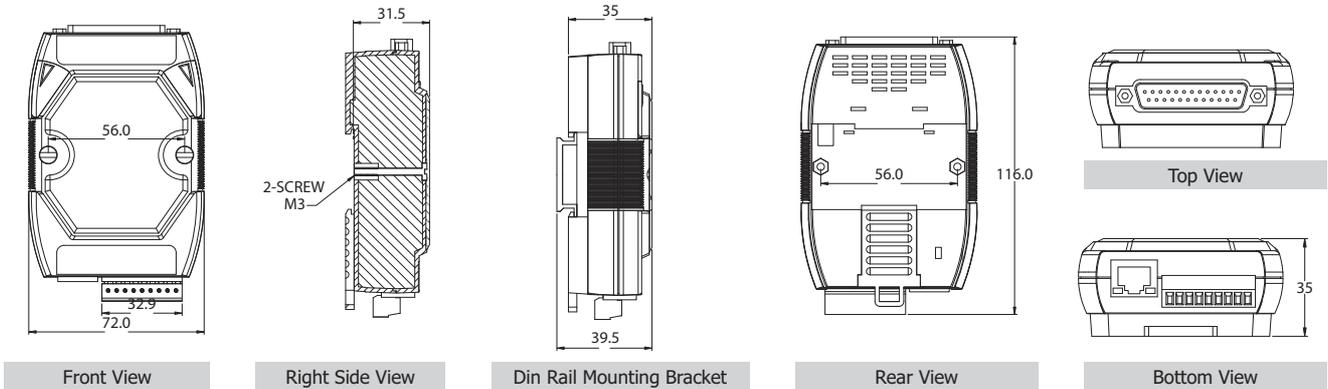
Pin Assignments



Wire Connections

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

Dimensions (Units: mm)



Ordering Information

| | |
|------------------------|----------------------------------------------------------------------------------------------------|
| ET-7019Z/S CR | 10-channel Thermocouple Input Module with DB-1820 Daughter Board (RoHS) |
| PET-7019Z/S CR | 10-channel Thermocouple Input Module with DB-1820 Daughter Board with PoE (RoHS) |
| ET-7019Z/S2 CR | 10-channel Thermocouple Input Module with DN-1822 Daughter Board and a 1.8 m Cable (RoHS) |
| PET-7019Z/S2 CR | 10-channel Thermocouple Input Module with DN-1822 Daughter Board and a 1.8 m Cable with PoE (RoHS) |

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

Accessories

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

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



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 V_{rms} Overvoltage Protection
 - AO: 2 Channels
 - DI/Counter: 2 Channels
 - DO: 2 Channels



Introduction

The ET-7026/PET-7026 is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7026/PET-7026 offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7026 features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7026 a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

The ET-7026/PET-7026 is a multi-function module, there are 6-channel analog inputs, 2-channel analog output, 2-channel digital inputs and 2-channel digital outputs module. It provides programmable input range on all analog inputs (+/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-20 mA, 0~20 mA and 4~20 mA), analog outputs are 12 bit with +/-5 V, +/-10 V, 0~20 mA and 4~20 mA and digital output can be set alarm output. Each analog input is allowed to configure an individual range and has 240 V_{rms} high overvoltage protection. Jumper selectable for voltage or current of inputs/outputs

Applications

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

System Specifications

| Models | ET-7026 | PET-7026 |
|------------------------------|--------------------------------------------------------------|------------------------------|
| Software | | |
| ✓ Built-in Web Server | Yes | |
| ✓ Web HMI | Yes | |
| ✓ I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| ✓ PoE | - | Yes |
| ✓ Protocol | Modbus TCP, Modbus UDP | |
| ✓ Security | ID, Password and IP Filter | |
| ✓ Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 2500 V _{dc} | 2500 V _{dc} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal and 8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | +/-4 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 3.1 W | 4.2 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

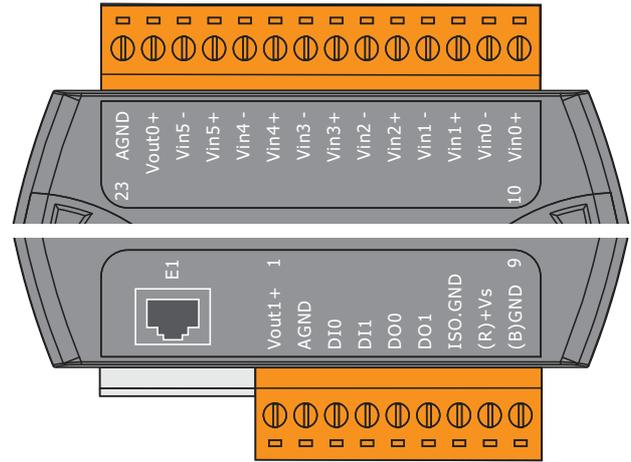
I/O Specifications

| Analog Input | | |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Channels | 6 (Differential) | |
| Type | +/- 500 mV, +/- 1V, +/- 5 V, +/-10 V + 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 μ V/ $^{\circ}$ C | |
| Span Drift | +/-25 ppm/ $^{\circ}$ C | |
| Oversvoltage Protection | 240 V_{rms} | |
| Input Impedance | 2 M Ω | |
| Common Mode Rejection | 86 dB Min. | |
| Normal Mode Rejection | 100 dB | |
| Analog Output | | |
| Channels | 2 | |
| Type | + 0 V_{DC} ~ + 5 V_{DC} , +/- 5 V_{DC} , + 0 V_{DC} ~ + 10 V_{DC} , +/- 10 V_{DC} , + 0 mA ~ + 20 mA, + 4 mA ~ + 20 mA (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 Ω | |
| 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 V_{DC} Max. |
| | Off Voltage Level | + 3.5 V_{DC} ~ + 30 V_{DC} |
| Counters | Channels | 2 |
| | Max. Count | 4,294,967,285 (32-bit) |
| | Max. Input Frequency | 100 Hz |
| | Min. Pulse Width | 5 ms |
| Oversvoltage Protection | 30 V_{DC} | |
| Digital Output | | |
| Channels | 2 | |
| Type | Isolated Open Collector | |
| Sink/Source (NPN/PNP) | Sink | |
| Max. Load Current | 700 mA/Channel | |
| Load Voltage | + 5 V_{DC} ~ + 50 V_{DC} | |
| Oversvoltage Protection | 60 V_{DC} | |
| Overload Protection | 1.4 A | |
| Short-circuit Protection | Yes | |
| Power-on Value | Yes, Programmable | |
| Safe Value | Yes, Programmable | |

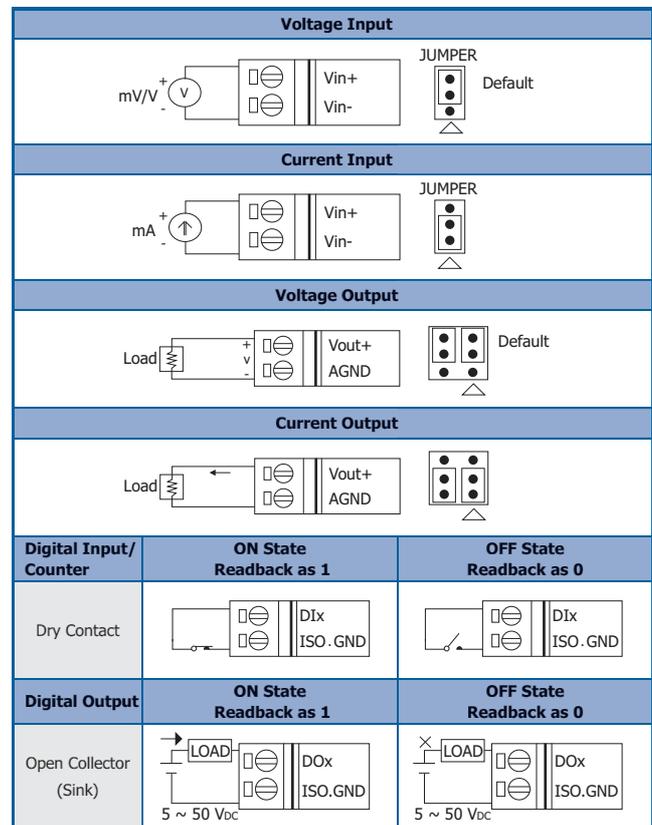
Ordering Information

| | |
|--------------------|---------------------------------|
| ET-7026 CR | Multifunction Module (RoHS) |
| PET-7026 CR | Multifunction PoE Module (RoHS) |

Pin Assignments



Wire Connections



Accessories

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



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, a web-based Ethernet digital output module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 16 sink-type digital output channels. It features optical isolation for 3750 V_{rms} 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 to the RM series relay module to switch inductive loads.

Applications

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

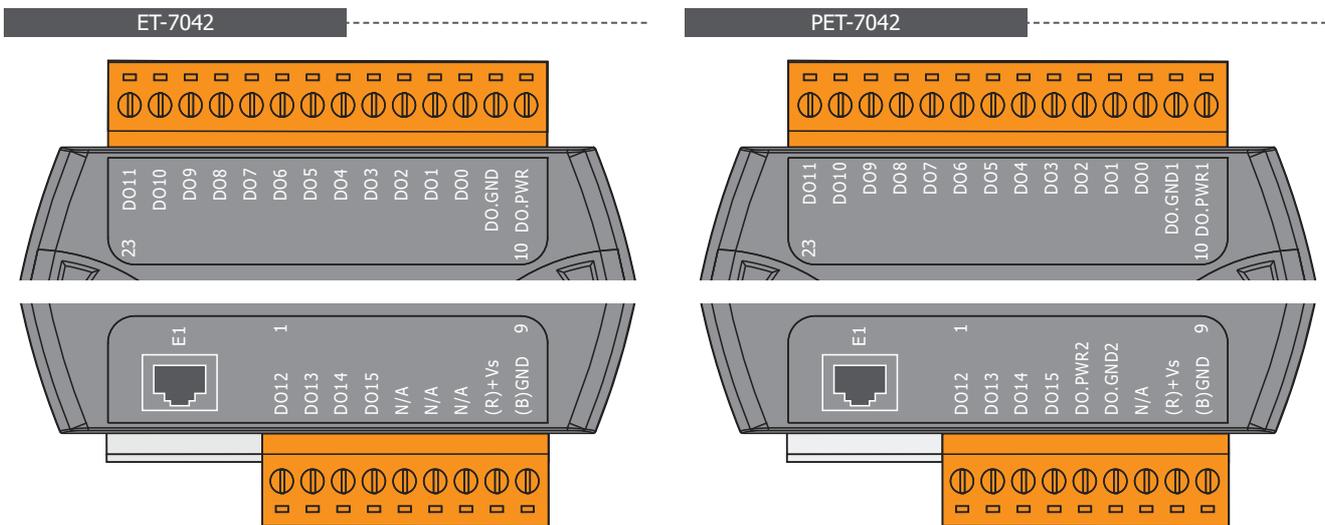
System Specifications

| Models | ET-7042 | PET-7042 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 3750 V _{rms} | 3750 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/-2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.7 W | 3.0 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

I/O Specifications

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

Pin Assignments



Wire Connections

| Output Type | ON State Readback as 1 | OFF State Readback as 0 |
|-----------------|---------------------------|----------------------------|
| Drive Relay | | |
| Resistance Load | | |

Ordering Information

| | |
|-------------|-----------------------------------------------------------|
| ET-7042 CR | 16-channel Isolated Digital Output Module (RoHS) |
| PET-7042 CR | 16-channel Isolated Digital Output Module with PoE (RoHS) |

Accessories

| | | | |
|------------------|----------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------|
| NS-205 CR | Unmanaged 5-port Industrial Ethernet Switch; requires a 24 V _{DC} Input (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 V _{DC} 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 V _{DC} 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
 - DI/Counter: 8 Channels
 - DO: 8 Channels



Introduction

The ET-7044/PET-7044, a web-based Ethernet digital I/O module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 8 wet contact digital input channels and 8 sink-type digital output channels. It features optical isolation for 3750 V_{rms} 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.

Applications

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

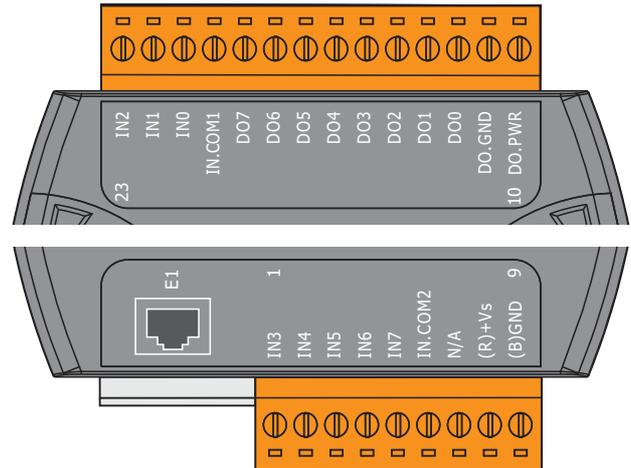
System Specifications

| Models | ET-7044 | PET-7044 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 3750 V _{rms} | 3750 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/-2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.4 W | 3.0 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| 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 V _{dc} ~ +50 V _{dc} | |
| Off Voltage Level | +4 V _{dc} 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 V _{dc} | |
| Digital Output | | |
| Channels | 8 | |
| Type | Isolated Open Collector | |
| Sink/Source (NPN/PNP) | Sink | |
| Max. Load Current | 300 mA/channel at 25°C Direct Drive Power Relay Module | |
| Load Voltage | +10 V _{dc} ~ +40 V _{dc} | |
| Overvoltage Protection | 60 V _{dc} | |
| Overload Protection | 1.1 A | |
| Short-circuit Protection | Yes | |
| Power-on Value | Yes, Programmable | |
| Safe Value | Yes, Programmable | |

Pin Assignments



Wire Connections

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

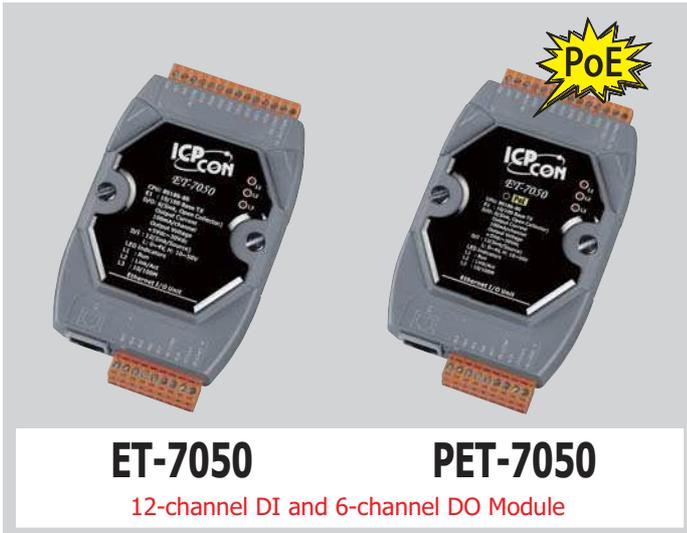
Ordering Information

| | |
|-------------|------------------------------------------------------|
| ET-7044 CR | 8-channel DI and 8-channel DO Module (RoHS) |
| PET-7044 CR | 8-channel DI and 8-channel DO Module with PoE (RoHS) |

Accessories

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

| | |
|-----------------|------------------------------------------------------------|
| MDR-20-24 CR | 24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS) |
| DIN-KA52F-48 CR | 48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS) |



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, a web-based Ethernet digital I/O module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 12 wet contact digital input channels and 6 sink-type digital output channels. It features optical isolation for 3750 V_{rms} 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 to the RM series relay module to switch inductive loads.

Applications

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

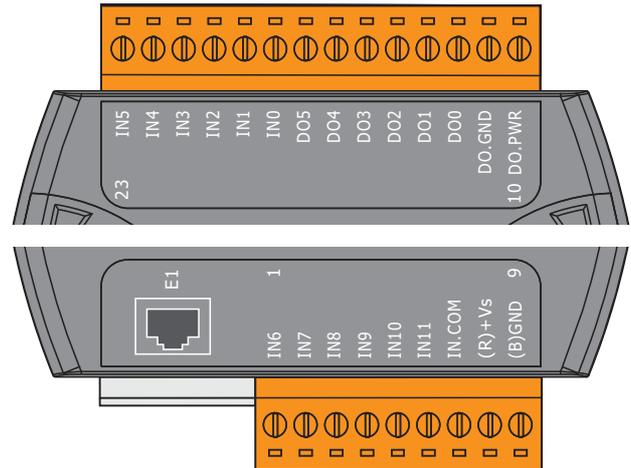
System Specifications

| Models | ET-7050 | PET-7050 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 3750 V _{rms} | 3750 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/-2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.4 W | 3.0 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

I/O Specifications

| Models | ET-7050 | PET-7050 |
|------------------------------|-----------------------------------------------------------|-------------------------|
| Digital Input/Counter | | |
| Channels | 12 | |
| Contact | Wet Contact | |
| Sink/Source (NPN/PNP) | Sink/Source | |
| On Voltage Level | +10 V _{DC} ~ +50 V _{DC} | |
| Off Voltage Level | +4 V _{DC} 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 V _{DC} | |
| Digital Output | | |
| Channels | 6 | |
| Type | Isolated Open Collector | |
| Sink/Source (NPN/PNP) | Sink | |
| Max. Load Current | 100 mA/channel at 25°C Direct Drive Power Relay Module | |
| Load Voltage | +5 V _{DC} ~ +30 V _{DC} | |
| Overvoltage Protection | - | 60 V _{DC} |
| Overload Protection | - | 1.3 A |
| Short-circuit Protection | - | Yes |
| Power-on Value | Yes, Programmable | |
| Safe Value | Yes, Programmable | |

Pin Assignments



Wire Connections

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

Ordering Information

| | |
|--------------------|-------------------------------------------------------|
| ET-7050 CR | 12-channel DI and 6-channel DO Module (RoHS) |
| PET-7050 CR | 12-channel DI and 6-channel DO module with PoE (RoHS) |

Accessories

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

| | |
|-----------------|------------------------------------------------------------|
| MDR-20-24 CR | 24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS) |
| DIN-KA52F-48 CR | 48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS) |



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, a web-based Ethernet digital input module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 16 wet contact digital input channels. Each input channel can be used as a 32-bit counter. It features optical isolation for 3750 V_{rms} of transient overvoltage protection but doesn't provide channel-to-channel isolation. It can safely be used in applications where hazardous voltages are present.

Applications

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

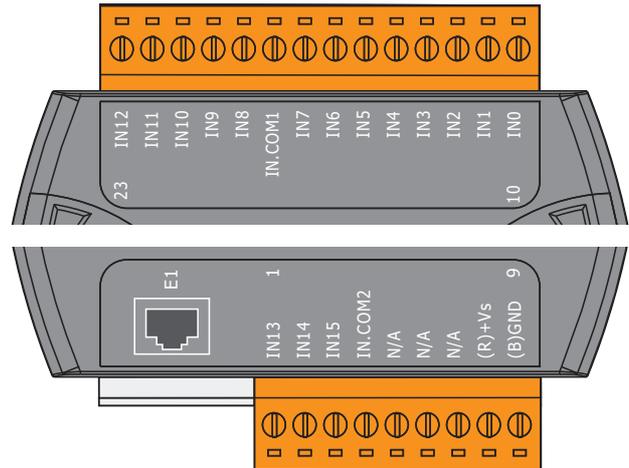
System Specifications

| Models | ET-7051 | PET-7051 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| ✓ Built-in Web Server | Yes | |
| ✓ Web HMI | Yes | |
| ✓ I/O Pair Connection | Yes | |
| Communication | | |
| ✓ Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| ✓ PoE | - | Yes |
| ✓ Protocol | Modbus TCP, Modbus UDP | |
| ✓ Security | ID, Password and IP Filter | |
| ✓ Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 3750 V _{rms} | 3750 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/-2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.2 W | 2.8 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| 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 V _{dc} ~ +50 V _{dc} | |
| Off Voltage Level | +4 V _{dc} 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 V _{dc} | |

Pin Assignments



Wire Connections

| Digital Input/Counter | Readback as 1 +10 ~ +50 V _{dc} | Readback as 0 OPEN or <4 V _{dc} |
|-----------------------|--------------------------------------------|---------------------------------------------|
| Sink | | |
| Source | | |

Ordering Information

| | |
|-------------|----------------------------------------------------------|
| ET-7051 CR | 16-channel Isolated Digital Input Module (RoHS) |
| PET-7051 CR | 16-channel Isolated Digital Input Module with PoE (RoHS) |

Accessories

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



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, a web-based Ethernet digital I/O module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 8 wet contact digital input channels and 8 source-type digital output channels. It features optical isolation for 3750 V_{rms} 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 650mA 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.

Applications

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

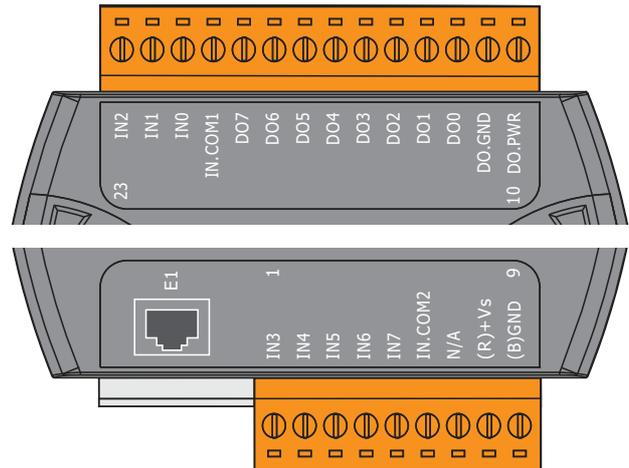
System Specifications

| Models | ET-7052 | PET-7052 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{DC} | - |
| I/O | 3750 V _{rms} | 3750 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/-2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{DC} | Yes, 12 ~ 48 V _{DC} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.4 W | 3.0 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| 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 V _{DC} ~ +50 V _{DC} | |
| Off Voltage Level | +4 V _{DC} 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 V _{DC} | |
| 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 V _{DC} ~ +40 V _{DC} | |
| Overvoltage Protection | 47 V _{DC} | |
| Overload Protection | - | |
| Short-circuit Protection | Yes | |
| Power-on Value | Yes, Programmable | |
| Safe Value | Yes, Programmable | |

Pin Assignments



Wire Connections

| Digital Input/Counter | Readback as 1 +10 ~ +50 V _{DC} | Readback as 0 OPEN or <4 V _{DC} |
|-----------------------|--------------------------------------------|---------------------------------------------|
| Sink | | |
| Source | | |
| 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) |

Accessories

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

| | |
|-----------------|------------------------------------------------------------|
| MDR-20-24 CR | 24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS) |
| DIN-KA52F-48 CR | 48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS) |



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, a web-based Ethernet digital input module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 16 dry contact digital input channels. Each input channel can be used as a 32-bit counter. It features optical isolation for 3750 V_{rms} of transient overvoltage protection but doesn't provide channel-to-channel isolation. It can safely be used in applications where hazardous voltages are present.

Applications

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

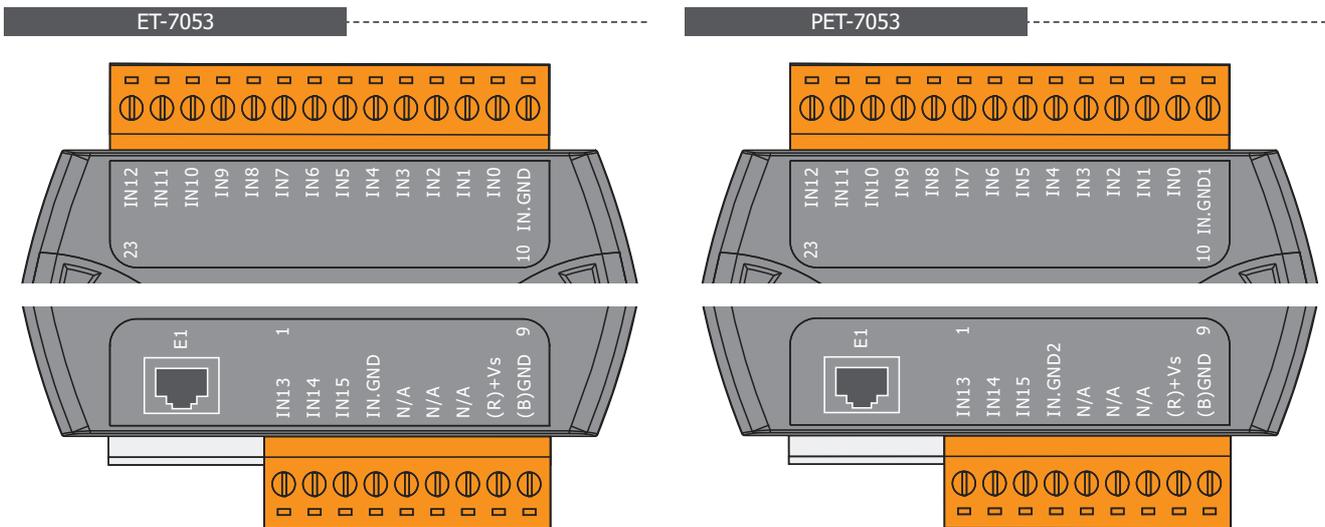
System Specifications

| Models | ET-7053 | PET-7053 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{oc} | - |
| I/O | 3750 V _{rms} | 3750 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/-2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.4 W | 3.0 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| 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 |
| Oversoltage Protection | - | |
| Effective Distance | 500 M Max. | |

Pin Assignments



Wire Connections

| Digital Input/Counter | ON State Readback as 1 | OFF State Readback as 0 |
|-----------------------|---------------------------|----------------------------|
| Dry Contact | <p>Relay Open</p> | <p>Relay Close</p> |

Ordering Information

| | |
|-------------|----------------------------------------------------------|
| ET-7053 CR | 16-channel Isolated Digital Input Module (RoHS) |
| PET-7053 CR | 16-channel Isolated Digital Input Module with PoE (RoHS) |

Accessories

| | | | |
|-------------------------|----------------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------|
| <p>NS-205 CR</p> | Unmanaged 5-port Industrial Ethernet Switch; requires a 24 V _{DC} Input (RoHS) | <p>MDR-20-24 CR</p> | 24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS) |
| <p>NS-205PSE CR</p> | Unmanaged Ethernet switch with 4-PoE and 1 RJ45 uplink; requires a 48 V _{DC} Input (RoHS) | <p>DIN-KA52F-48 CR</p> | 48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS) |
| <p>NS-205PSE-24V CR</p> | Unmanaged Ethernet switch with 4-PoE and 1 RJ45 uplink; requires a 24 V _{DC} Input (RoHS) | | |

Available soon


ET-7055

PET-7055

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-7055/PET-7055, a web-based Ethernet digital I/O module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 8 wet contact digital input channels and 8 source-type digital output channels. It features optical isolation for 3750 V_{rms} 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 650mA 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.

Applications

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

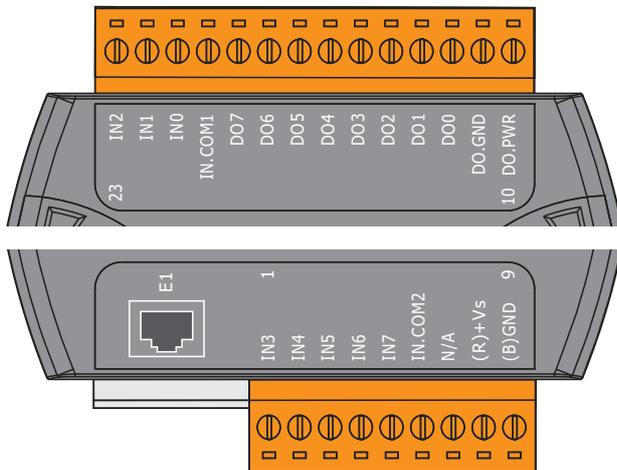
System Specifications

| Models | ET-7055 | PET-7055 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{DC} | - |
| I/O | 3750 V _{rms} | 3750 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/-2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{DC} | Yes, 12 ~ 48 V _{DC} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.4 W | 3.0 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

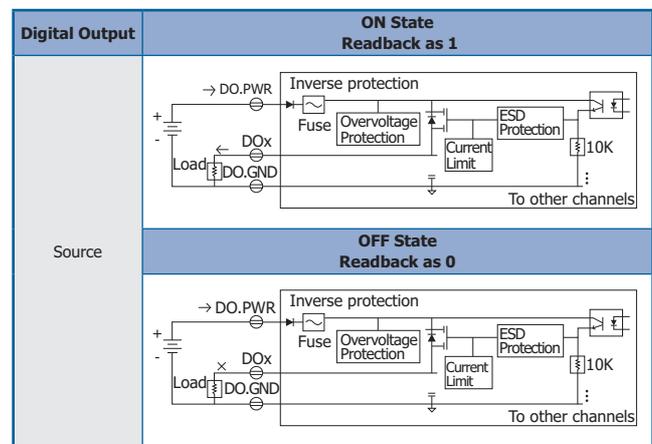
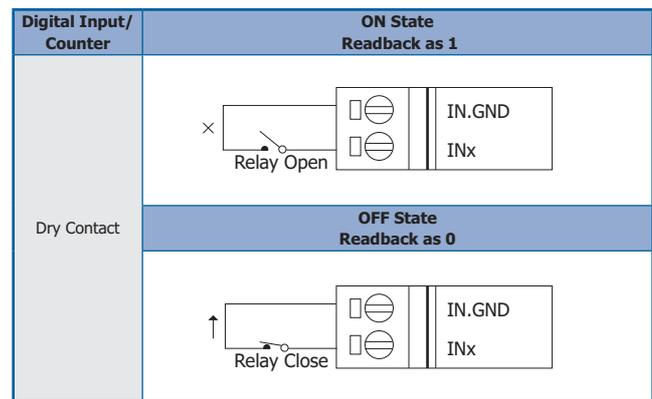
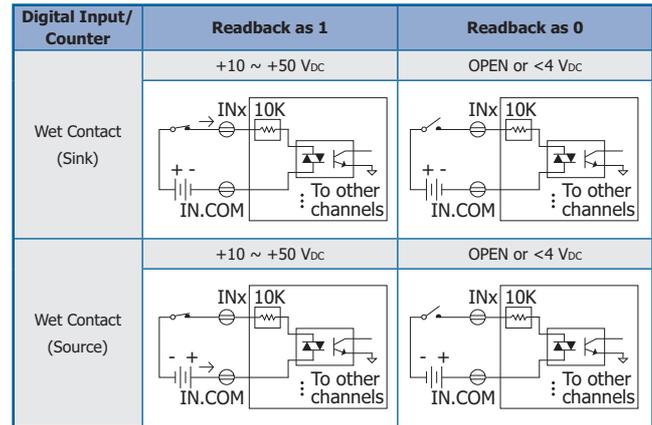
I/O Specifications

| Digital Input/Counter | | |
|--------------------------|-------------------------------------------|-------------------------------------------|
| Channels | 8 | |
| Contact | Dry + Wet | |
| Sink/Source (NPN/PNP) | Dry: Source Wet: Sink/Source | |
| Wet Contact | On Voltage Level | +10 V _{DC} ~ +50 V _{DC} |
| | Off Voltage Level | +4 V _{DC} 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 V _{DC} | |
| 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 V _{DC} ~ +40 V _{DC} | |
| Overvoltage Protection | 47 V _{DC} | |
| Overload Protection | - | |
| Short-circuit Protection | Yes | |
| Power-on Value | Yes, Programmable | |
| Safe Value | Yes, Programmable | |

Pin Assignments



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) |

Accessories

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

| | |
|-----------------|------------------------------------------------------------|
| MDR-20-24 CR | 24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS) |
| DIN-KA52F-48 CR | 48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS) |



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

ET-7060/PET-7060, a web-based Ethernet digital I/O module, features a Built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 6 wet contact digital input channels and 6 form A electromechanical relays. It features optical isolation for 3000 V_{rms} 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. The user should choose ET-7062/PET-7062 to switch inductive loads instead of ET-7060/PET-7060.

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.

Applications

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

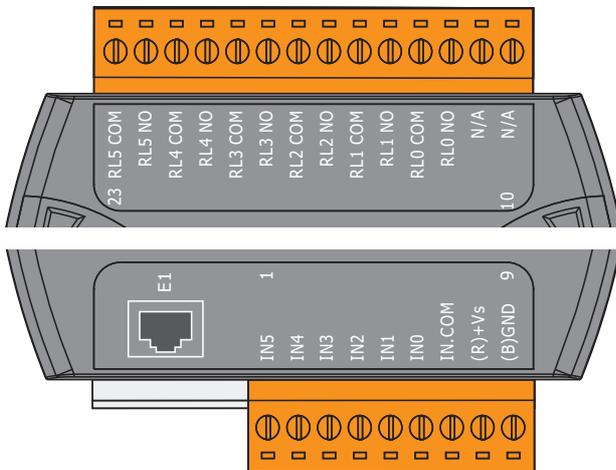
System Specifications

| Models | ET-7060 | PET-7060 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{DC} | - |
| I/O | 3000 V _{rms} | 3000 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/- 2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{DC} | Yes, 12 ~ 48 V _{DC} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.9 W | 3.5 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| 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 V _{DC} ~ +50 V _{DC} | |
| Off Voltage Level | +4 V _{DC} 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 V _{DC} | |
| Power Relay | | |
| Channels | 6 | |
| Type | Power Relay, Form A (SPST N.O.) | |
| Operating Voltage Range | 250 V _{AC} /30 V _{DC} | |
| 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 V _{AC} 30,000 ops (10 ops/minute) at 75°C 5A 30 V _{DC} 70,000 ops (10 ops/minute) at 75°C |
| | UL | 5A 250 V _{AC} /30 V _{DC} 6,000 ops. |
| | | 3A 250 V _{AC} /30 V _{DC} 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



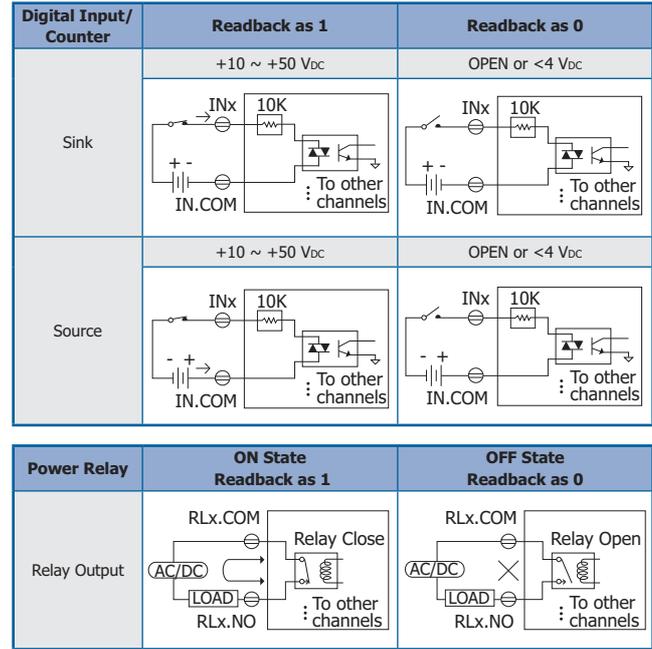
Ordering Information

| | |
|--------------------|------------------------------------------------------------|
| ET-7060 CR | 6-channel Power Relay Output and DI Module (RoHS) |
| PET-7060 CR | 6-channel Power Relay Output and DI Module with PoE (RoHS) |

Accessories

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

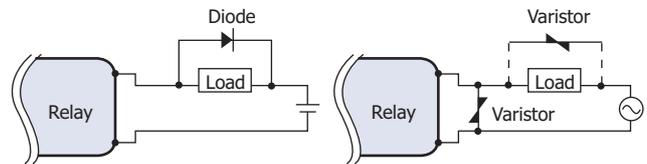
Wire Connections



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 V _{AC} | 240 ~ 270 V _{AC} | > 1000 A |
| 200 ~ 240 V _{AC} | 440 ~ 470 V _{AC} | > 1000 A |

Available soon


ET-7062

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


PET-7062

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



Introduction

The ET-7062/PET-7062, a web-based Ethernet digital input module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module 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_{rms} of transient overvoltage protection but doesn't provide channel-to-channel isolation. It can safely be used in applications where hazardous voltages are present.

Applications

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

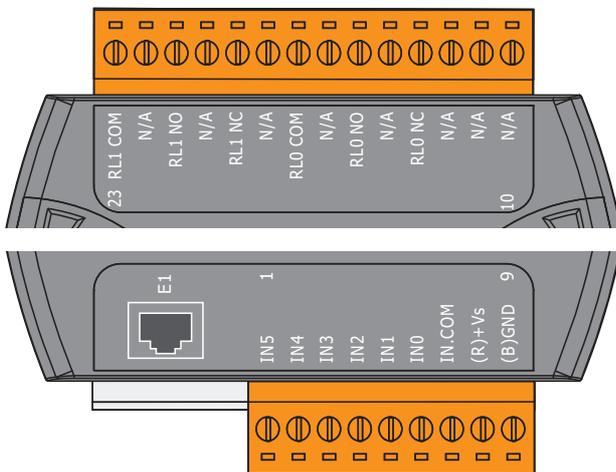
System Specifications

| Models | ET-7062 | PET-7062 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{oc} | - |
| I/O | 3000 V _{rms} | 3000 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/-2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.9 W | 3.5 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

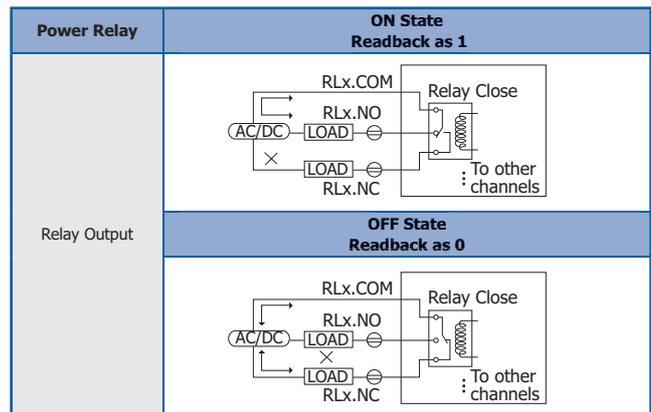
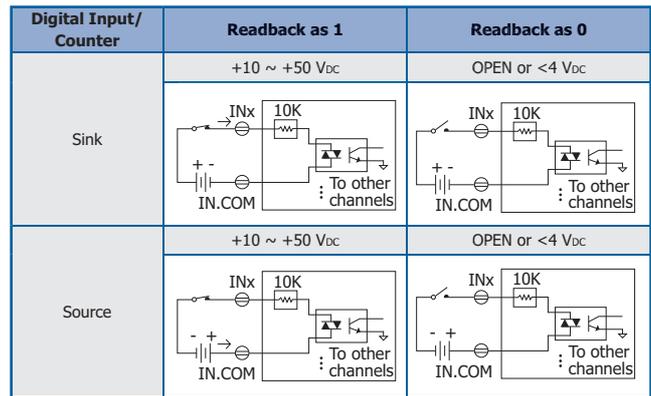
I/O Specifications

| Digital Input/Counter | | | |
|----------------------------------|-------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Channels | 6 | | |
| Contact | Wet Contact | | |
| Sink/Source (NPN/PNP) | Sink/Source | | |
| On Voltage Level | +10 V _{DC} ~ +50 V _{DC} | | |
| Off Voltage Level | +4 V _{DC} 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 V _{DC} | | |
| Power Relay | | | |
| Channels | 2 | | |
| Type | Power Relay, Form C | | |
| Operating Voltage Range | 250 V _{AC} /30 V _{DC} | | |
| 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 V _{AC} 5A 125 V _{AC} at 85°C 5A 250 V _{AC} at 85°C 5A 30 V _{DC} at 85°C |
| | | 1 Form C | NO: 5 A 250 V _{AC} NC: 5 A 250 V _{AC} |
| | TUV | 1 Form A | 5A 250 V _{AC} 5A 30 V _{DC} |
| Mechanical Life | 10,000,000 ops | | |
| Electrical Life | 50,000 ops | | |
| Insulation resistance | 1000 MΩ min. at 500 V _{DC} | | |
| Power-on Value | Yes, Programmable | | |
| Safe Value | Yes, Programmable | | |

Pin Assignments



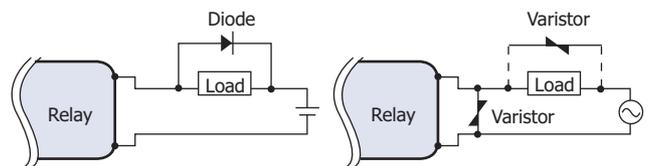
Wire Connections



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 V _{AC} | 240 ~ 270 V _{AC} | > 1000 A |
| 200 ~ 240 V _{AC} | 440 ~ 470 V _{AC} | > 1000 A |

Ordering Information

| | |
|--------------------|----------------------------------------------------------------------|
| ET-7062 CR | 2-channel Power Relay Output and 6-channel DI Module (RoHS) |
| PET-7062 CR | 2-channel Power Relay Output and 6-channel DI Module with PoE (RoHS) |

Accessories

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

| | |
|-----------------|------------------------------------------------------------|
| MDR-20-24 CR | 24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS) |
| DIN-KA52F-48 CR | 48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS) |



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

ET-7065/PET-7065, a web-based Ethernet digital I/O module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 6 wet contact digital input channels and 6 form A photoMOS relays. It features optical isolation for 3000 V_{rms} 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.

Applications

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

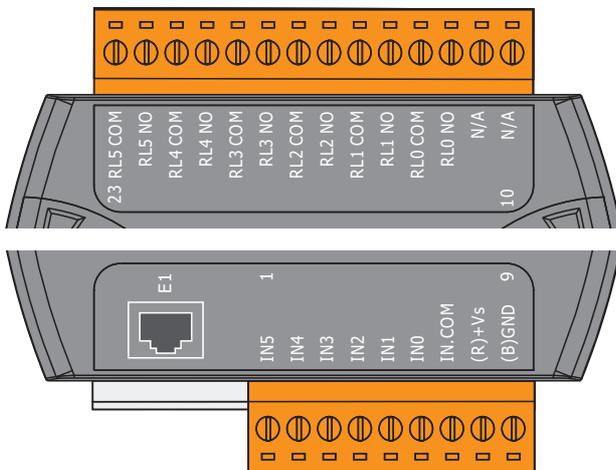
System Specifications

| Models | ET-7065 | PET-7065 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| ✓ Built-in Web Server | Yes | |
| ✓ Web HMI | Yes | |
| ✓ I/O Pair Connection | Yes | |
| Communication | | |
| ✓ Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| ✓ PoE | - | Yes |
| ✓ Protocol | Modbus TCP, Modbus UDP | |
| ✓ Security | ID, Password and IP Filter | |
| ✓ Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{oc} | - |
| I/O | 3000 V _{rms} | 3000 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/- 2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.9 W | 3.0 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

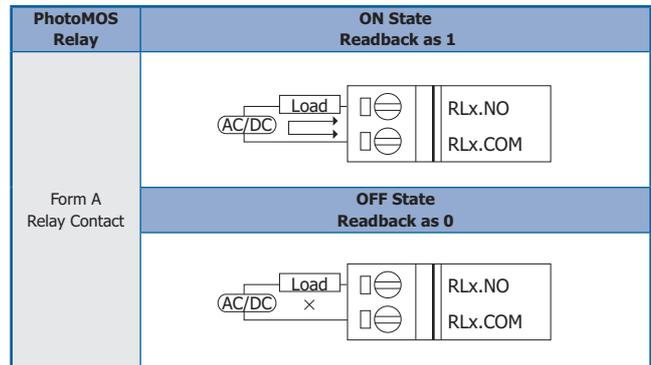
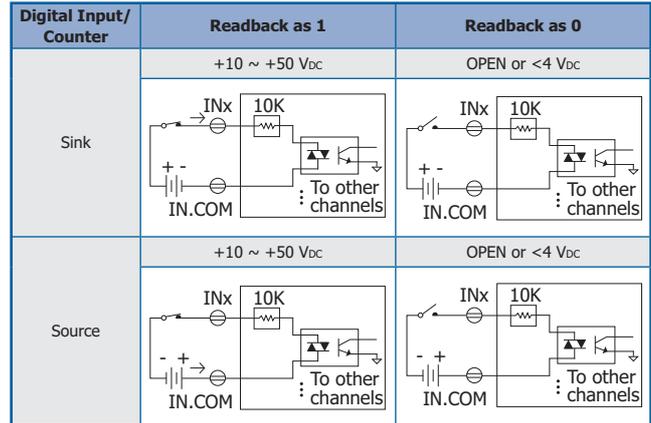
I/O Specifications

| 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 (Operating Temperature -25 ~ +40°C) | |
| | 60V/0.8A (Operating Temperature +40 ~ +60°C) | |
| | 60V/0.7A (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 | |

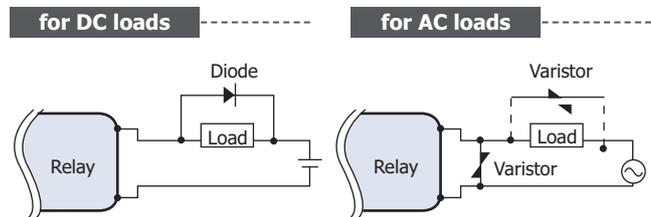
Pin Assignments



Wire Connections



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.



Varistor Selection

| Operating Voltage | Varistor Voltage | Max. Peak Current |
|---------------------------|---------------------------|-------------------|
| 100 ~ 120 V _{AC} | 240 ~ 270 V _{AC} | > 1000 A |
| 200 ~ 240 V _{AC} | 440 ~ 470 V _{AC} | > 1000 A |

Ordering Information

| | |
|--------------------|---------------------------------------------------------------|
| ET-7065 CR | 6-channel PhotoMOS Relay Output and DI Module (RoHS) |
| PET-7065 CR | 6-channel PhotoMOS Relay Output and DI Module with PoE (RoHS) |

Accessories

| | |
|------------------|----------------------------------------------------------------------------------------|
| NS-205 CR | Unmanaged 5-port Industrial Ethernet Switch; requires a 24 Vdc Input (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
 - PhotoMOS Relay: 8 Channels



Introduction

ET-7066/PET-7066, a web-based Ethernet relay module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 8 form A photoMOS relays. It features optical isolation for 3000 V_{rms} 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.

Applications

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

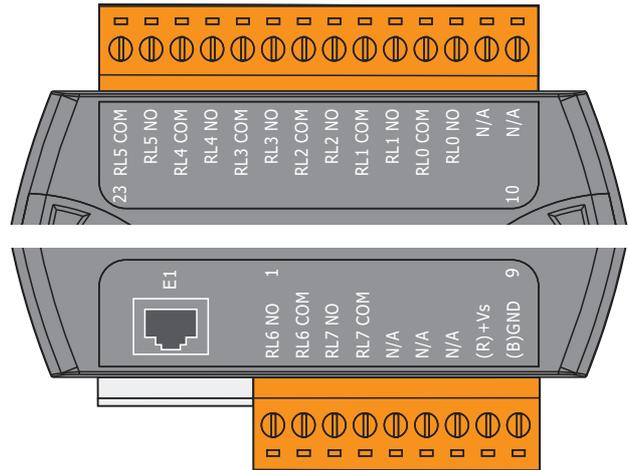
System Specifications

| Models | ET-7066 | PET-7066 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| Web HMI | Yes | |
| I/O Pair Connection | Yes | |
| Communication | | |
| Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| PoE | - | Yes |
| Protocol | Modbus TCP, Modbus UDP | |
| Security | ID, Password and IP Filter | |
| Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{oc} | - |
| I/O | 3000 V _{rms} | 3000 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/-2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 2.4 W | 2.8 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| 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 V _{DC} /V _{AC} |
| Load Current | 60V/1.0A (Operating Temperature -25 ~ +40°C) |
| | 60V/0.8A (Operating Temperature +40 ~ +60°C) |
| | 60V/0.7A (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

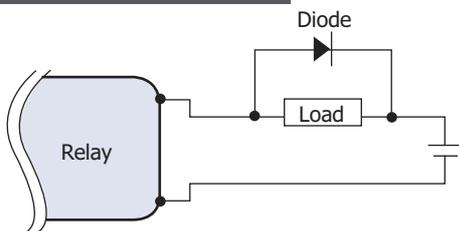


Wire Connections

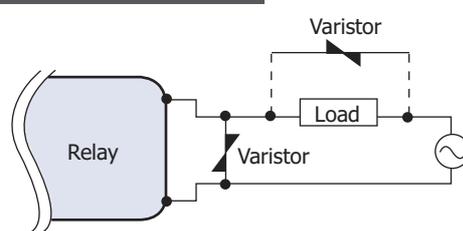
| PhotoMOS Relay | ON State Readback as 1 | OFF State Readback as 0 |
|----------------------|---------------------------|----------------------------|
| Form A Relay Contact | | |

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 V _{AC} | 240 ~ 270 V _{AC} | > 1000 A |
| 200 ~ 240 V _{AC} | 440 ~ 470 V _{AC} | > 1000 A |

Ordering Information

| | |
|-------------|--------------------------------------------------------|
| ET-7066 CR | 8-channel PhotoMOS Relay Output Module (RoHS) |
| PET-7066 CR | 8-channel PhotoMOS Relay Output Module with PoE (RoHS) |

Accessories

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



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

ET-7067/PET-7067, a web-based Ethernet relay module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a web browser. Using the web HMI function, no more programming or HTML skills are required. The user can create dynamic and attractive web pages easily. The module offers easy and safe access for users from anytime and anywhere! It also supports Modbus TCP protocol that makes perfect integration to SCADA software.

The module provides 8 form A electromechanical relays. It features optical isolation for 3000 V_{rms} 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 to switch inductive loads instead of ET-7062/PET-7062.

Applications

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

System Specifications

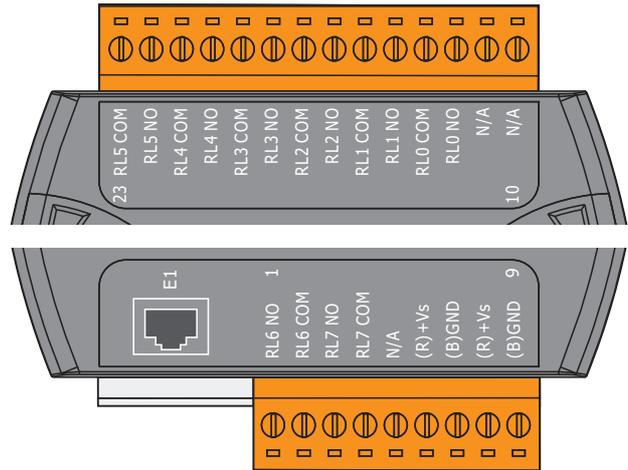
| Models | ET-7067 | PET-7067 |
|------------------------------|---------------------------------------------------------|------------------------------|
| Software | | |
| ✓ Built-in Web Server | Yes | |
| ✓ Web HMI | Yes | |
| ✓ I/O Pair Connection | Yes | |
| Communication | | |
| ✓ Ethernet Port | 10/100 Base-TX with Auto MDI/MDI-X | |
| ✓ PoE | - | Yes |
| ✓ Protocol | Modbus TCP, Modbus UDP | |
| ✓ Security | ID, Password and IP Filter | |
| ✓ Dual Watchdog | Yes, Module (0.8 seconds), Communication (Programmable) | |
| LED Indicators | | |
| L1 (System Running) | Yes | |
| L2 (Ethernet Link/Act) | Yes | |
| L3 (Ethernet 10/100 M Speed) | Yes | |
| PoE Power | - | Yes |
| 2-Way Isolation | | |
| Ethernet | 1500 V _{dc} | - |
| I/O | 3000 V _{rms} | 3000 V _{rms} |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | 4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | +/-2 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 V _{dc} | Yes, 12 ~ 48 V _{dc} |
| Powered from PoE | - | Yes, IEEE 802.3af, Class1 |
| Consumption | 3.2 W | 3.9 W |
| Mechanical | | |
| Dimensions (W x L x H) | 72 mm x 123 mm x 35 mm | |
| Installation | DIN-Rail or Wall Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +80°C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

I/O Specifications

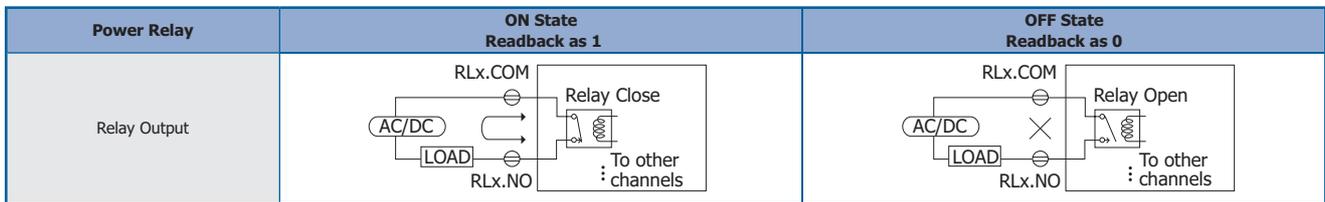
| Power Relay | | |
|----------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Channels | 8 | |
| Type | Power Relay, Form A (SPST N.O.) | |
| Operating Voltage Range | 250 V _{AC} /30 V _{DC} | |
| 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 V _{AC} 30,000 ops (10 ops/minute) at 75°C |
| | | 5A 30 V _{DC} 70,000 ops (10 ops/minute) at 75°C |
| | UL | 5A 250 V _{AC} /30 V _{DC} 6,000 ops. 3A 250 V _{AC} /30 V _{DC} 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

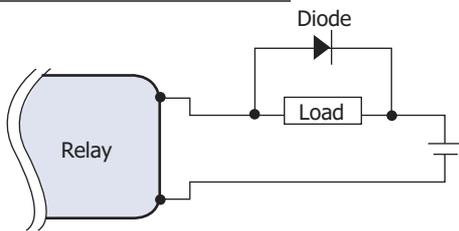


Wire Connections

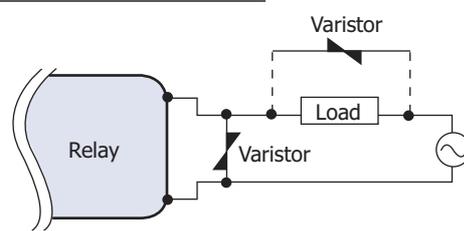


Note: When inductive loads are connected to the relays, a large counter electromotive force may occur when the relay actuates because of the energy stored in the load. These flyback voltages can severely damage the relay contacts and greatly shorten the relay life. Limit these flyback voltages at your 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 V _{AC} | 240 ~ 270 V _{AC} | > 1000 A |
| 200 ~ 240 V _{AC} | 440 ~ 470 V _{AC} | > 1000 A |

Ordering Information

| | |
|-------------|-----------------------------------------------------|
| ET-7067 CR | 8-channel Power Relay Output Module (RoHS) |
| PET-7067 CR | 8-channel Power Relay Output Module with PoE (RoHS) |

Accessories

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

3.3. tET/tPET Series Modules (IP based)

3

Ethernet Remote I/O Modules

• Introduction

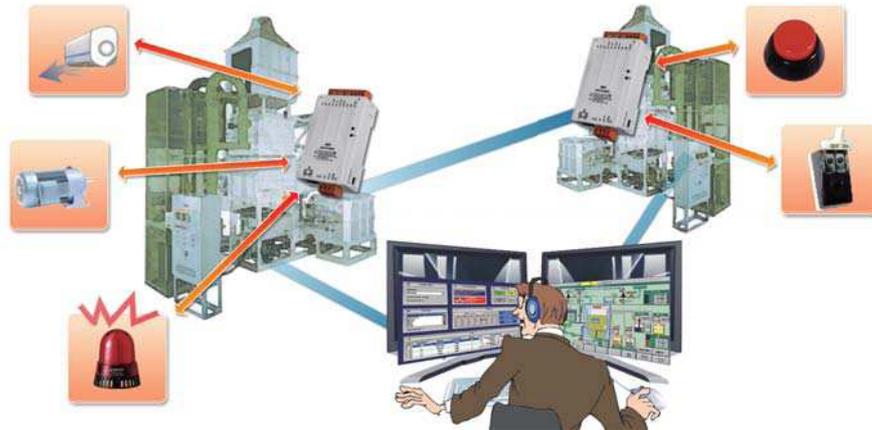


The functionality of the tET/tPET series modules is almost the same as the PET-7000. The major difference is that the PET-7000 module supports user-defined web HMI interface and more connections, while the tET/tPET series supports fixed web interface for configuration, higher speed of 32-bit DI counters, 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
- Remote diagnosis
- Testing Equipment
- Building Automation
- Factory Automation
- Machine Automation



3

tET/tPET Series (IP based)

• 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.

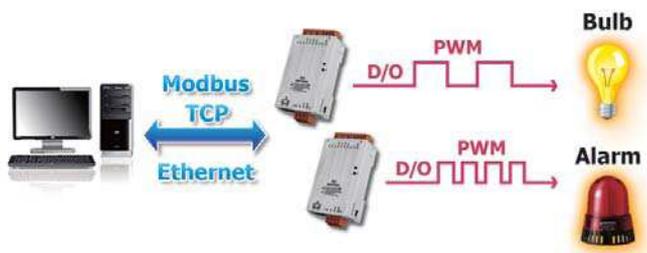


2. 32-bit High Speed Digital Counter

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)

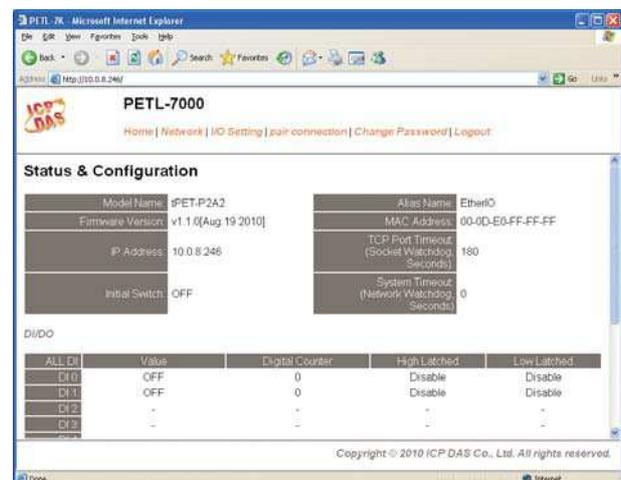
The tPET series module offers true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch such as the NS-205PSE. If there is no PoE switch on site, the module will also accept power input from a DC adapter.

8. Low Power Consumption

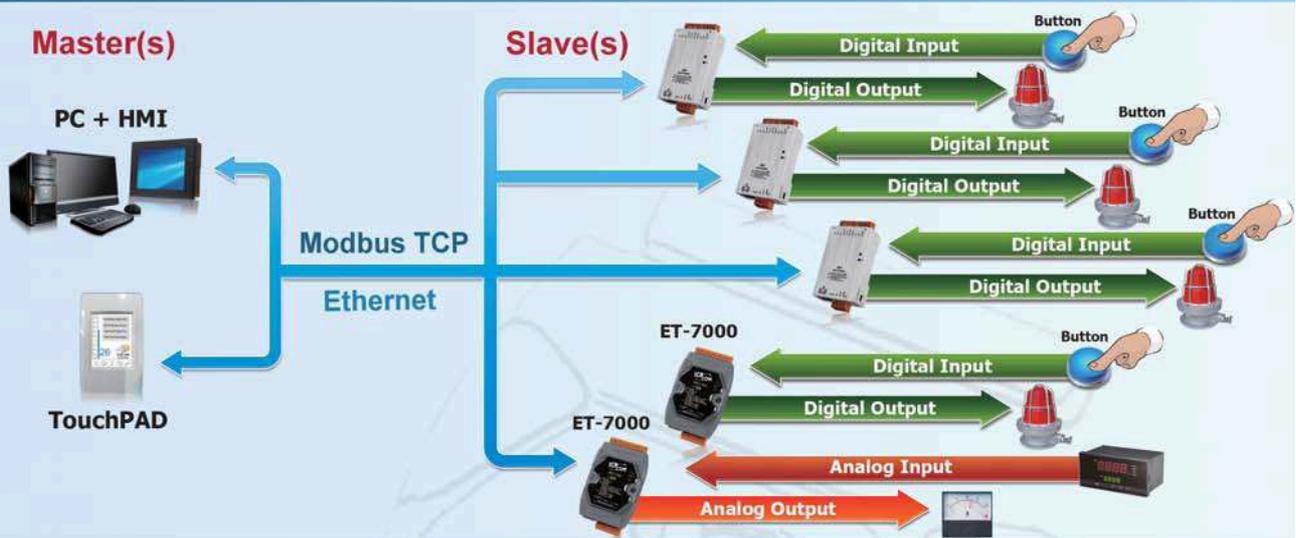


The tET/tPET series is designed for ultra-low power consumption, reducing hidden costs from increasing fuel and electricity prices, especially when you have a huge amount of devices installed. Reducing the amount of electricity consumed by choosing energy-efficient equipment can have a positive impact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

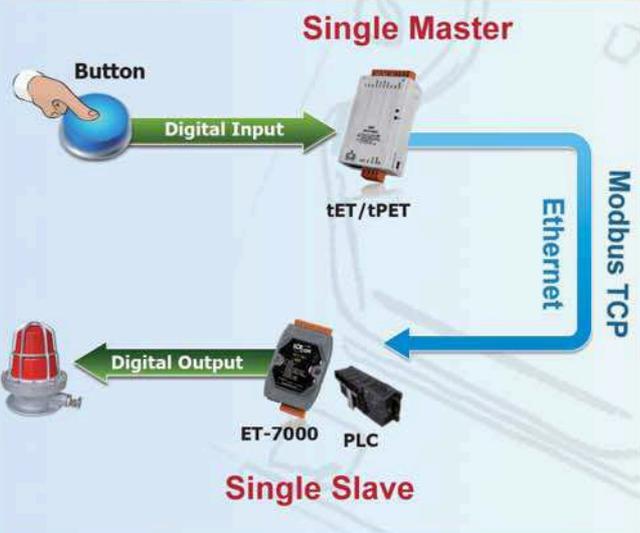
The module is equipped with removable terminal block connectors to allow easy wiring. For maximum space savings, the tET/tPET series is offered in an amazing tiny form-factor; this makes them can be easily installed in anywhere, even directly embedded into a machine.



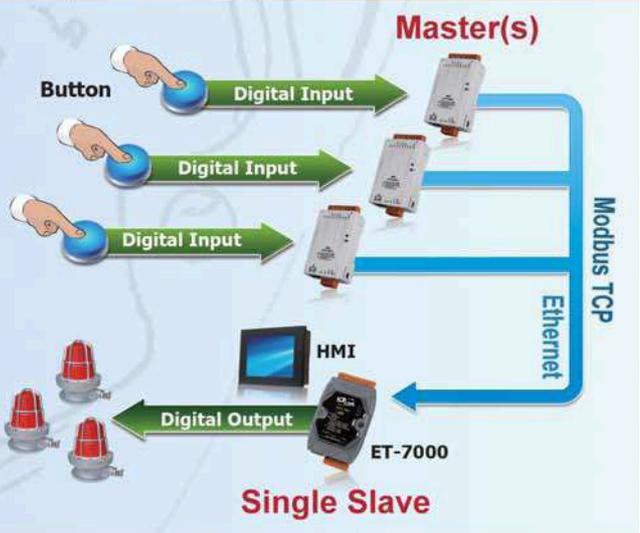
1 HMI and TouchPAD control (Poll) Remote DIO (modules)



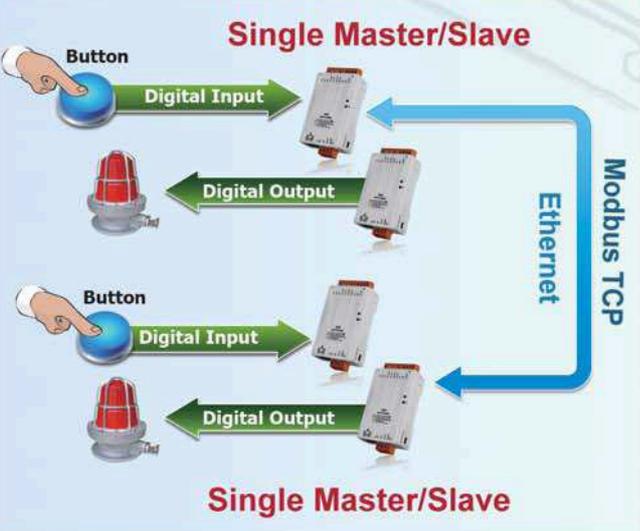
2 Module Pushes DI to Remote DO (Module or PLC)



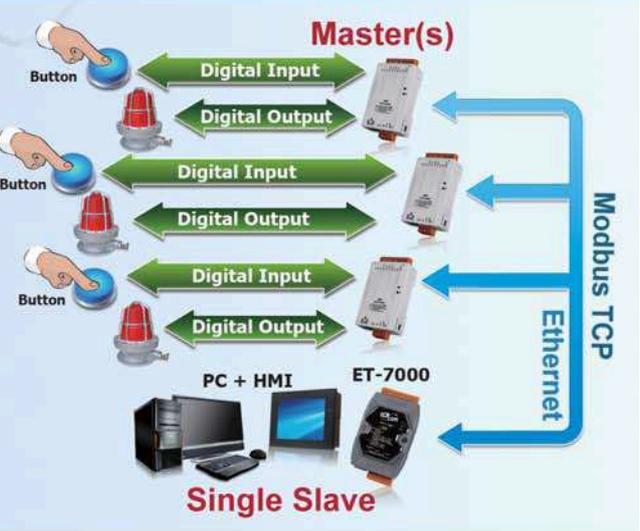
3 Multiple Modules Push DI to Remote DO (HMI or ET-7000)



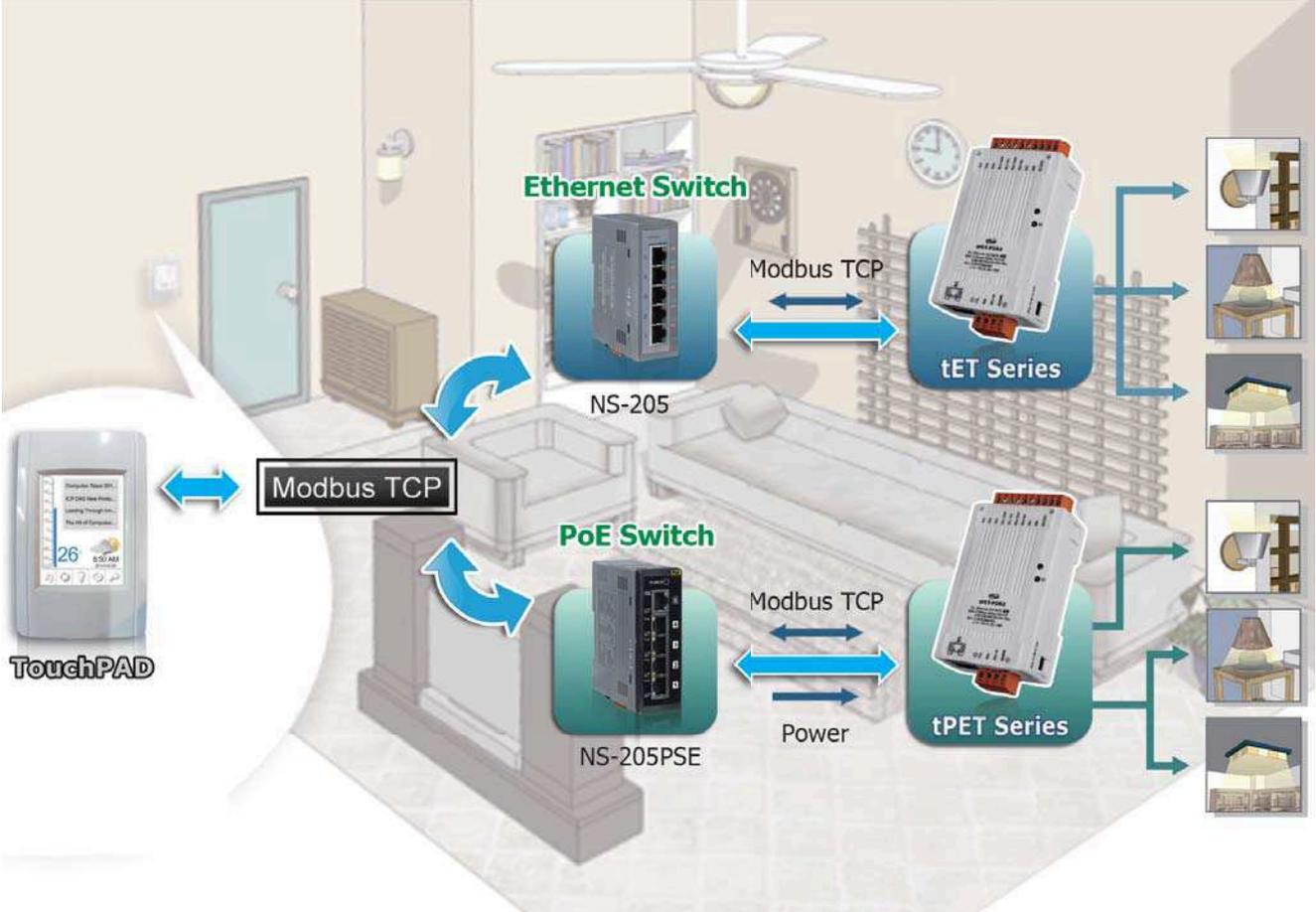
4 Push DI to Remote DO



5 Multiple Modules Read/Write (Poll) DIO from/to Remote HMI/ET-7000



• 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 |



tET/tPET Series
Tiny Ethernet I/O modules

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 |
|-----------------------------|----------------------------------------------------------------------------------|------------------------------------------------|
| Software | | |
| Built-in Web Server | Yes | |
| I/O Pair Connection | Yes, Supports Polling and Push modes | |
| Communication | | |
| 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) | |
| LED Indicators | | |
| S1 | System Running (Red) | PoE (Green) |
| E1 | Link/Act (Green), 10/100 M (Yellow) | |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | ±4 kV Contact for Each Terminal | |
| EFT (IEC 61000-4-4) | ±2 kV for Power and Signal | |
| Mechanical | | |
| Dimensions (W x L x H) | 52 mm x 98 mm x 27 mm | |
| Installation | DIN-Rail | |
| Power Requirements | | |
| Powered from Terminal Block | Yes, +12 ~ 48 V _{DC} (non-regulated) | |
| Powered from PoE | - | Yes, IEEE 802.3af, Class 1 |
| Consumption | 0.04 A @ 24 V _{DC} Max. for tET-P2R2 | 0.03 A @ 48 V _{DC} Max. for tPET-P2R2 |
| Environment | | |
| 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 | Available soon  | Available soon  |
| Digital Output | | |
| Channels | 4 | |
| Type | Open Collector | Open Emitter |
| Sink/Source (NPN/PNP) | Sink | Source |
| Load Voltage | +5 V _{DC} ~ +30 V _{DC} | +10 V _{DC} ~ +40 V _{DC} |
| 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 V _{DC} | +48 V _{DC} |
| Short Circuit Protection | - | Yes |
| Isolation | 3750 V _{rms} | |

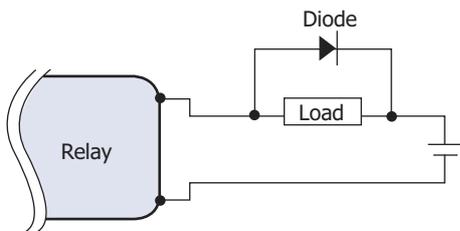
| Model Name | tET-P6/tPET-P6 | tET-P2C2/tPET-P2C2 | tET-P2A2/tPET-P2A2 |
|--------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Pictures | Available soon  | Available soon  | Available soon  |
| Digital Input | | | |
| Channels | 6 | 2 | |
| Contact | Wet Contact | | |
| Sink/Source (NPN/PNP) | Sink/Source | | |
| On Voltage Level | +10 V _{DC} ~ +50 V _{DC} | | |
| Off Voltage Level | +4 V _{DC} Max. | | |
| Input Impedance | 10 k Ω | | |
| 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 V _{DC} | | |
| Isolation | 3750 V _{rms} | | |
| Digital Output | | | |
| Channels | - | 2 | |
| Type | - | Open Collector | Open Emitter |
| Sink/Source (NPN/PNP) | - | Sink | Source |
| Load Voltage | - | +5 V _{DC} ~ +30 V _{DC} | +10 V _{DC} ~ +40 V _{DC} |
| 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 V _{DC} | +48 V _{DC} |
| Short Circuit Protection | - | - | Yes |
| Isolation | - | 3750 V _{rms} | |

Digital Input/Relay Output Series

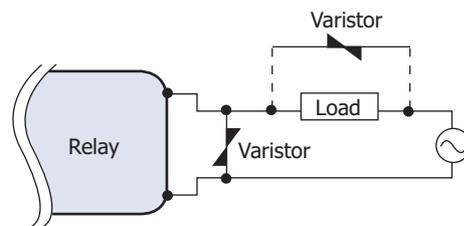
| Model Name | | tET-P2POR2/tPET-P2POR2 | tET-P2R2/tPET-P2R2 |
|---------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Pictures | | <p>Available soon</p>  |  |
| PhotoMOS/Power Relay Output | | | |
| Channels | 2 | | 2 |
| Type | PhotoMOS Relay, Form A (SPST N.O.) | | Power Relay, Form A (SPST N.O.) |
| Load Voltage | 60 V _{DC} / V _{AC} | | 250 V _{AC} /30 V _{DC} |
| 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) | VED | Long Life and No Spike | |
| | | | |
| | 5 A 30 V _{DC} 70,000 ops (10 ops/minute) at 75°C | | |
| | UL | | |
| | | 3 A 250 V _{AC} /30 V _{DC} 100,000 ops | |
| Mechanical Endurance | - | | 20,000,000 ops. At no load (300 ops./ minute) |
| Isolation | 3000 V _{rms} | | |
| Digital Input | | | |
| Channels | 2 | | |
| Contact | Wet Contact | | |
| Sink/Source (NPN/PNP) | Sink/Source | | |
| On Voltage Level | +10 V _{DC} ~ +50 V _{DC} | | |
| Off Voltage Level | +4 V _{DC} 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 V _{DC} | | |
| Isolation | 3750 V _{rms} | | |

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



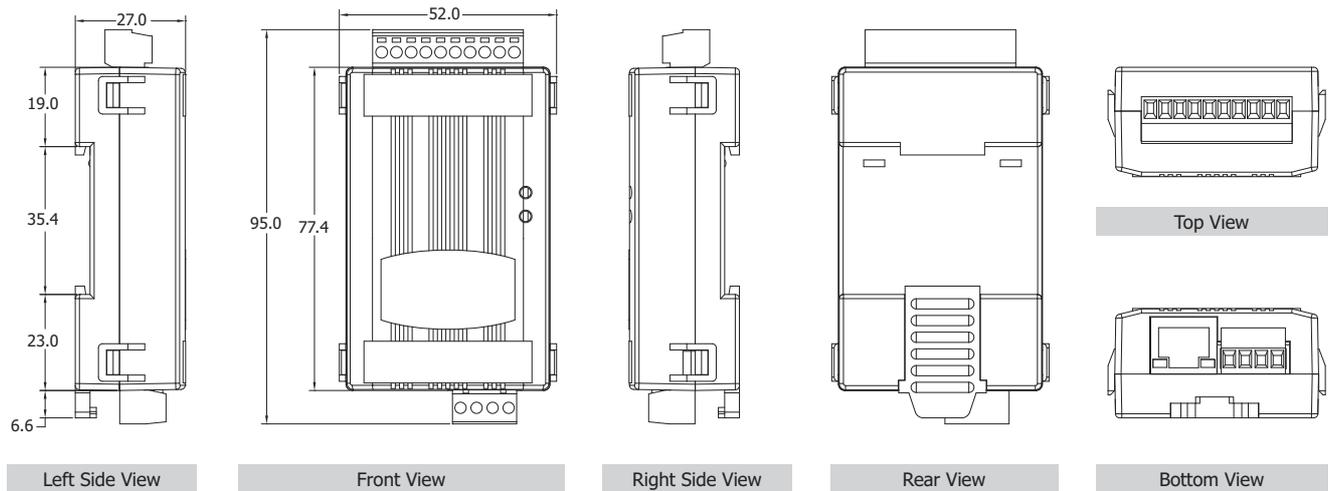
for AC loads



Varistor Selection

| Operating Voltage | Varistor Voltage | Max. Peak Current |
|---------------------------|---------------------------|-------------------|
| 100 ~ 120 V _{AC} | 240 ~ 270 V _{AC} | > 1000 A |
| 200 ~ 240 V _{AC} | 440 ~ 470 V _{AC} | > 1000 A |

Dimensions (Units: mm)



Ordering Information

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

Related Products

| | | |
|-------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------|
|  | NS-205 CR | Unmanaged 5-Port Industrial Ethernet Switch (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 |