

Ethernet I/O Products



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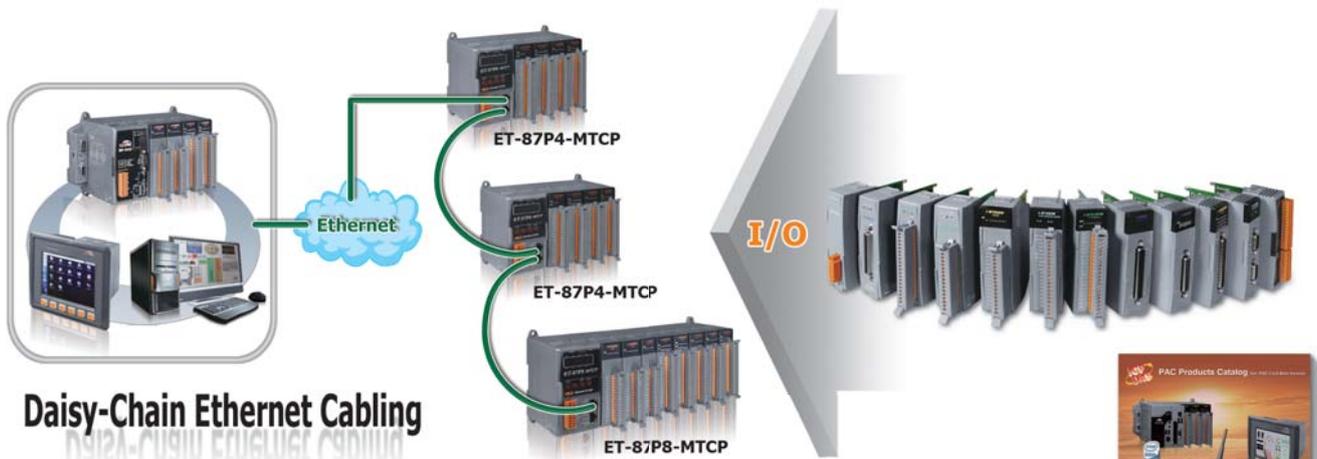
3.1. Overview

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

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

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

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



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



3.2. Modbus TCP I/O Expansion Unit



Features

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



Introduction

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

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

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

System Specifications

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

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

• Introduction



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

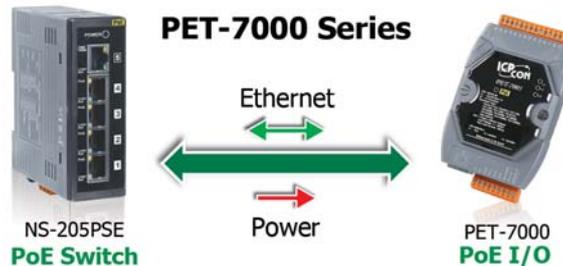
Besides Web HMI function, no more programming or HTML skills are required; creating dynamic and attractive web pages for I/O monitoring and I/O control would be fun to engineers ever after. The ET-7000/PET-7000 offers easy and safe access for users from anytime and anywhere! In addition, the ET-7000/PET-7000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

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

• Features

1. Power over Ethernet (PoE)

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



2. Communication Security

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

3. Support for both Modbus TCP and Modbus

UDP Protocols

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

4. Built-in I/O

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

5. Dual Watchdog

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

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

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

6. Highly Reliable UnderHarsh Environmen

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

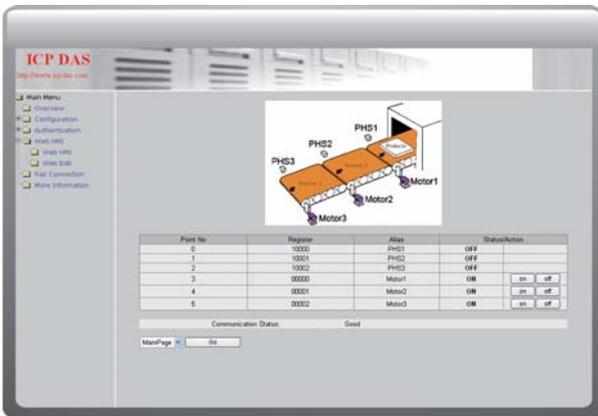


8. I/O Pair Connection

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

9. Web HMI

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

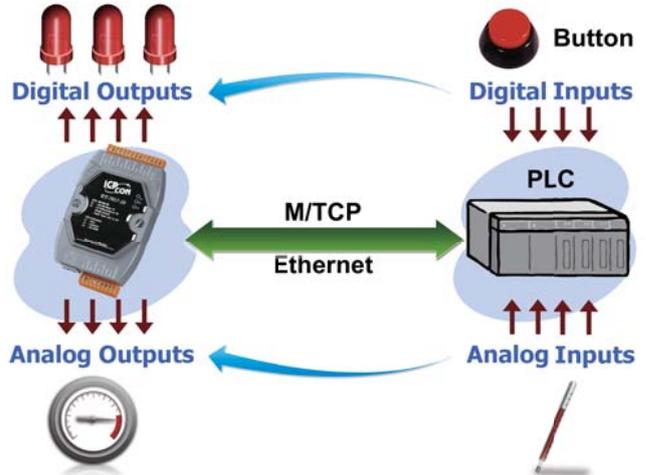


7. Power-on Value and Safe Value

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

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

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

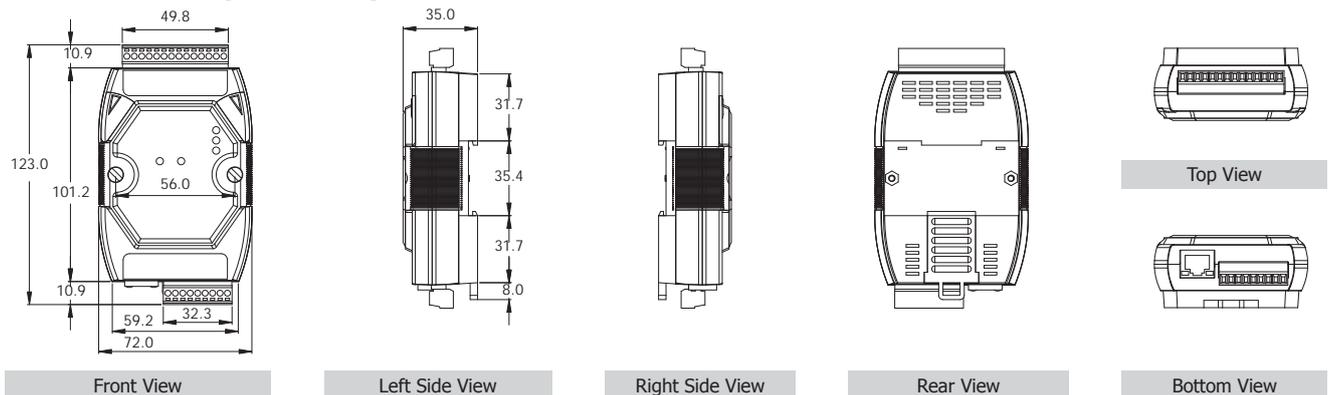


10. Built-in Web Server

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



11. Dimensions (Units: mm)



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Ethernet I/O Products

• Software Support

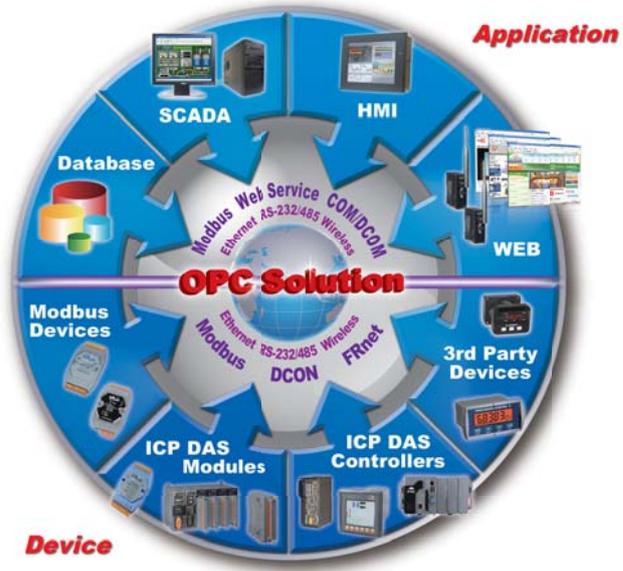
Our free charge software utility and development kit include

1. OPC Server

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

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

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



Version	NAPOPC_ST	NAPOPC_XPE	NAPOPC_CE5	NAPOPC_CE6
Platform	Desktop Windows	Windows XP Embedded	Windows CE5	Windows CE6
Price	Free/\$	Free	Free	Free

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

2. EZ Data Logger

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

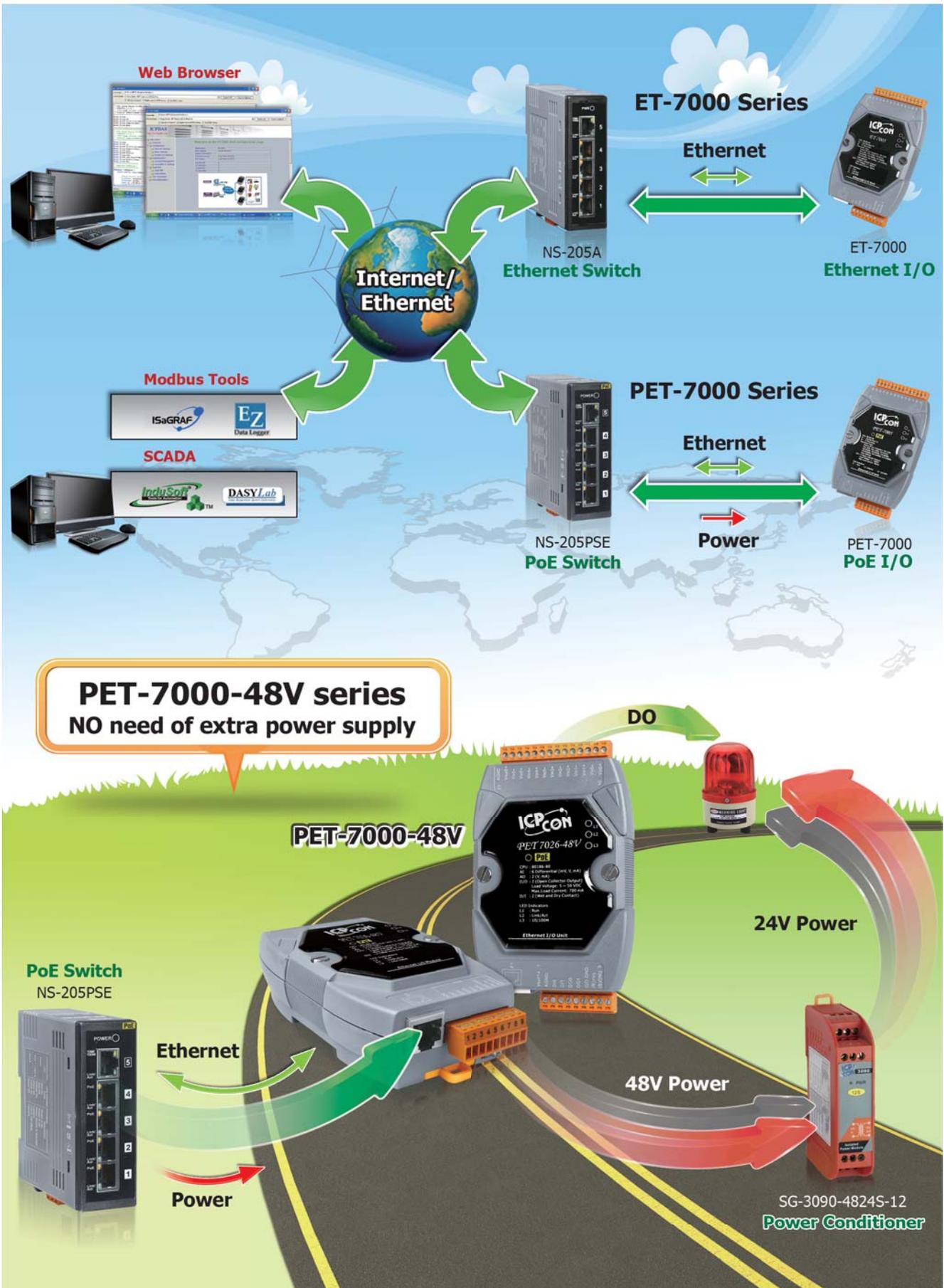
EZ Data Logger is a small data logger software. It can be applied to small remote I/O system. With its user-friendly interface, users can quickly and easily build a data logger software without any programming skill.

3. Modbus Software Development Toolkits

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

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

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



Selection Guide



Analog Input Model

Model Name	AI			DO		
	Channel	Voltage and Current Input	Sensor Input	Channel	Type	Sink/Source
ET-7005 PET-7005 PET-7005-48V	8	-	Thermistor	4	Open Collector	Sink
ET-7015 PET-7015 PET-7015-48V	7	-	RTD: Pt100, Pt1000, Ni120, Cu100, Cu1000	-	-	-
ET-7017 PET-7017 PET-7017-48V	8	+/-150 mV, +/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA	-	4	Open Collector	Sink
ET-7017-10 PET-7017-10 PET-7017-10-48V	10/20	+/-150 mV, +/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA	-	-	-	-
ET-7018Z PET-7018Z PET-7018Z-48V	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 L _{DIN43710}	6	Open Collector	Sink
ET-7019 PET-7019 PET-7019-48V	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 L _{DIN43710}	4	Open Collector	Sink
ET-7019Z PET-7019Z PET-7019Z-48V	10	+/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA		6		

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



Multi-function I/O

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

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



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 PET-7042-48V	-	-	-	16	Open Collector	Sink	100 mA/channel
ET-7044 PET-7044 PET-7044-48V	8	Wet	Sink, Source	8	Open Collector	Sink	300 mA/channel
ET-7050 PET-7050 PET-7050-48V	12	Wet	Sink, Source	6	Open Collector	Sink	100 mA/channel
ET-7051 PET-7051 PET-7051-48V	16	Wet	Sink, Source	-	-	-	-
ET-7052 PET-7052 PET-7052-48V	8	Wet	Sink, Source	8	Open Collector	Source	650 mA/channel
ET-7053 PET-7053 PET-7053-48V	16	Dry	Source	-	-	-	-
ET-7055 PET-7055 PET-7055-48V	8	Dry, Wet	Sink, Source	8	Open Collector	Source	650 mA/channel

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Ethernet I/O Products



Relay Output & Digital Input

Model Name	Relay Output				DI/Counter		
	Channel	Relay	Type	Max. Load Current @ 25°C	Channel	Contact	Sink/Source
ET-7060 PET-7060 PET-7060-48V	6	Power Relay	Form A (SPST N.O.)	5.0 A/channel	6	Wet	Sink, Source
ET-7062 PET-7062 PET-7062-48V	2	Power Relay	Form C (SPDT)	5.0A, TV-5 rated/channel	6	Wet	Sink, Source
ET-7065 PET-7065 PET-7065-48V	6	PhotoMOS Relay	Form A	1.0 A/channel	6	Wet	Sink, Source
ET-7066 PET-7066 PET-7066-48V	8	PhotoMOS Relay	Form A	1.0 A/channel	-	-	-
ET-7067 PET-7067 PET-7067-48V	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/PET-7002-48V is a multi-function module with 3-channel analog inputs, 6-channel digital inputs and 3-channel relay outputs. It provides various programmable analog inputs (+/-150 mV, +/-500 mV, +/-1 V, +/-5 V, +/-10 V, +/-20 mA, 0 ~ 20 mA and 4 ~ 20 mA). Each analog input is allowed to configure a proper range with 240 V_{rms} high voltage protection. Each analog input/output can be programmed to accept current or voltage as input/output depending upon the position of corresponding jumper. The ET-7002/PET-7002 is fully RoHS-compliant and has qualification for 4 kV ESD protection as well as 2500 Vdc intra-module isolation.

System Specifications

Models	ET-7002	PET-7002	PET-7002-48V
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		
Surge (IEC 61000-4-5)	+/-4 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-		Yes, IEEE 802.3af, Class1
Power Output	-	-	48 Vdc, 10 W
Consumption	1.7 W		
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		

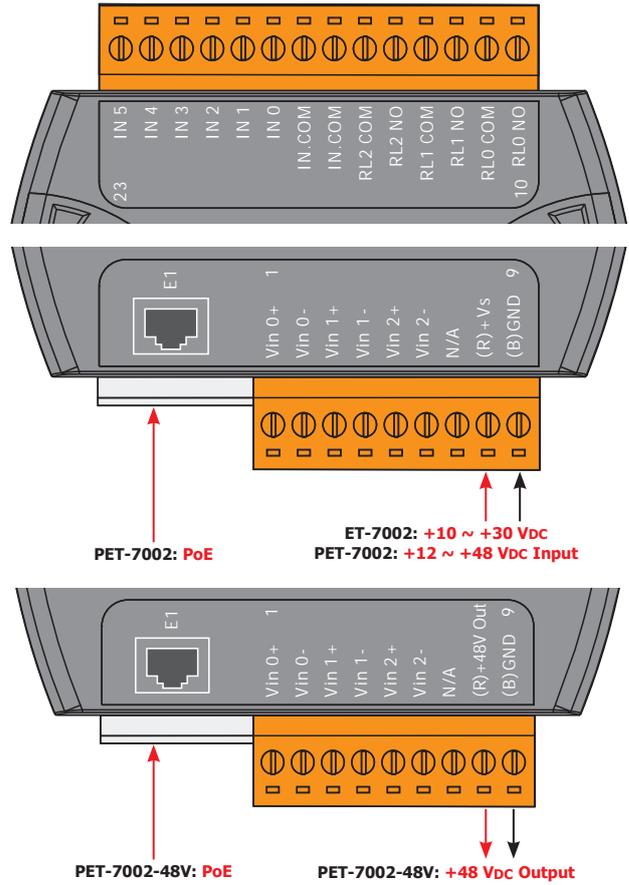
I/O Specifications

Analog Input		
Channels	3 (Differential)	
Type	+/-150 mV, +/-500 mV, +/-1 V, +/-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	
Overshoot Protection	240 V _{rms}	
Overcurrent Protection	50 mA Max. at 110 Vdc/VAC Max.	
Input Impedance	Voltage	2 M Ω
	Current	125 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 Vdc ~ +50 Vdc	
Off Voltage Level	+4 Vdc 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
Overshoot Protection	+50 Vdc	
Power Relay		
Channels	3	
Type	Power Relay, Form A (SPST N.O.)	
Operating Voltage Range	250 VAC/30 Vdc	
Max. Load Current	5.0A/channel at 25 $^{\circ}$ C	
Operate Time	6 ms (Typical)	
Release Time	3 ms (Typical)	
Electrical Life (Resistive load)	VDE:	5 A @ 250 VAC 30,000 ops (10 ops/minute) at 75 $^{\circ}$ C.
		5 A @ 30 Vdc 70,000 ops (10 ops/minute) at 75 $^{\circ}$ C.
	UL:	5 A @ 250 VAC/30 Vdc 6,000 ops. 3 A @ 250 VAC/30 Vdc 100,000 ops.
Mechanical Life	20,000,000 ops. at no load (300 ops./minute).	
Intra-module Isolation, Field-to-Logic	3750 Vdc	
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

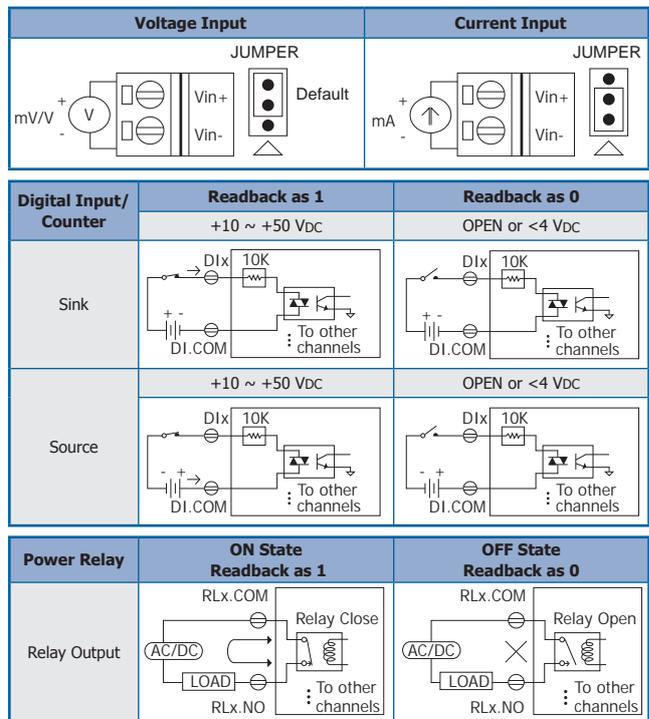
Accessories

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

Pin Assignments



Wire Connections



Ordering Information

ET-7002 CR	3-channel Analog Input and DIO Module (RoHS)
PET-7002 CR	3-channel Analog Input and DIO Module with PoE (RoHS)
PET-7002-48V CR	3-channel Analog Input and DIO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture)



Features

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



Introduction

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

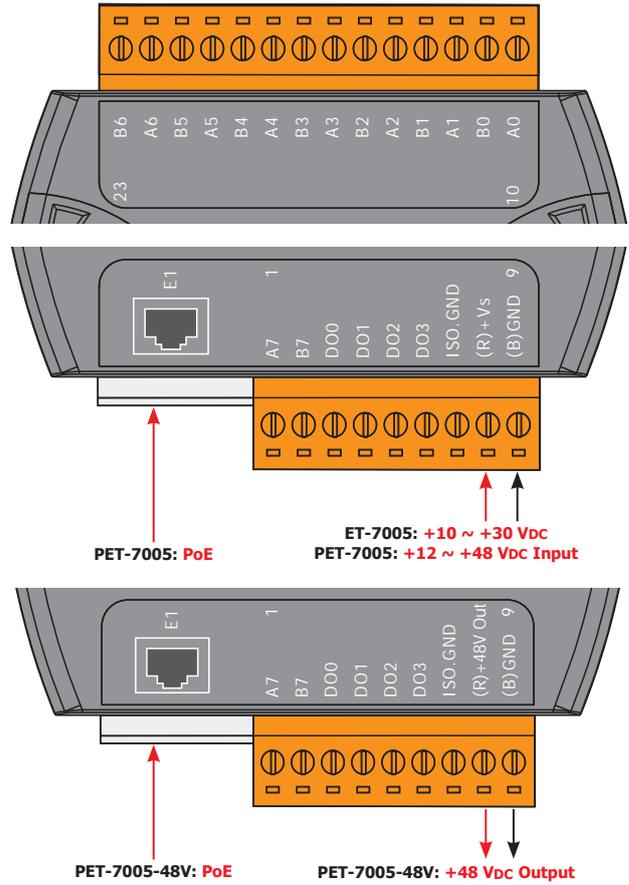
System Specifications

Models	ET-7005	PET-7005	PET-7005-48V
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			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-		Yes, IEEE 802.3af, Class1
Power Output	-	-	48 Vdc, 10 W
Consumption	2.1 W		3.0 W
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

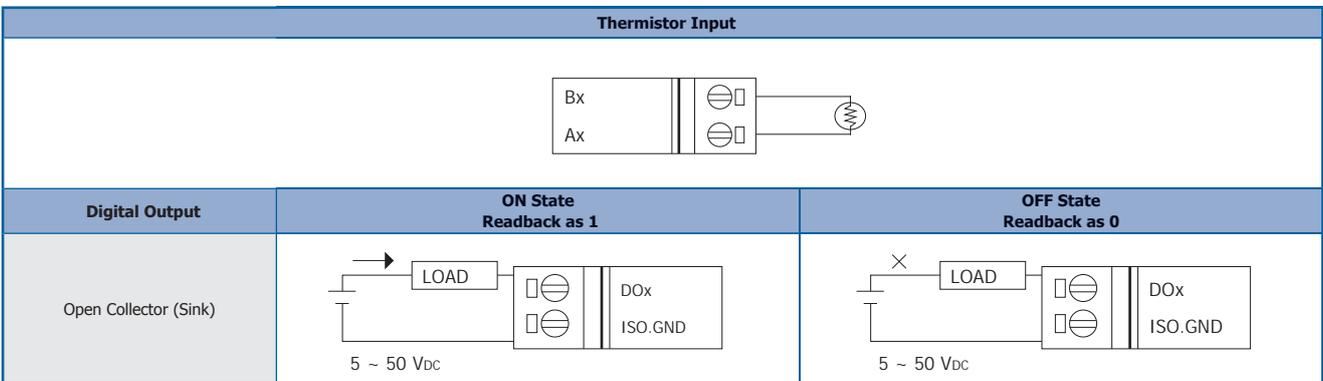
Thermistor Input	
Channels	8 (Differential)
Sensor Type (thermistor)	Precon ST-A3, Fenwell U, YSI L100, YSI L300, YSI L1000, YSI B2252, YSI B3000, YSI B5000, YSI B6000, YSI B10000, YSI H10000, YSI H30000, User-defined
Individual Channel Configuration	Yes
Resolution	16-bit
Sampling Rate	10 Sample/Second (Total)
Accuracy	+/-0.1% or better
Zero Drift	+/-20 μ V/ $^{\circ}$ C
Span Drift	+/-25 ppm/ $^{\circ}$ C
Overvoltage Protection	110 Vdc/VAC
Common Mode Rejection	86 dB
Normal Mode Rejection	100 dB
Open Wire Detection	Yes
Digital Output	
Channels	4
Type	Isolated Open Collector
Sink/Source (NPN/PNP)	Sink
Max. Load Current	700 mA/Channel
Load Voltage	5 Vdc ~ 50 Vdc
Overvoltage Protection	60 Vdc
Overload Protection	1.4 A
Short-circuit Protection	Yes
Power-on Value	Yes, Programmable
Safe Value	Yes, Programmable

Pin Assignments



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3
Ethernet I/O Products

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

Accessories

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



Features

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



Introduction

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

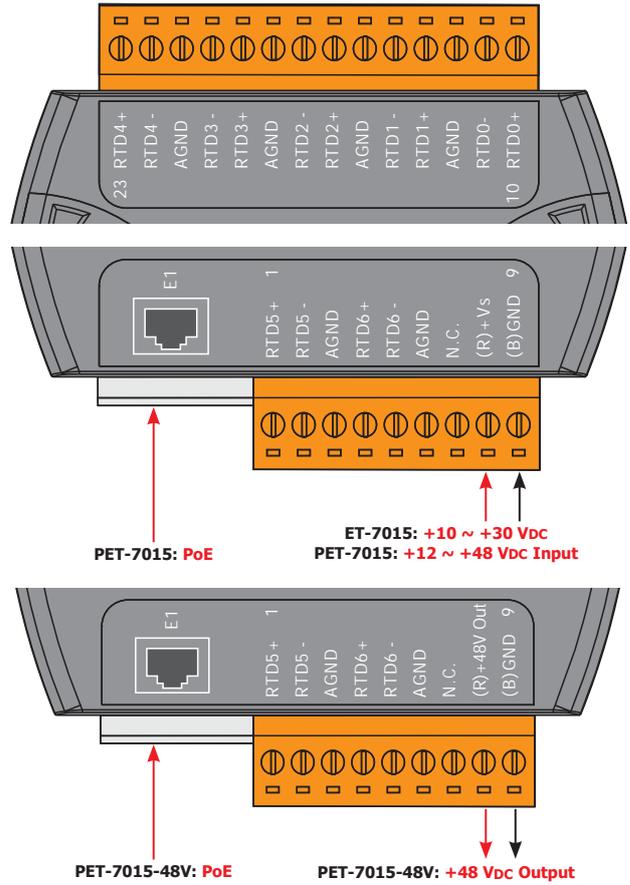
System Specifications

Models	ET-7015	PET-7015	PET-7015-48V
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			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-		Yes, IEEE 802.3af, Class1
Power Output	-	-	48 Vdc, 10 W
Consumption	2.0 W		2.6 W
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/°C
Span Drift	+/-20 μ V/°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



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Ethernet I/O Products

Wire Connections

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

Ordering Information

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

Accessories

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



Features

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



Introduction

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

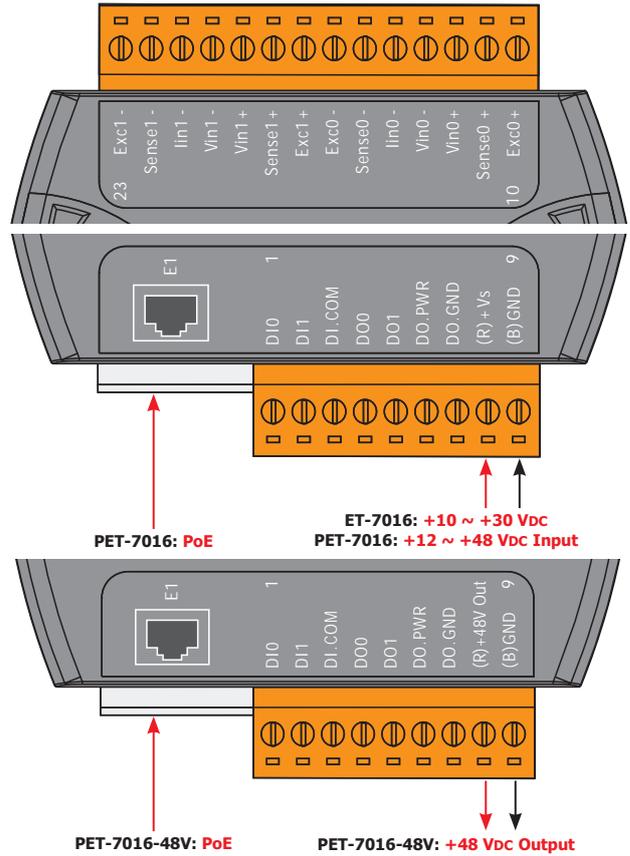
System Specifications

Models	ET-7016	PET-7016	PET-7016-48V
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			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	4.2 W	5.3 W	
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 Vdc	
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 Vdc Max.	
On Voltage Level	+3.5 Vdc ~ +50 Vdc	
Counters	Channels	2
	Max. Count	4,294,967,285 (32-bit)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms
Overvoltage Protection	70 Vdc	
Digital Output		
Channels	2	
Type	Isolated Open Collector	
Sink/Source (NPN/PNP)	Sink	
Max. Load Current	700 mA/Channel	
Load Voltage	+5 Vdc ~ +50 Vdc	
Overvoltage Protection	60 Vdc	
Overload Protection	1.4 A	
Short-circuit Protection	Yes	
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

Pin Assignments



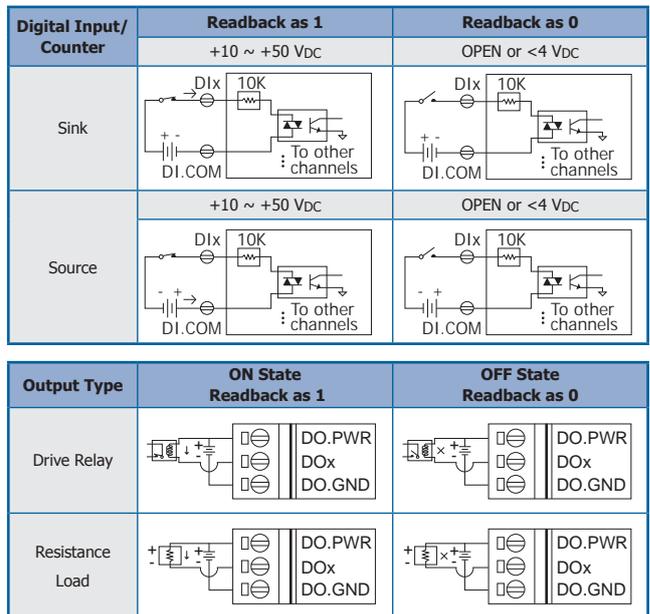
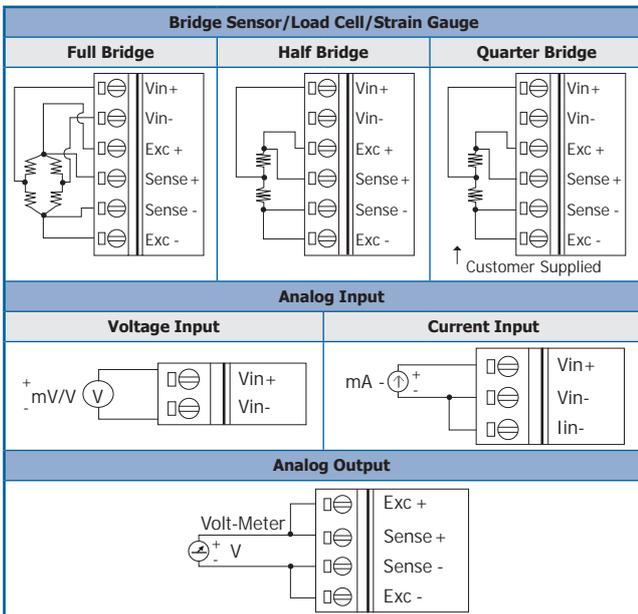
Excitation Voltage

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

Ordering Information

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

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

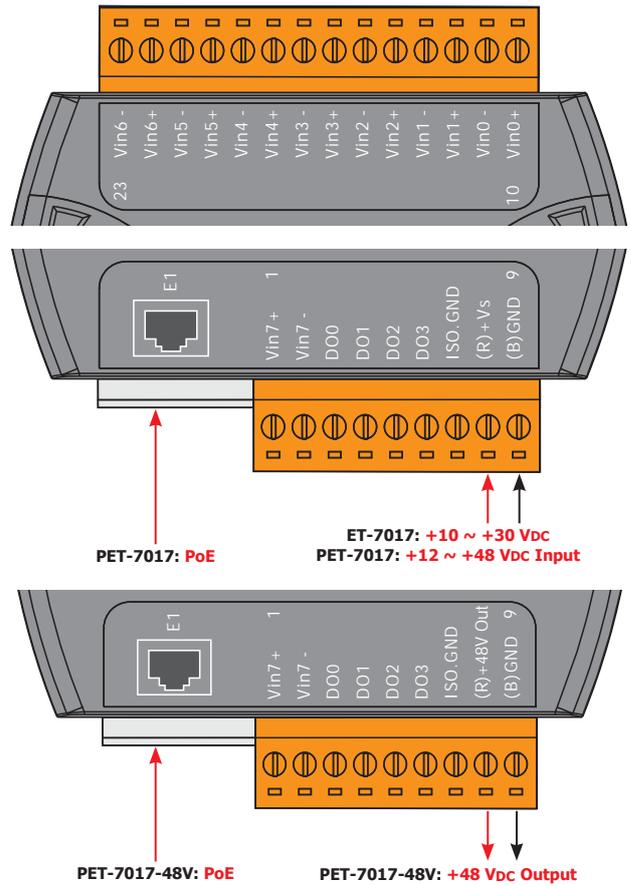
System Specifications

Models	ET-7017	PET-7017	PET-7017-48V
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			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-		Yes, IEEE 802.3af, Class1
Power Output	-	-	48 Vdc, 10 W
Consumption	2.6 W		3.1 W
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 Vrms	
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 Vdc ~ 50 Vdc	
Overvoltage Protection	60 Vdc	
Overload Protection	1.4 A	
Short-circuit Protection	Yes	
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

Pin Assignments

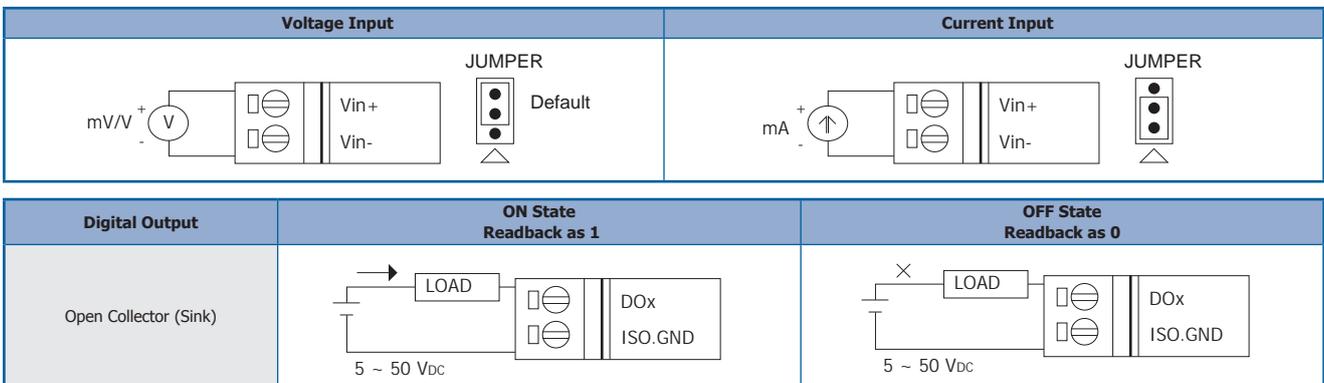


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Ethernet I/O Products

Wire Connections



Ordering Information

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

Accessories

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

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



Features

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



Introduction

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

System Specifications

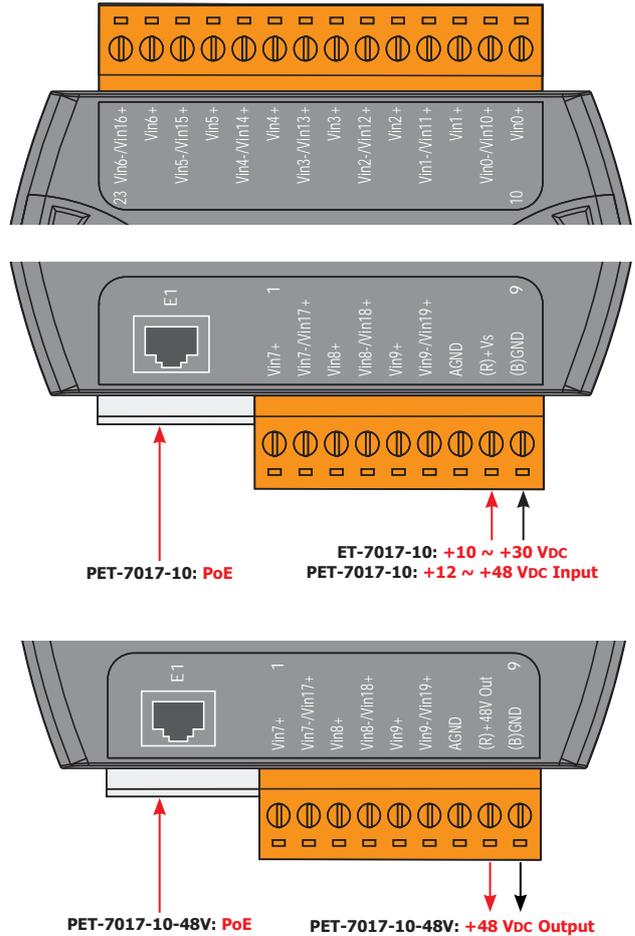
Models	ET-7017-10	PET-7017-10	PET-7017-10-48V
Software			
★ Built-in Web Server		Yes	
★ Web HMI		Yes	
★ I/O Pair Connection		Yes	
Communication			
Ethernet Port	10/100 Base-TX with Auto MDI/MDI-X		
★ PoE	-		Yes
★ Protocol	Modbus TCP, Modbus UDP		
★ Security	ID, Password and IP Filter		
★ Dual Watchdog	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			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.6 W	3.8 W	
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

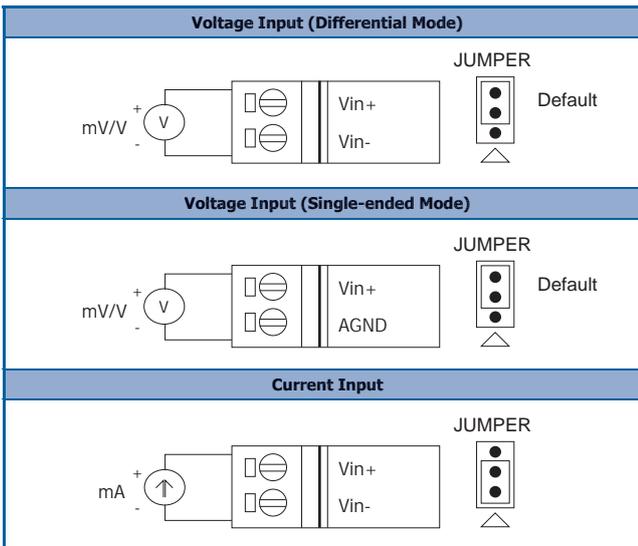
Analog Input		
Channels	10 differential or 20 single-ended (Note1), software selectable	
Type	+/-150 mV, +/-500 mV, +/-1V, +/-5V, +/-10V +/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA (Jumper Selectable)	
Individual Channel Configuration	Yes	
Resolution	Normal Mode	16-bit
	Fast Mode	12-bit
Sampling Rate	Normal Mode	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/°C	
Span Drift	+/-25 ppm/°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



Accessories

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

Ordering Information

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



Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C
- I/O Pair Connection
- Built-in I/O
 - Thermocouple Input: 10 Channels (For ET-7018Z/PET-7018Z/PET-7018Z-48V)
 - AI: 10 Channels with 240 V_{rms} Overvoltage Protection (For ET-7019Z/PET-7019Z/PET-7019Z-48V)
 - DO: 6 Channels



Introduction

The "Z" version is another milestone in the development of the thermocouple series and is a testament to the excellence of ICP DAS products. The ET-7018Z/PET-7018Z/PET-7018Z-48V/ET-7019Z/PET-7019Z/PET-7019Z-48V is specifically designed for extremely accurate thermocouple measurement and features automatic cold-junction compensation for each channel to ensure temperature output consistency and stable temperature output in the field. Current input and voltage input are both supported. Another feature is that its ten input channels can be individually configured for different kinds of analog input. Open thermocouple detection and ESD/EFT/Surge protection mechanisms are also included. The six digital output channels can be set as alarm outputs with short-circuit protection and overload protection.

System Specifications

Models	ET-7018Z	ET-7019Z	PET-7018Z	PET-7019Z	PET-7018Z-48V	PET-7019Z-48V
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					
Surge (IEC 61000-4-5)	-	+/-3 kV for Power	-	+/-3 kV for Power	-	+/-3 kV for Power
Power						
Reverse Polarity Protection	Yes					
Powered from Terminal Block	Yes, 10 ~ 30 Vdc		Yes, 12 ~ 48 Vdc			-
Powered from PoE	-			Yes, IEEE 802.3af, Class1		
Power Output					48 Vdc, 10 W	
Consumption	2.0 W	2.5 W	3.0 W	3.5 W	3.0 W	3.5 W
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

Models	ET-7018Z PET-7018Z PET-7018Z-48V	ET-7019Z PET-7019Z PET-7019Z-48V
Thermocouple Input		
Channels	10 (Differential)	
★ Sensor Type	+/-15 mV, +/-50 mV, +/-100 mV, +/-500 mV, +/-1 V, +/-2.5 V	+/-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 (Requires Optional External 125 Ω Resistor)	+/-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 μV/°C	
Span Drift	+/-25 ppm/°C	
★ Over Voltage Protection	240 V _{rms}	
Input Impedance	>300 kΩ	
Common Mode Rejection	150 dB Min.	86 dB Min.
Normal Mode Rejection	100 dB	
Temperature Output Consistency	Yes	
Stable Temperature Output in the Field	Yes	
★ Open Wire Detection	Yes	
Digital Output		
Channels	6	
Type	Isolated Open Collector	
Sink/Source (NPN/PNP)	Sink	
Max. Load Current	700 mA/Channel	
Load Voltage	5 Vdc ~ 50 Vdc	
Overvoltage Protection	60 Vdc	
Overload Protection	1.4 A	
Short-circuit Protection	Yes	
★ Power-on Value	Yes, Programmable	
★ Safe Value	Yes, Programmable	

3
3
Ethernet I/O Products

Wire Connections

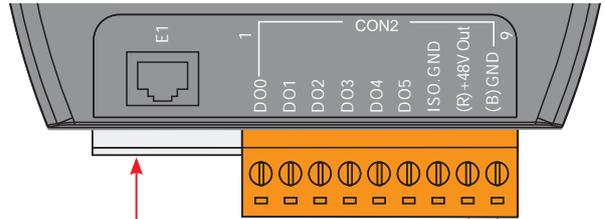
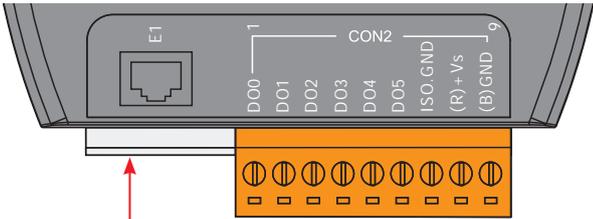
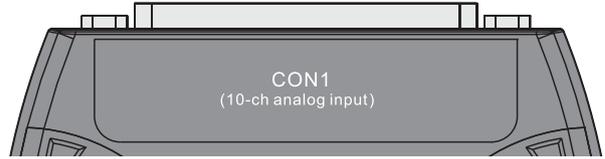
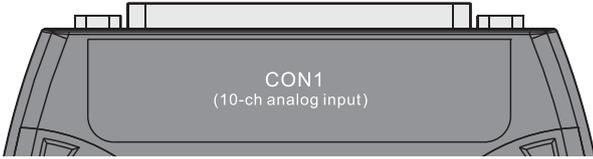
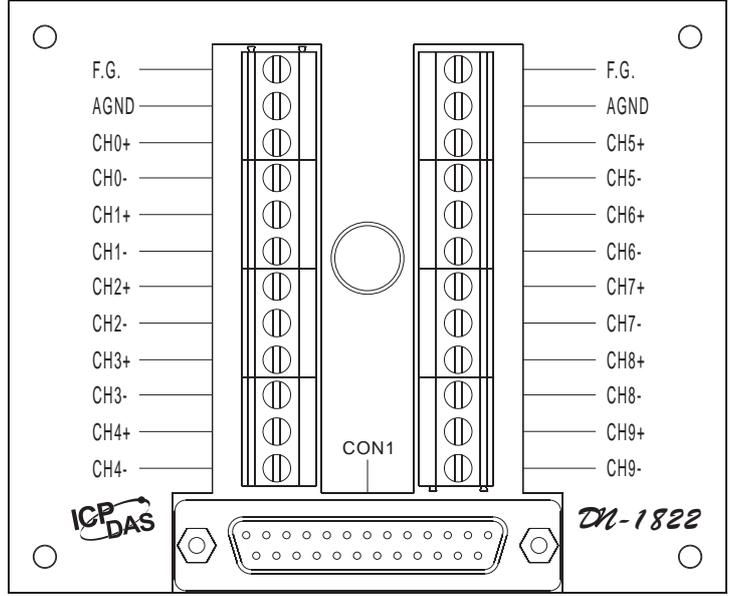
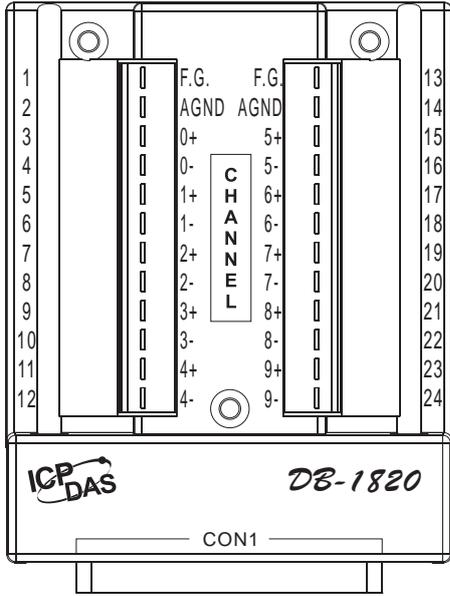
ET-7018Z/PET-7018Z/PET-7018Z-48V	ET-7019Z/PET-7019Z/PET-7019Z-48V
<p>Voltage Input (Default)</p>	<p>Voltage Input (Default)</p>
<p>Thermocouple Input (Default)</p>	<p>Thermocouple Input (Default)</p>
<p>Current Input</p> <p>Note: When connecting to a current source, an optional external 125 Ω resistor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

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

Pin Assignments

3
3

Ethernet I/O Products



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

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

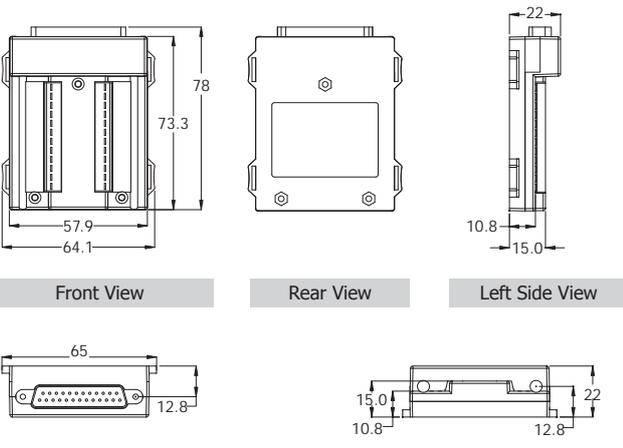
PET-7018Z-48V: PoE
PET-7019Z-48V: PoE

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



■ Dimensions (Units: mm)

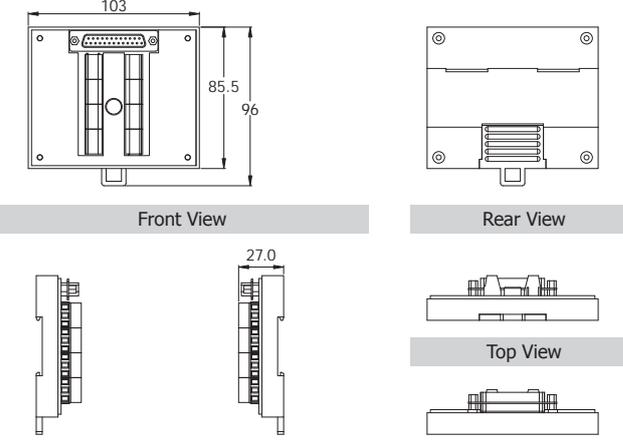
DN-1820



Front View **Rear View** **Left Side View**

Top View **Bottom View**

DN-1822



Front View **Rear View**

Right Side View **Left Side View** **Bottom View**

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

Front **Rear**



ET-7018Z/S = DB-1820 Connects to the ET-7018Z Directly
PET-7018Z/S = DB-1820 Connects to the PET-7018Z Directly
PET-7018Z-48V/S = DB-1820 Connects to the PET-7018Z-48V Directly
ET-7019Z/S = DB-1820 Connects to the ET-7019Z Directly
PET-7019Z/S = DB-1820 Connects to the PET-7019Z Directly
PET-7019Z-48V/S = DB-1820 Connects to the PET-7019Z Directly



ET-7018Z/S2 = DN-1822 Connects to the ET-7018Z Directly
PET-7018Z/S2 = DN-1822 Connects to the PET-7018Z Directly
PET-7018Z-48V/S2 = DN-1822 Connects to the PET-7018Z-48V Directly
ET-7019Z/S2 = DN-1822 Connects to the ET-7019Z Directly
PET-7019Z/S2 = DN-1822 Connects to the PET-7019Z Directly
PET-7019Z-48V/S2 = DN-1822 Connects to the PET-7019Z Directly

■ Accessories



4PAPP-006-G



CD-25015
15 cm Cable +DB-1820



CD-2518D
1.8 m Cable +DB-1820



PET-7018Z/S + CD-2518D
PET-7018Z-48V/S + CD-2518D
PET-7019Z/S + CD-2518D
PET-7019Z-48V/S + CD-2518D

PET-7018Z/S + CD-25015 +4PAPP-006-G
PET-7018Z-48V/S + CD-25015 +4PAPP-006-G
PET-7019Z/S + CD-25015 +4PAPP-006-G
PET-7019Z-48V/S + CD-25015 +4PAPP-006-G



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/PET-7019-48V 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 built in this model, measuring current or voltage simply by a jumper. An external resistor is no longer needed. Eight of its inputs channels can individually be configured with different kinds of analog input. Moreover, the ET-7019/PET-7019/PET-7019-48V also got open thermocouple detection and many protection mechanisms. The 4 digital output can be set as alarm output with Short-circuit protection and overload protection.

System Specifications

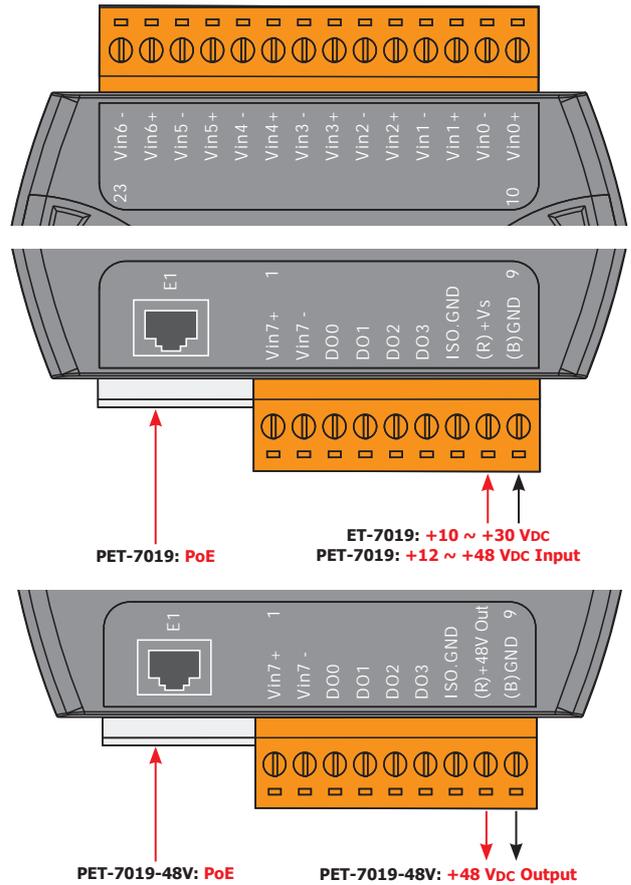
Models	ET-7019	PET-7019	PET-7019-48V
Software			
★ Built-in Web Server		Yes	
★ Web HMI		Yes	
★ I/O Pair Connection		Yes	
Communication			
Ethernet Port	10/100 Base-TX with Auto MDI/MDI-X		
★ PoE	-		Yes
★ Protocol	Modbus TCP, Modbus UDP		
★ Security	ID, Password and IP Filter		
★ Dual Watchdog	Yes, Module (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			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.4 W	3.4 W	
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 μ V/ $^{\circ}$ C
Span Drift	+/-25 ppm/ $^{\circ}$ C
★ Overvoltage Protection	240 V_{rms}
Input Impedance	Voltage >1 M Ω
	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 Vdc ~ 50 Vdc
Overvoltage Protection	60 Vdc
Overload Protection	1.4 A
Short-circuit Protection	Yes
★ Power-on Value	Yes, Programmable
★ Safe Value	Yes, Programmable

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

Pin Assignments



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3
Ethernet I/O Products

Wire Connections

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

Ordering Information

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

Accessories

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

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



Features

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



Introduction

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

System Specifications

Models	ET-7026	PET-7026	PET-7026-48V
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			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	3.1 W	4.2 W	
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		

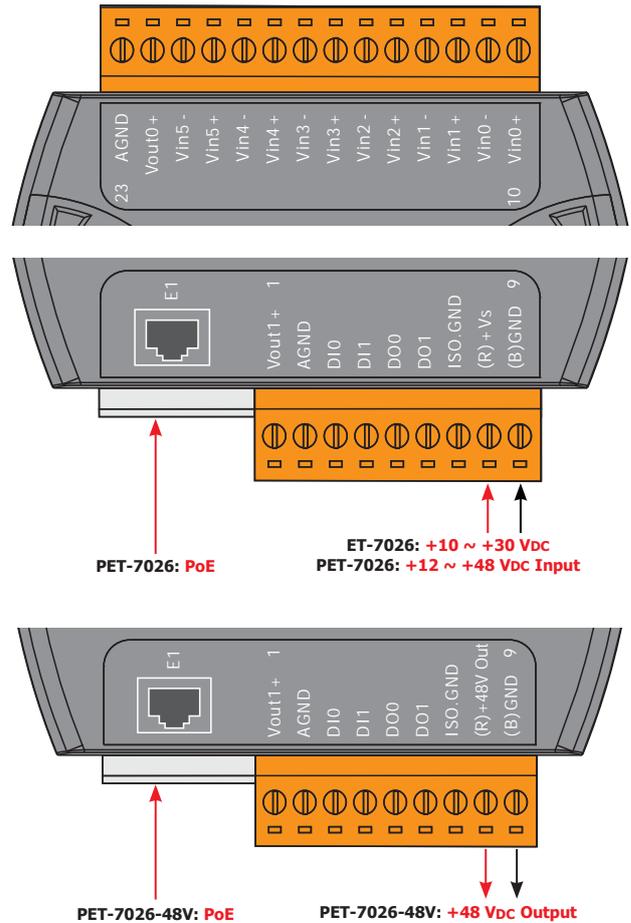
I/O Specifications

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 µV/°C	
Span Drift	+/-25 ppm/°C	
Overvoltage Protection	240 Vrms	
Input Impedance	Voltage	2 MΩ
	Current	125 Ω
Common Mode Rejection	86 dB Min.	
Normal Mode Rejection	100 dB	
Analog Output		
Channels	2	
Type	+0 Vdc ~ +5 Vdc, +/-5 Vdc, +0 Vdc ~ +10 Vdc, +/-10 Vdc, +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 Vdc Max.
	Off Voltage Level	+3.5 Vdc ~ +30 Vdc
Counters	Channels	2
	Max. Count	4,294,967,285 (32-bit)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms
Overvoltage Protection	30 Vdc	
Digital Output		
Channels	2	
Type	Isolated Open Collector	
Sink/Source (NPN/PNP)	Sink	
Max. Load Current	700 mA/Channel	
Load Voltage	+5 Vdc ~ +50 Vdc	
Overvoltage Protection	60 Vdc	
Overload Protection	1.4 A	
Short-circuit Protection	Yes	
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

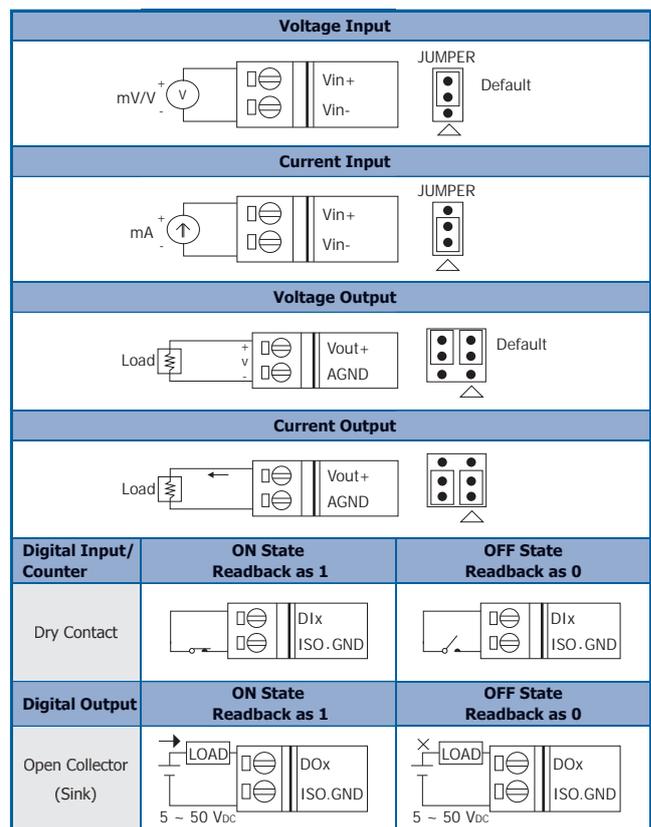
Ordering Information

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

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
 - DO: 16 Channels



Introduction

The ET-7042/PET-7042/PET-7042-48V provides 16 sink-type digital output channels. It features optical isolation for 3750 V_{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/PET-7042-48V to the RM series relay module to switch inductive loads.

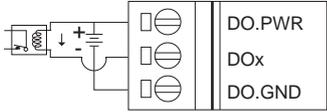
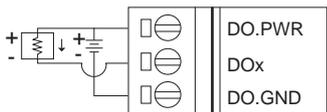
System Specifications

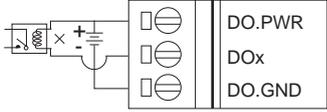
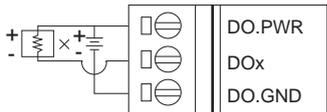
Models	ET-7042	PET-7042	PET-7042-48V
Software			
★ Built-in Web Server		Yes	
★ Web HMI		Yes	
★ I/O Pair Connection		Yes	
Communication			
★ Ethernet Port	10/100 Base-TX with Auto MDI/MDI-X		
★ PoE	-		Yes
★ Protocol	Modbus TCP, Modbus UDP		
★ Security	ID, Password and IP Filter		
★ Dual Watchdog	Yes, 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	3750 Vrms		3750 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.7 W	3.0 W	
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	PET-7042-48V
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 Vdc ~ +30 Vdc		
Overvoltage Protection	-	60 Vdc	
Overload Protection	-	1.3 A	
Short-circuit Protection	-	Yes	
Power-on Value	Yes, Programmable		
Safe Value	Yes, Programmable		

Wire Connections

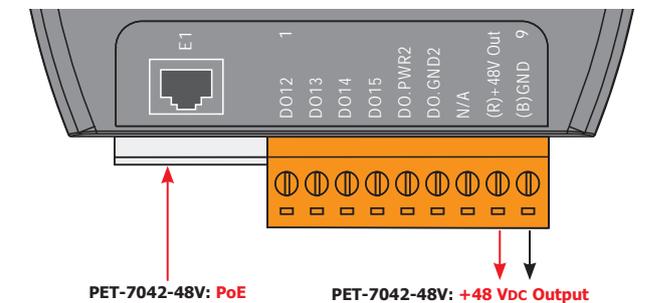
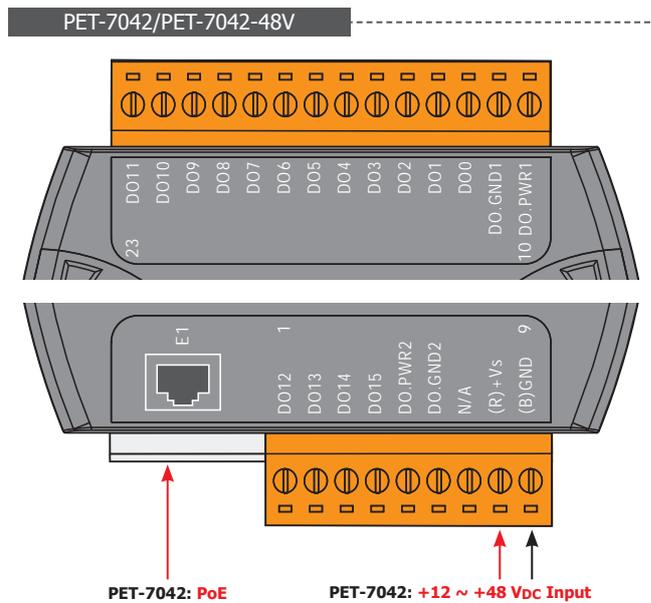
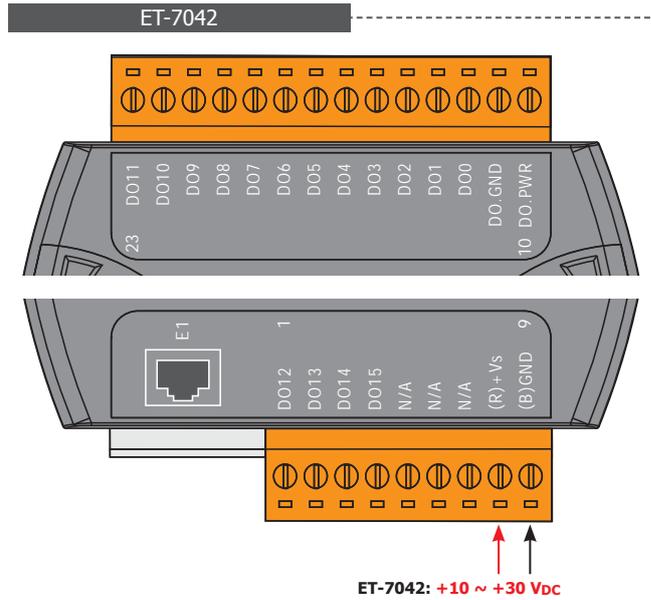
Output Type	ON State Readback as 1
Drive Relay	 DO.PWR DOx DO.GND
Resistance Load	 DO.PWR DOx DO.GND

Output Type	OFF State Readback as 0
Drive Relay	 DO.PWR DOx DO.GND
Resistance Load	 DO.PWR DOx DO.GND

Accessories

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

Pin Assignments



Ordering Information

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



Features

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



Introduction

The ET-7044/PET-7044/PET-7044-48V provides 8 wet contact digital input channels and 8 sink-type digital output channels. It features optical isolation for 3750 V_{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.

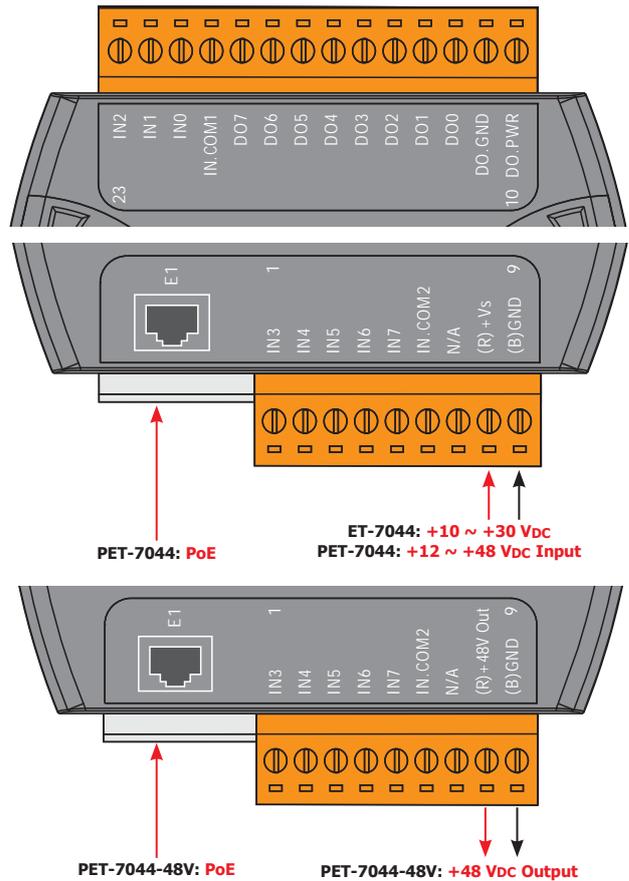
System Specifications

Models	ET-7044	PET-7044	PET-7044-48V
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	3750 Vrms		3750 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.4 W	3.0 W	
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 Vdc ~ +50 Vdc	
Off Voltage Level	+4 Vdc Max.	
Input Impedance	10 kΩ	
Counters	Max. Count	4,294,967,285 (32 bits)
	Max. Input Frequency	500 Hz
	Min. Pulse Width	1 ms
Overvoltage Protection	+70 Vdc	
Digital Output		
Channels	8	
Type	Isolated Open Collector	
Sink/Source (NPN/PNP)	Sink	
Max. Load Current	300 mA/channel at 25°C Direct Drive Power Relay Module	
Load Voltage	+10 Vdc ~ +40 Vdc	
Overvoltage Protection	60 Vdc	
Overload Protection	1.1 A	
Short-circuit Protection	Yes	
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

Pin Assignments



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Ethernet I/O Products

Wire Connections

Digital Input/Counter	Readback as 1 +10 ~ +50 Vdc	Readback as 0 OPEN or <4 Vdc
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)
PET-7044-48V CR	8-channel DI and 8-channel DO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture)



Features

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



Introduction

The ET-7050/PET-7050/PET-7050-48V provides 12 wet contact digital input channels and 6 sink-type digital output channels. It features optical isolation for 3750 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/PET-7050-48V to the RM series relay module to switch inductive loads.

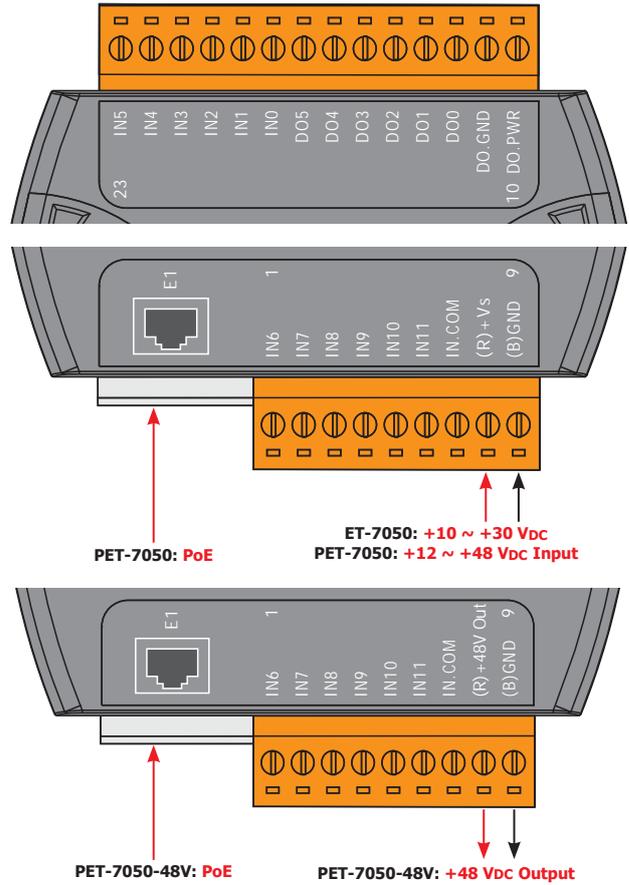
System Specifications

Models	ET-7050	PET-7050	PET-7050-48V
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	3750 Vrms		3750 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.4 W	3.0 W	
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	PET-7050-48V
Digital Input/Counter			
Channels	12		
Contact	Wet Contact		
Sink/Source (NPN/PNP)	Sink/Source		
On Voltage Level	+10 Vdc ~ +50 Vdc		
Off Voltage Level	+4 Vdc Max.		
Input Impedance	10 kΩ		
Counters	Max. Count	4,294,967,285 (32 bits)	
	Max. Input Frequency	500 Hz	
	Min. Pulse Width	1 ms	
Overvoltage Protection	+70 Vdc		
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 Vdc ~ +30 Vdc		
Overvoltage Protection	-	60 Vdc	
Overload Protection	-	1.3 A	
Short-circuit Protection	-	Yes	
Power-on Value	Yes, Programmable		
Safe Value	Yes, Programmable		

Pin Assignments



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Ethernet I/O Products

Wire Connections

Digital Input/Counter	Readback as 1 +10 ~ +50 Vdc	Readback as 0 OPEN or <4 Vdc
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)
PET-7050-48V CR	12-channel DI and 6-channel DO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture)



Features

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



Introduction

The ET-7051/PET-7051/PET-7051-48V provides 16 wet contact digital input channels. Each input channel can be used as a 32-bit counter. It features optical isolation for 3750 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.

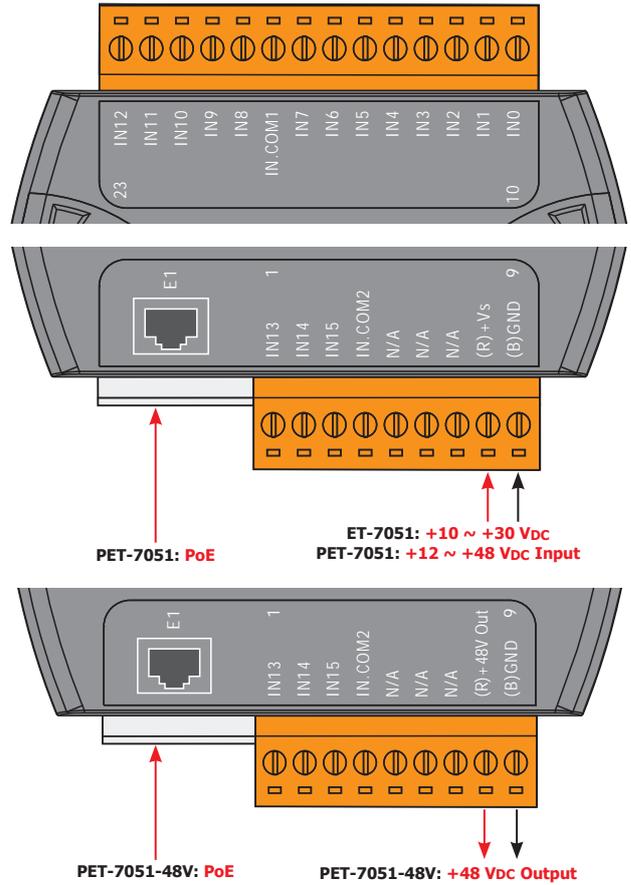
System Specifications

Models	ET-7051	PET-7051	PET-7051-48V
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	3750 Vrms		3750 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.2 W	2.8 W	
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 Vdc ~ +50 Vdc	
Off Voltage Level	+4 Vdc Max.	
Input Impedance	10 kΩ	
Counters	Max. Count	4,294,967,285 (32 bits)
	Max. Input Frequency	500 Hz
	Min. Pulse Width	1 ms
Overvoltage Protection	+70 Vdc	

Pin Assignments



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Ethernet I/O Products

Wire Connections

Digital Input/Counter	Readback as 1 +10 ~ +50 Vdc	Readback as 0 OPEN or <4 Vdc
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)
PET-7051-48V CR	16-channel Isolated Digital Input Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture)

Accessories

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

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



Features

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



Introduction

The ET-7052/PET-7052/PET-7052-48V provides 8 wet contact digital input channels and 8 source-type digital output channels. It features optical isolation for 3750 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 650 mA load. The power-on value and safe value of digital output channel are programmable. It can safely be used in applications where hazardous voltages are present.

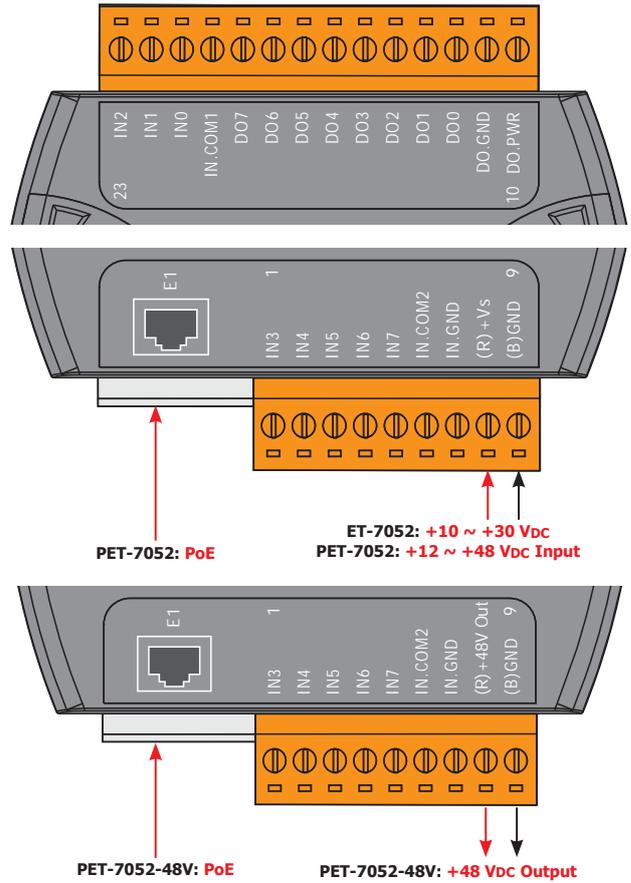
System Specifications

Models	ET-7052	PET-7052	PET-7052-48V
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	3750 Vrms		3750 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-		48 Vdc, 10 W
Consumption	2.4 W	3.0 W	
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 Vdc ~ +50 Vdc
Off Voltage Level		+4 Vdc Max.
Input Impedance		10 kΩ
★ Counters	Max. Count	4,294,967,285 (32 bits)
	Max. Input Frequency	500 Hz
	Min. Pulse Width	1 ms
Overvoltage Protection		+70 Vdc
Digital Output		
Channels		8
Type		Isolated Open Collector
Sink/Source (NPN/PNP)		Source
Max. Load Current		650 mA/channel at 25°C
Load Voltage		+10 Vdc ~ +40 Vdc
★ Overvoltage Protection		47 Vdc
★ Overload Protection		-
★ Short-circuit Protection		Yes
★ Power-on Value		Yes, Programmable
★ Safe Value		Yes, Programmable

Pin Assignments



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Ethernet I/O Products

Wire Connections

Digital Input/Counter	Readback as 1 +10 ~ +50 Vdc	Readback as 0 OPEN or <4 Vdc
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)
PET-7052-48V CR	8-channel DI and 8-channel DO Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture)



Features

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



Introduction

The ET-7053/PET-7053/PET-7053-48V provides 16 dry contact digital input channels. Each input channel can be used as a 32-bit counter. It features optical isolation for 3750 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.

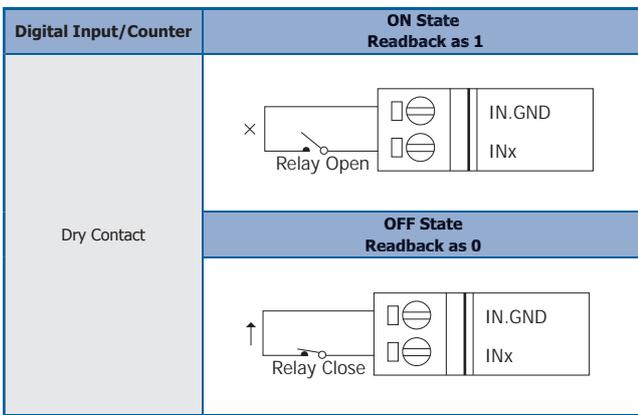
System Specifications

Models	ET-7053	PET-7053	PET-7053-48V
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	3750 Vrms		3750 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.4 W	3.0 W	
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
Overvoltage Protection	-	
Effective Distance	500 M Max.	

Wire Connections



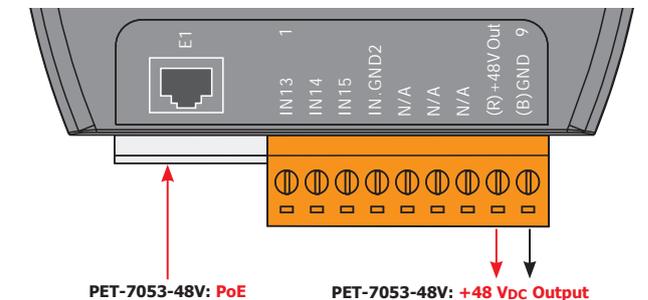
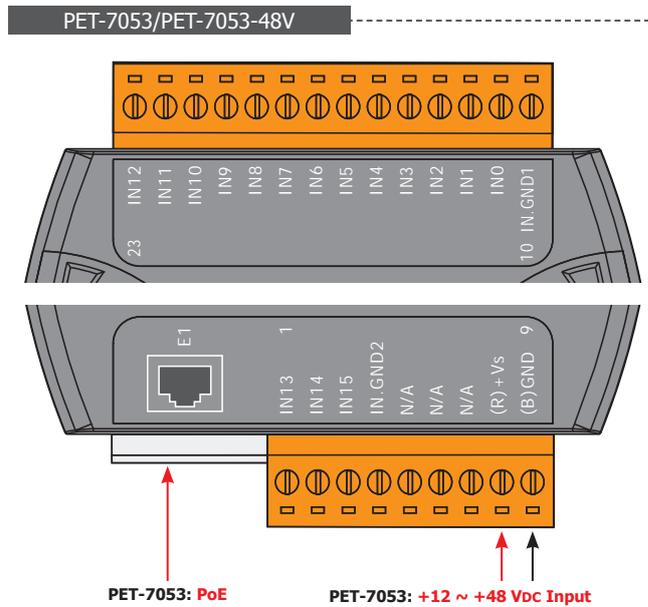
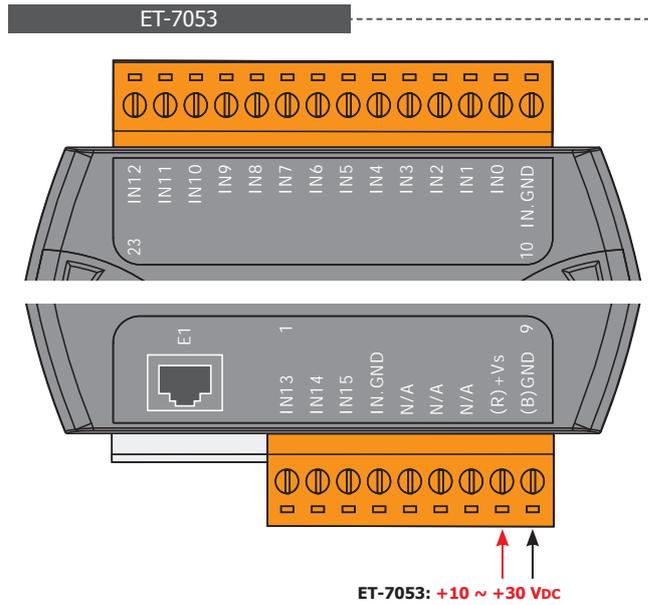
Accessories

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

Ordering Information

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

Pin Assignments



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Ethernet I/O Products

Available soon


ET-7055

PET-7055
PET-7055-48V

8-channel DI and 8-channel DO Module

Features

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


Introduction

The ET-7055/PET-7055/PET-7055-48V provides 8 wet contact digital input channels and 8 source-type digital output channels. It features optical isolation for 3750 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 650 mA load. The power-on value and safe value of digital output channel are programmable. It can safely be used in applications where hazardous voltages are present.

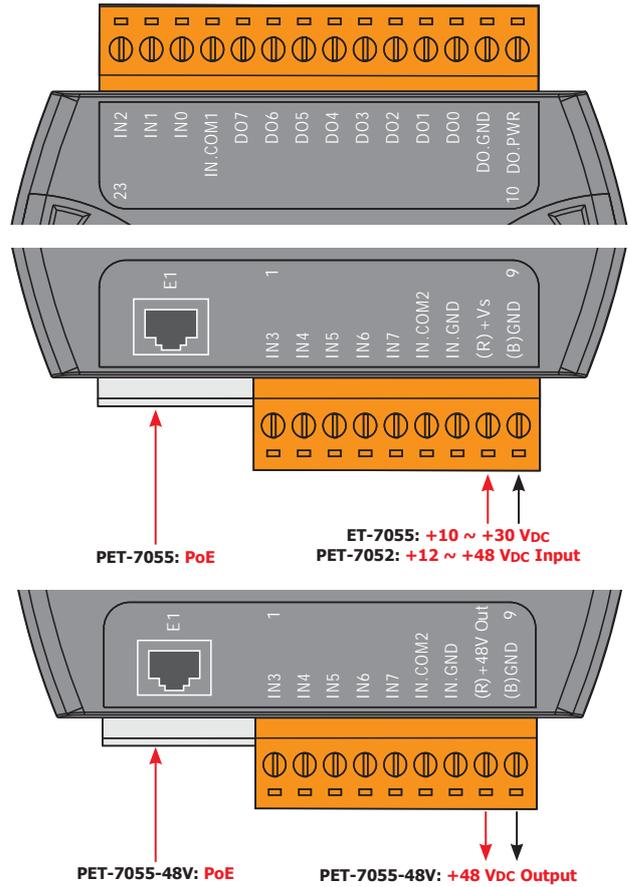
System Specifications

Models	ET-7055	PET-7055	PET-7055-48V
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	3750 Vrms		3750 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.4 W	3.0 W	
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

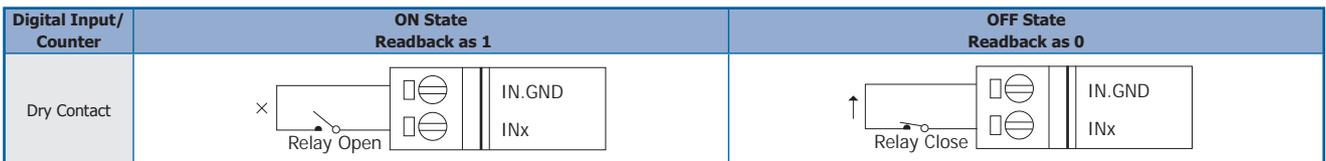
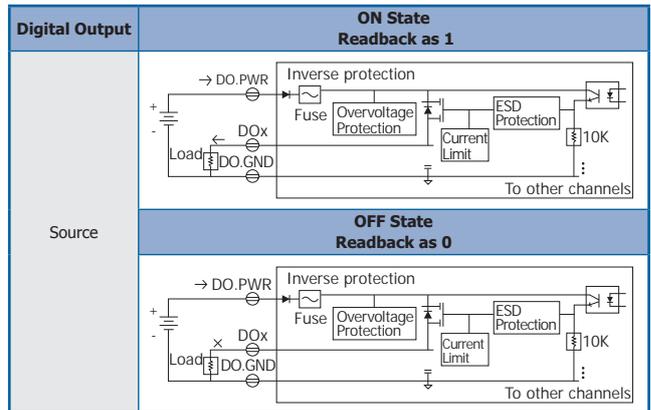
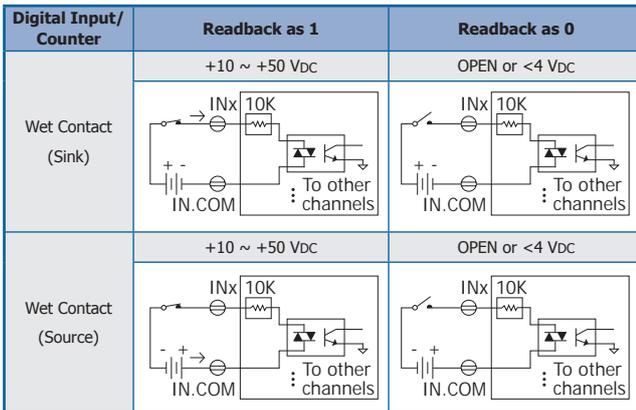
Digital Input/Counter		
Channels	8	
Contact	Dry +Wet	
Sink/Source (NPN/PNP)	Dry: Source Wet: Sink/Source	
Wet Contact	On Voltage Level	+10 Vdc ~ +50 Vdc
	Off Voltage Level	+4 Vdc Max.
Dry Contact	On Voltage Level	Close to GND
	Off Voltage Level	Open
Input Impedance	10 kΩ	
Counters	Max. Count	4,294,967,285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

Pin Assignments



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Ethernet I/O Products

Wire Connections



Ordering Information

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



Features

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



Introduction

The ET-7060/PET-7060/PET-7060-48V provides 6 wet contact digital input channels and 6 form A electromechanical relays. It features optical isolation for 3000 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.

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

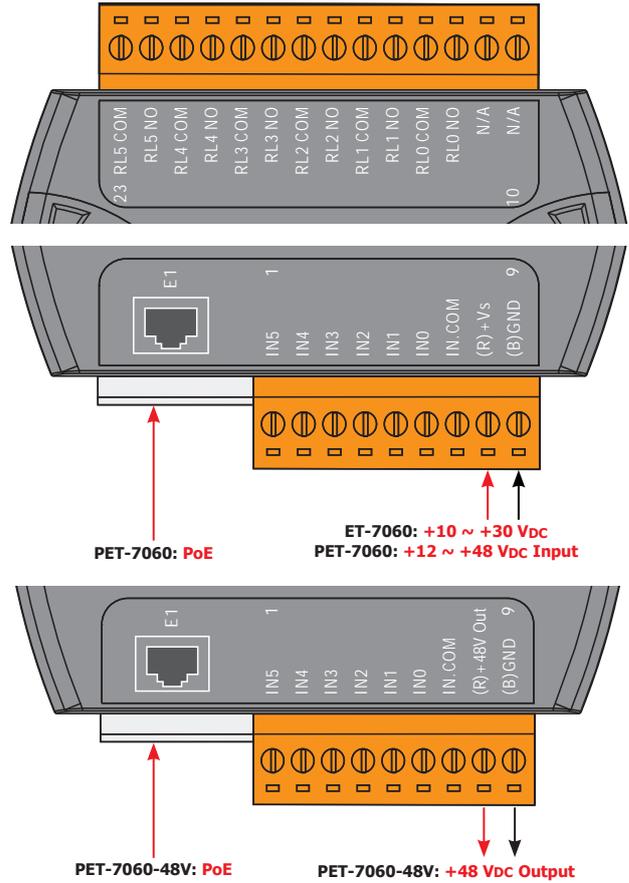
System Specifications

Models	ET-7060	PET-7060	PET-7060-48V
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	3000 Vrms		3000 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.9 W	3.5 W	
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	
Power Relay		
Channels	6	
Type	Power Relay, Form A (SPST N.O.)	
Operating Voltage Range	250 VAC/30 Vdc	
Max. Load Current	5.0A/channel at 25°C	
Operate Time	6 ms (Typical)	
Release Time	3 ms (Typical)	
Electrical Life (Resistive Load)	VDE	5A 250 VAC 30,000 ops (10 ops/minute) at 75°C 5A 30 VDC 70,000 ops (10 ops/minute) at 75°C
	UL	5A 250 VAC/30 VDC 6,000 ops. 3A 250 VAC/30 VDC 100,000 ops.
	Mechanical Life	20,000,000 ops. at no load (300 ops./minute)
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

Pin Assignments



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3
Ethernet I/O Products

Wire Connections

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

Power Relay	ON State Readback as 1
Relay Output	
	OFF State Readback as 0

Ordering Information

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

Accessories

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

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

Available soon


ET-7062
PET-7062
PET-7062-48V

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

Features

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


Introduction

The ET-7062/PET-7062/PET-7062-48V provides 6 wet contact digital input channels and 2 power relay output channels. Each input channel can be used as a 32-bit counter. It features optical isolation for 3750 V_{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.

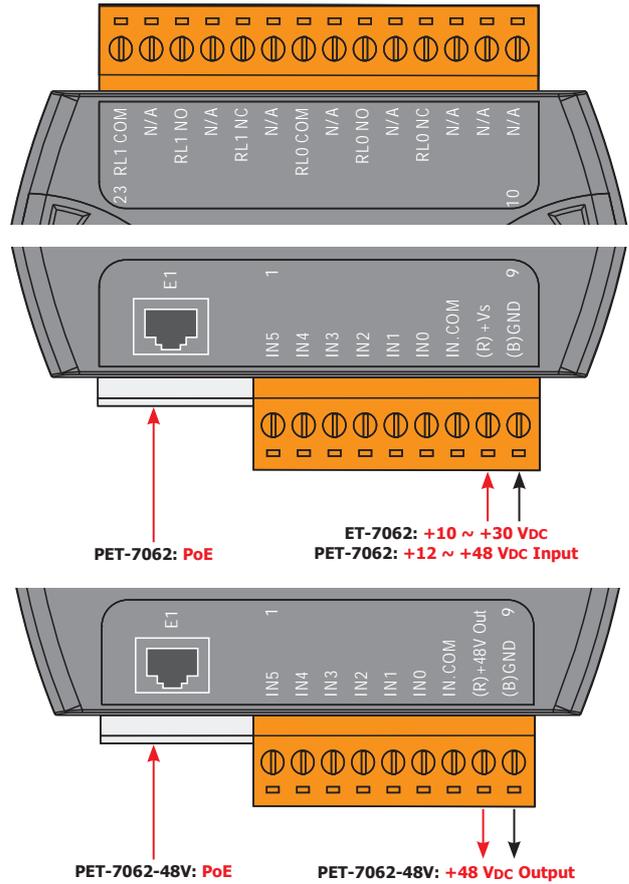
System Specifications

Models	ET-7062	PET-7062	PET-7062-48V
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	3000 Vrms		3000 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.9 W	3.5 W	
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

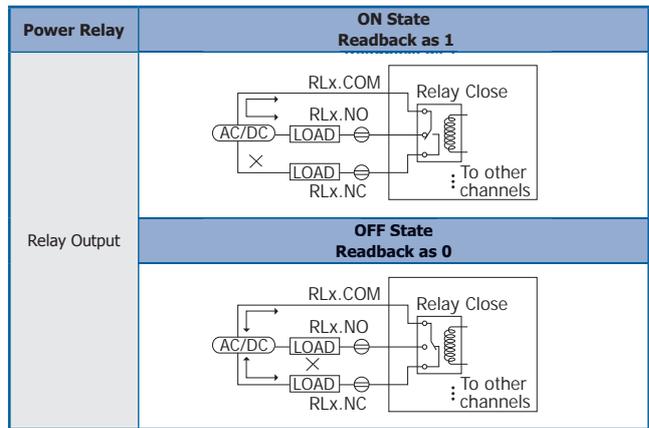
Digital Input/Counter			
Channels	6		
Contact	Wet Contact		
Sink/Source (NPN/PNP)	Sink/Source		
On Voltage Level	+10 Vdc ~ +50 Vdc		
Off Voltage Level	+4 Vdc Max.		
Input Impedance	10 kΩ		
Counters	Max. Count	4,294,967,285 (32 bits)	
	Max. Input Frequency	500 Hz	
	Min. Pulse Width	1 ms	
Overvoltage Protection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

Pin Assignments



Wire Connections

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



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)
PET-7062-48V CR	2-channel Power Relay Output and 6-channel DI Module with PoE and 48 Vdc, 10 W output (RoHS) (Call Manufacture)

Accessories

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

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



Features

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



Introduction

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

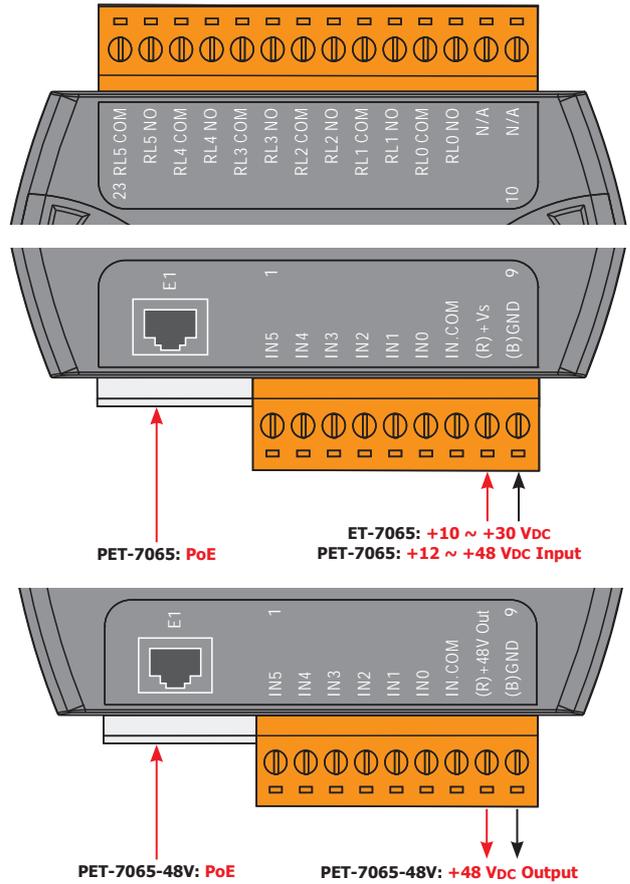
System Specifications

Models	ET-7065	PET-7065	PET-7065-48V
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	3000 Vrms		3000 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.9 W	3.0 W	
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	

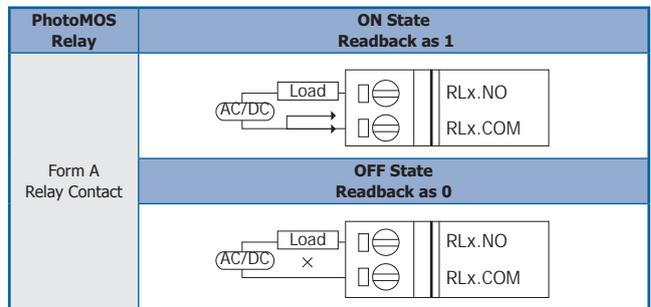
Pin Assignments



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Ethernet I/O Products

Wire Connections

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



Ordering Information

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

Accessories

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

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



Features

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



Introduction

The ET-7066/PET-7066/PET-7066-48V provides 8 form A PhotoMOS relays. It features optical isolation for 3000 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.

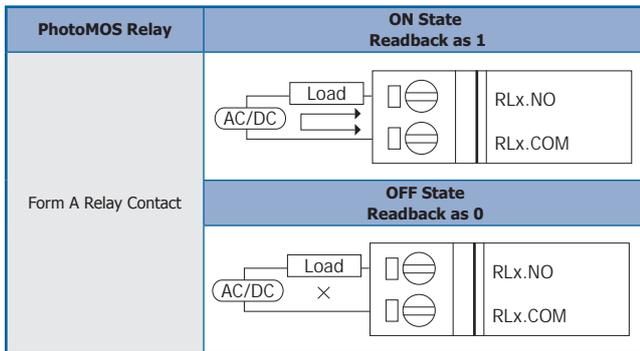
System Specifications

Models	ET-7066	PET-7066	PET-7066-48V
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	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			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	2.4 W	2.8 W	
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		

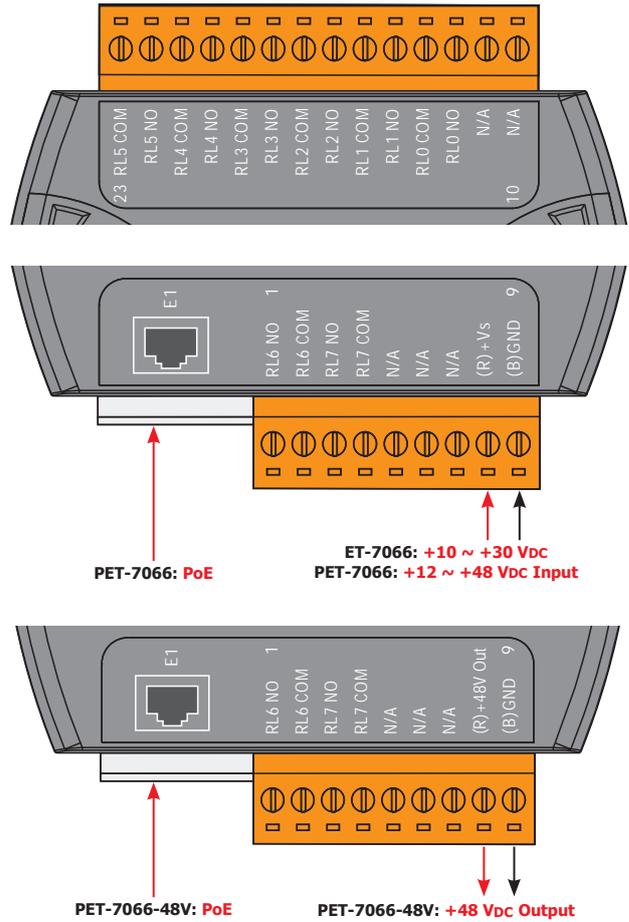
I/O Specifications

PhotoMOS Relay	
Channels	8
Type	PhotoMOS Relay, Form A
Load Voltage	60 Vdc/VAC
★ 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

Wire Connections



Pin Assignments



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Ethernet I/O Products

Ordering Information

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

Accessories

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



Features

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



Introduction

The ET-7067/PET-7067/PET-7067-48V provides 8 form A electromechanical relays. It features optical isolation for 3000 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/PET-7063-48V to switch inductive loads instead of ET-7062/PET-7062/PET-7062-48V.

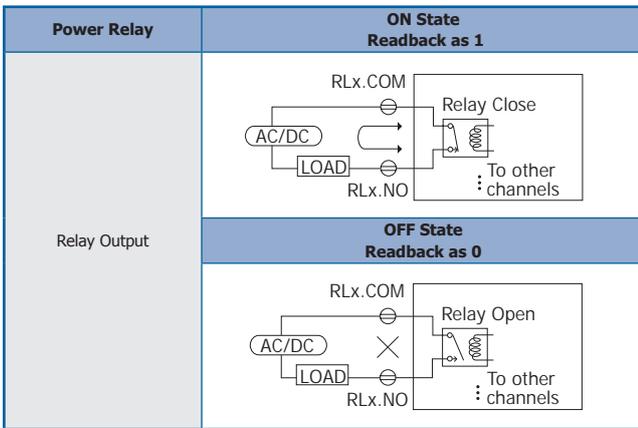
System Specifications

Models	ET-7067	PET-7067	PET-7067-48V
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	3000 Vrms		3000 Vrms
EMS Protection			
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal		
EFT (IEC 61000-4-4)	+/-2 kV for Power		
Power			
Reverse Polarity Protection		Yes	
Powered from Terminal Block	Yes, 10 ~ 30 Vdc	Yes, 12 ~ 48 Vdc	-
Powered from PoE	-	Yes, IEEE 802.3af, Class1	
Power Output	-	-	48 Vdc, 10 W
Consumption	3.2 W	3.9 W	
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		

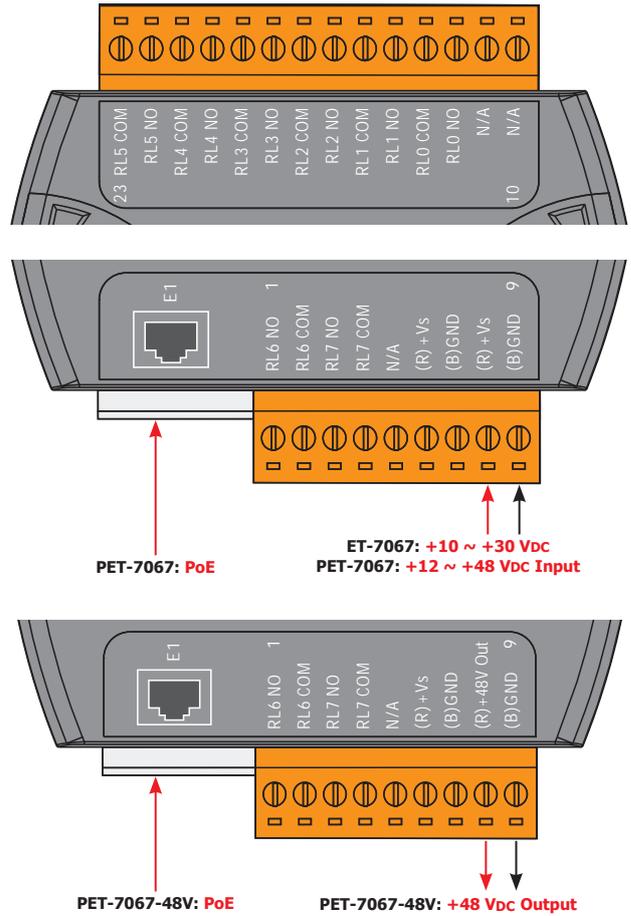
I/O Specifications

Power Relay		
Channels	8	
Type	Power Relay, Form A (SPST N.O.)	
Operating Voltage Range	250 VAC/30 Vdc	
Max. Load Current	5.0A/channel at 25°C	
Operate Time	6 ms (Typical)	
Release Time	3 ms (Typical)	
Electrical Life (Resistive Load)	VDE	5A 250 VAc 30,000 ops (10 ops/minute) at 75°C
		5A 30 Vdc 70,000 ops (10 ops/minute) at 75°C
	UL	5A 250 VAc/30 Vdc 6,000 ops. 3A 250 VAc/30 Vdc 100,000 ops.
Mechanical Life	20,000,000 ops. at no load (300 ops./minute)	
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

Wire Connections



Pin Assignments



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Ethernet I/O Products

Ordering Information

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

Accessories

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

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

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Ethernet I/O Products

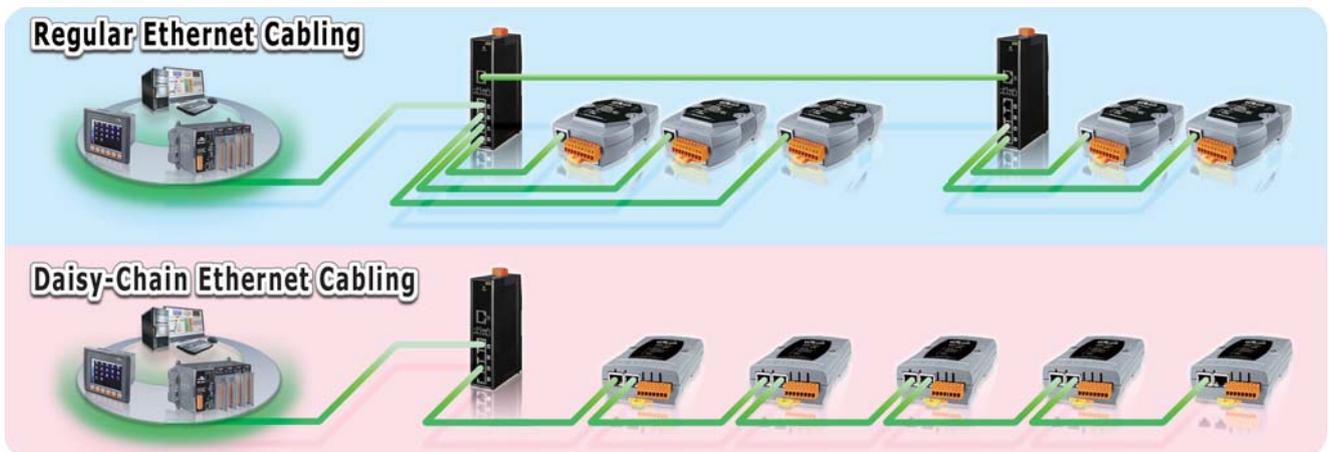


The functionality of the PEE-7000 series modules is almost the same as the PET-7000 series. The main difference is that the PEE-7000 series has a built-in two-port Ethernet switch to form a daisy-chain topology. Which allows PEE-7000 series to connect in series to each other or other Ethernet devices.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

• Features

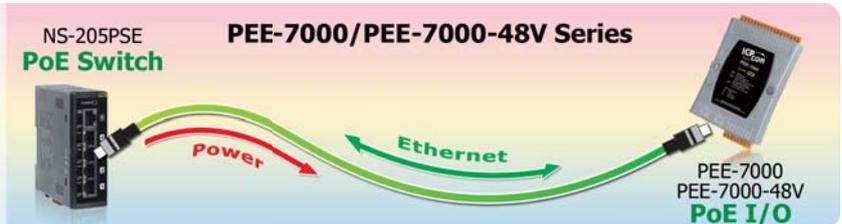
1. Daisy-Chain Ethernet Cabling

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

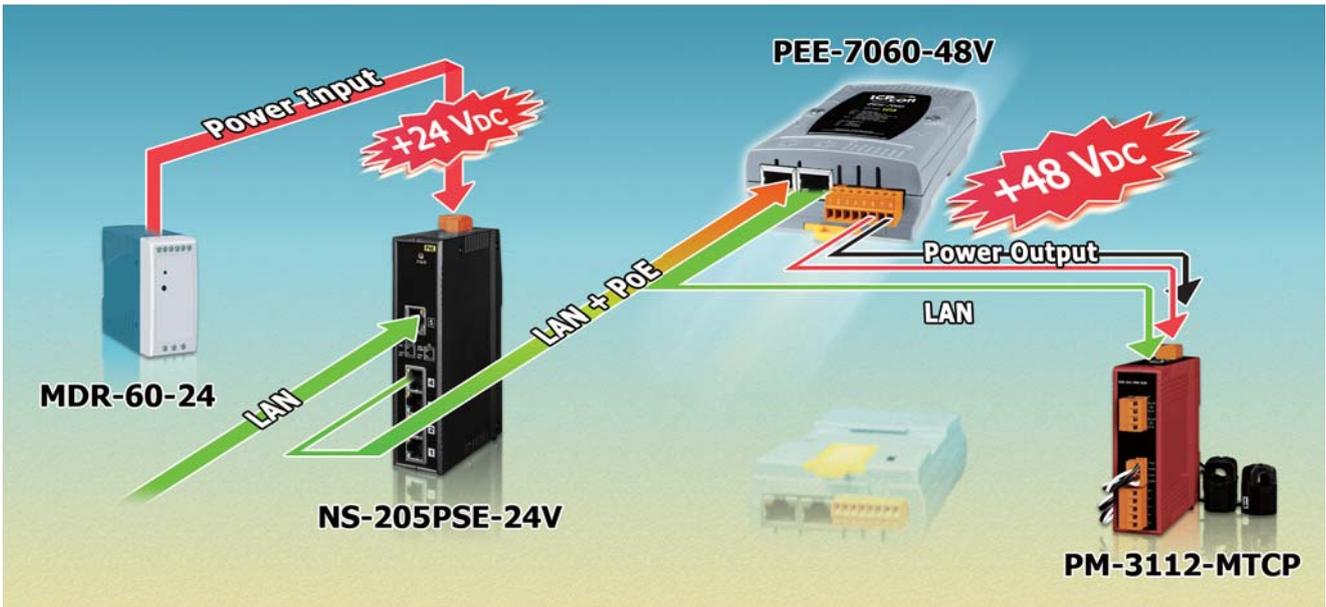


2. Power over Ethernet (PoE)

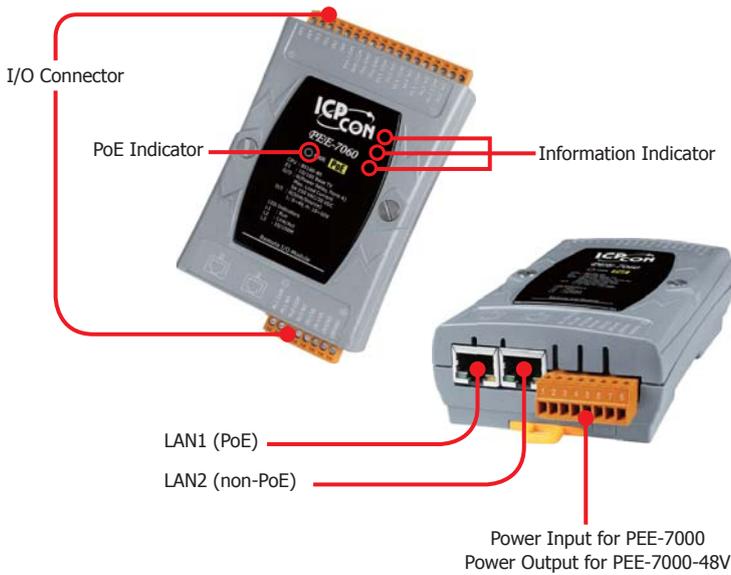
The PEE-7000 series module can be powered by an IEEE802.3af compliant PoE switch. Both Ethernet and power can be carried by an Ethernet cable eliminating the need for additional wiring and power supply.



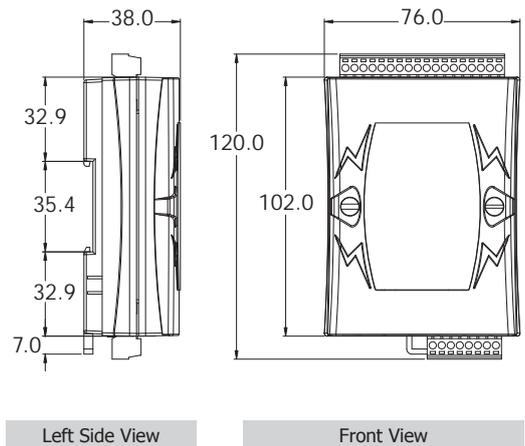
• PoE Splitter



• Appearance



• Dimensions (Units: mm)



• Selection Guide

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

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



Features

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



Introduction

The PEE-7060/PEE-7060-48V provides 6 (wet, dry) contact digital input channels and 6 form A electromechanical relays. It features optical isolation for 3000 V_{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.

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

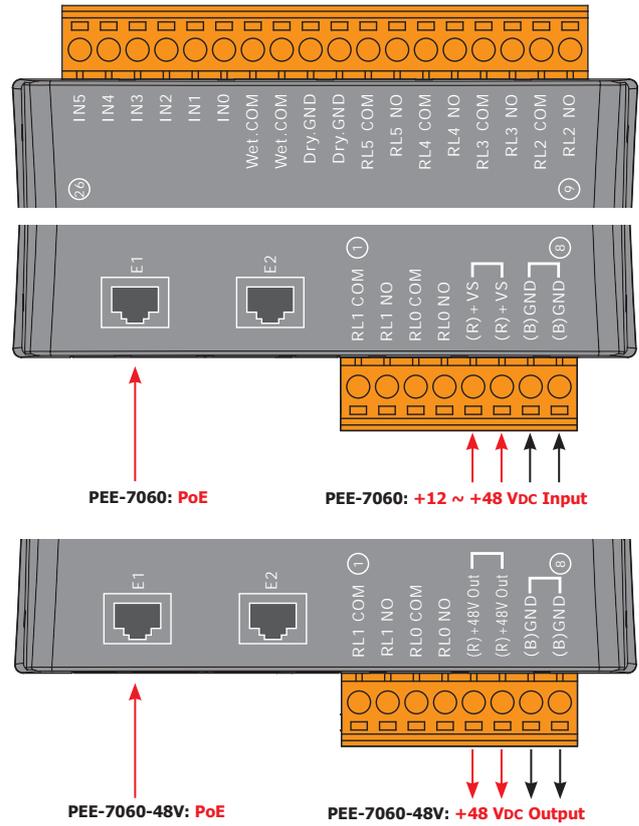
System Specifications

Models	PEE-7060	PEE-7060-48V
Software		
★ Built-in Web Server		Yes
★ Web HMI		Yes
★ I/O Pair Connection		Yes
Communication		
★ Ethernet Port	2-Port 10/100 Base-TX Ethernet Switch, RJ-45 x 2 (Auto-negotiating, Auto-MDI/MDIX, LED indicator)	
★ PoE	Yes	Yes (PoE Splitter)
★ Protocol	Modbus TCP, Modbus UDP	
★ Security	ID, Password and IP Filter	
★ Dual Watchdog	Yes, Module (0.8 seconds), Communication (Programmable)	
LED Indicators		
L1 (System Running)		Yes
L2 (Ethernet Port 1 Link/Act)		Yes
L3 (Ethernet Port 2 Link/Act)		Yes
PoE Power		Yes
2-Way Isolation		
Ethernet		-
I/O	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		
Reverse Polarity Protection		Yes
Powered from Terminal Block	Yes, 12 ~ 48 Vdc	-
Powered from PoE		Yes, IEEE 802.3af, Class1
Power Output	-	48 Vdc, 10 W
Consumption	3.5 W	
Mechanical		
Dimensions (W x L x H)	76 mm x 120 mm x 38 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

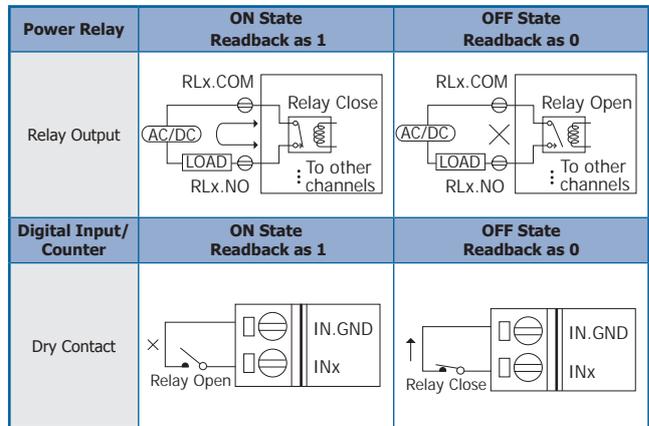
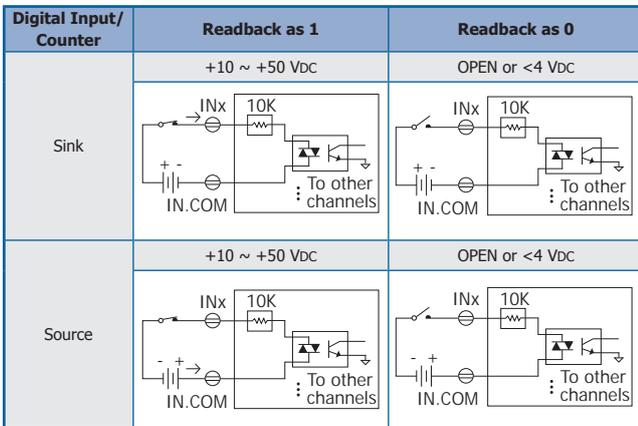
Digital Input/Counter		
Channels	6	
Contact	Dry +Wet	
Sink/Source (NPN/PNP)	Dry: Source Wet: Sink/Source	
Wet Contact	On Voltage Level	+10 Vdc ~ +50 Vdc
	Off Voltage Level	+4 Vdc Max.
Dry Contact	On Voltage Level	Close to GND
	Off Voltage Level	Open
Input Impedance	10 kΩ	
Counters	Max. Count	4,294,967,285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

Pin Assignments



3
4
Ethernet I/O Products

Wire Connections



Ordering Information

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

Accessories

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

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

3.5. tET/tPET Series Modules (IP based)

Introduction

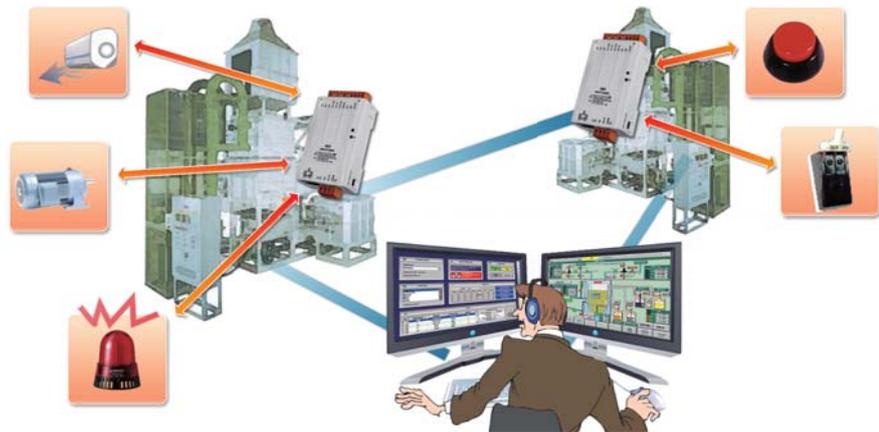


The functionality of the tET/tPET series modules is almost the same as the PET-7000. The major difference is that the PET-7000 module supports user-defined web HMI interface and more connections, while the tET/tPET series supports fixed web interface for configuration, higher speed of 32-bit DI counters,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

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

Applications

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



Features

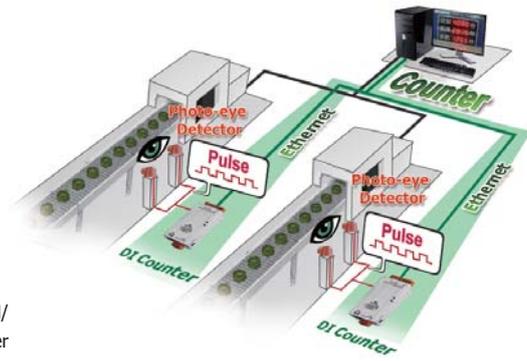
1. DIO Pair-Connection (Mirror)

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



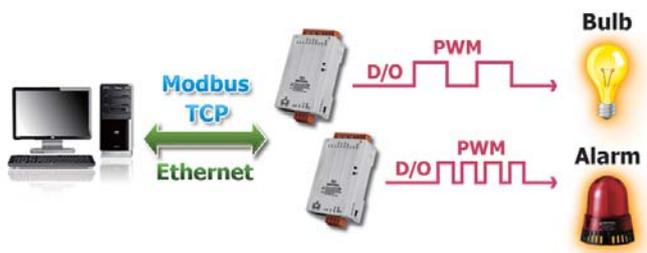
2. 32-bit High Speed Digital Counter

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



3. Frequency Measurement

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



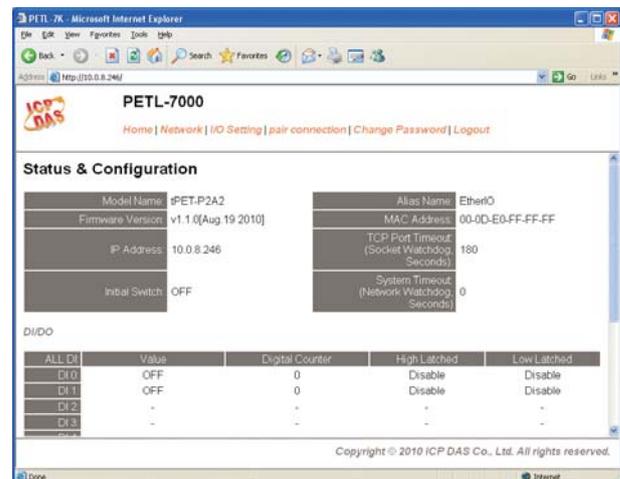
4. PWM (Pulse Width Modulation) Digital Output

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

5. Easy Network Configuration

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

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



6. Dual Watchdog with Power-on and Safe Value

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

7. PoE (Power over Ethernet)

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

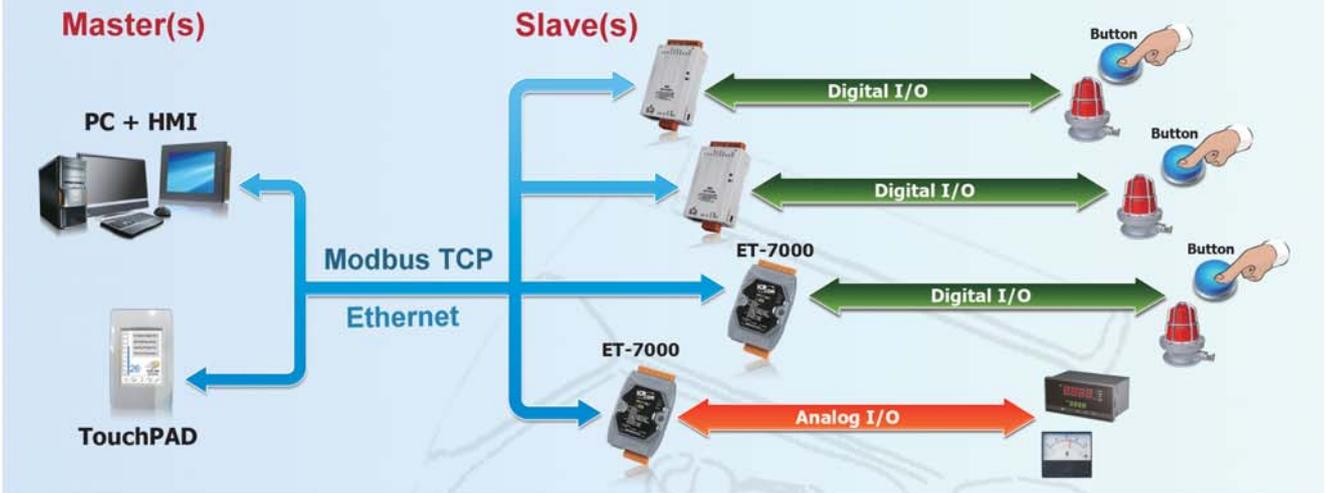
8. Low Power Consumption



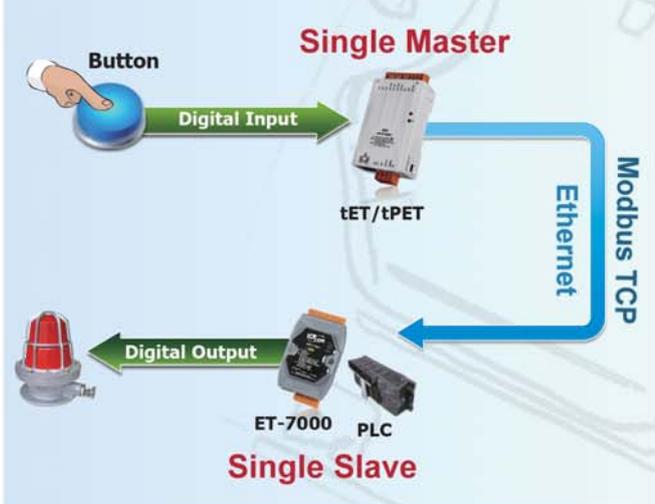
The tET/tPET series is designed for ultra-low power consumption, reducing hidden costs from increasing fuel and electricity prices, especially when you have a huge amount of devices installed. Reducing the amount of electricity consumed by choosing energy-efficient equipment can have a positive impact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

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

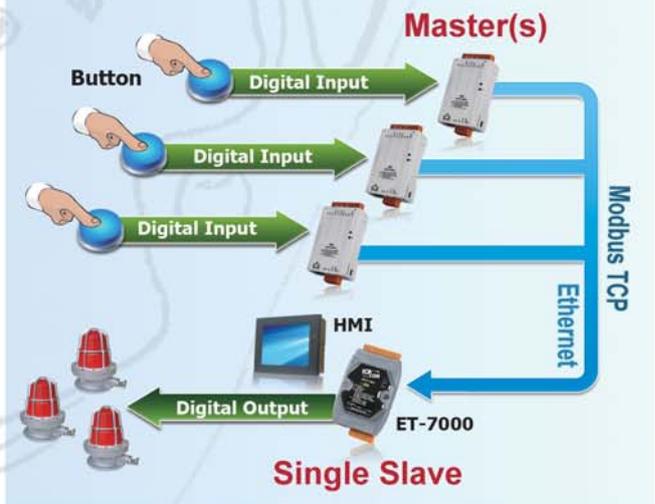
1 Polling: Masters poll tET/tPET DIO modules



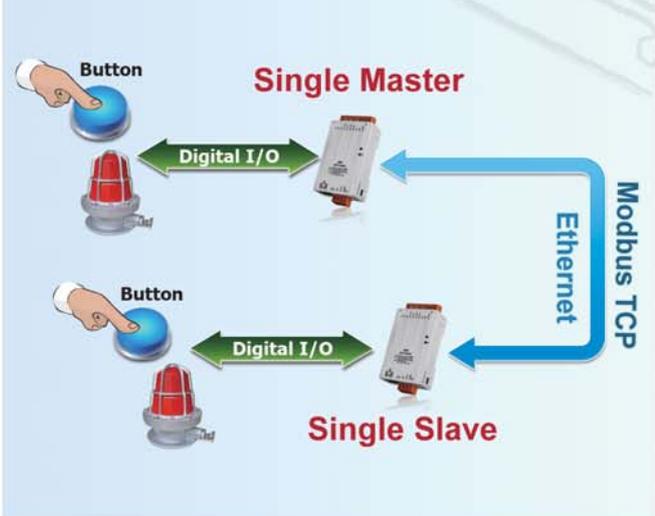
2 Push: tET/tPET module pushes DI to remote DO



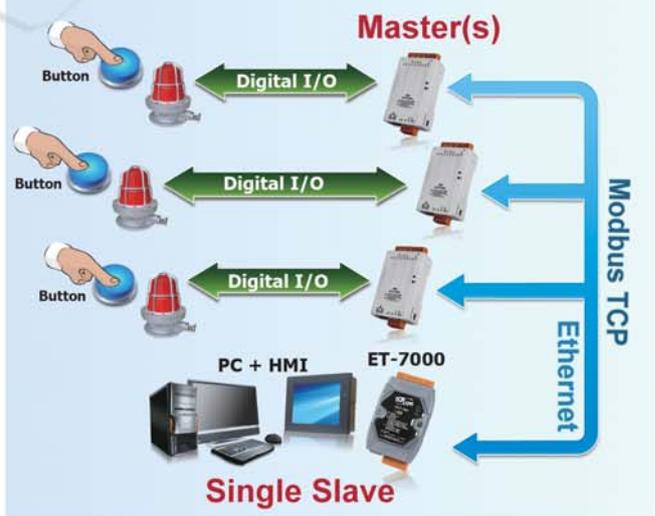
3 Push: tET/tPET modules push DI to remote DO



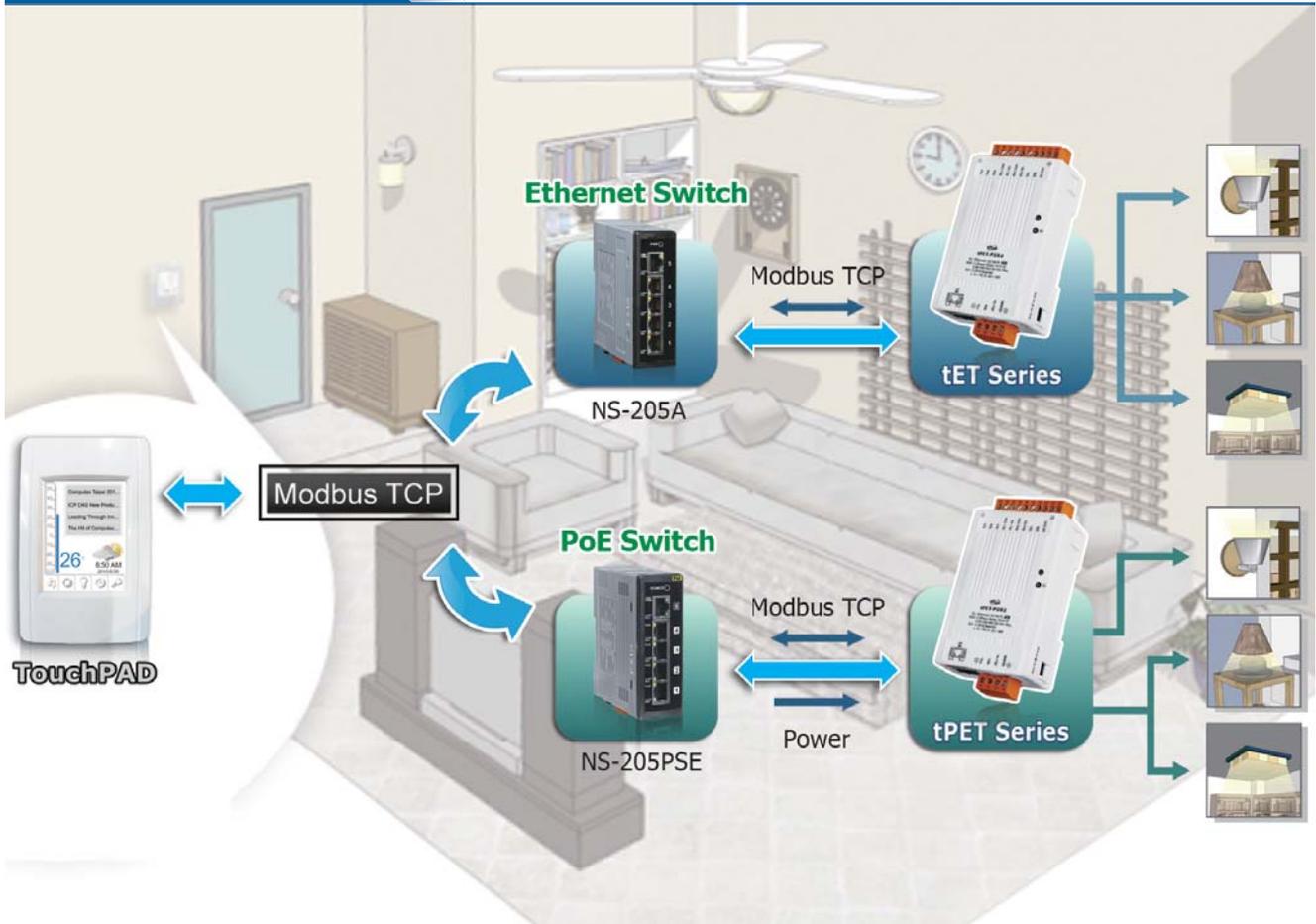
4 Polling: tET/tPET DIO pair-connection



5 Polling: tET/tPET modules poll remote DIO



• Selection Guide



3
5

Ethernet I/O Products

✓ 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 Vdc (non-regulated)	
Powered from PoE	-	Yes, IEEE 802.3af, Class 1
Consumption	0.04 A @ 24 Vdc Max. for tET-P2R2	0.03 A @ 48 Vdc Max. for tPET-P2R2
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		
Digital Output		
Channels	4	
Type	Open Collector	Open Emitter
Sink/Source (NPN/PNP)	Sink	Source
Load Voltage	+5 VDC ~ +30 VDC	+10 VDC ~ +40 VDC
Max. Load Current	100 mA/channel	650 mA/channel
PWM	100 Hz Max. (High/Low duty cycle range = 5 ~ 65,535 ms)	
Overvoltage Protection	+60 Vdc	+47 Vdc
Short Circuit Protection	-	Yes
Isolation	3750 Vrms	

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

Digital Input/Relay Output Series

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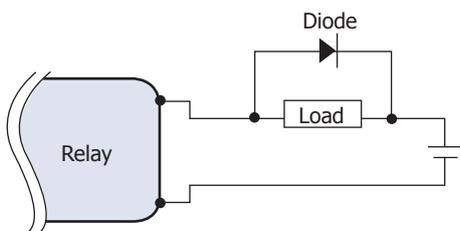
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Ethernet I/O Products

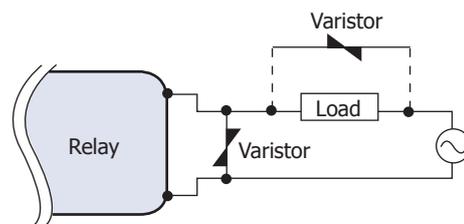
Model Name	tET-P2POR2/tPET-P2POR2	tET-P2R2/tPET-P2R2
Pictures		
PhotoMOS/Power Relay Output		
Channels	2	2
Type	PhotoMOS Relay, Form A (SPST N.O.)	Power Relay, Form A (SPST N.O.)
Load Voltage	60 VDC/VAC	250 VAC/30 VDC
Max. Load Current	60 V/1.0 A (Operating Temperature -25 ~ -40°C)	5.0 A/channel at 25°C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

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

for DC loads



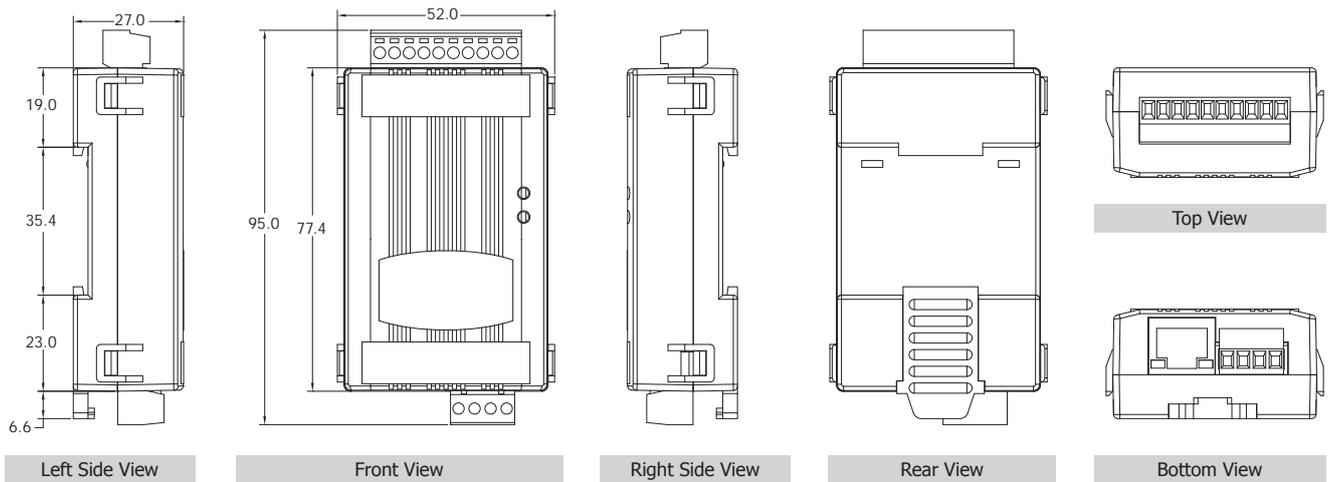
for AC loads



Varistor Selection

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

■ Dimensions (Units: mm)



■ Ordering Information

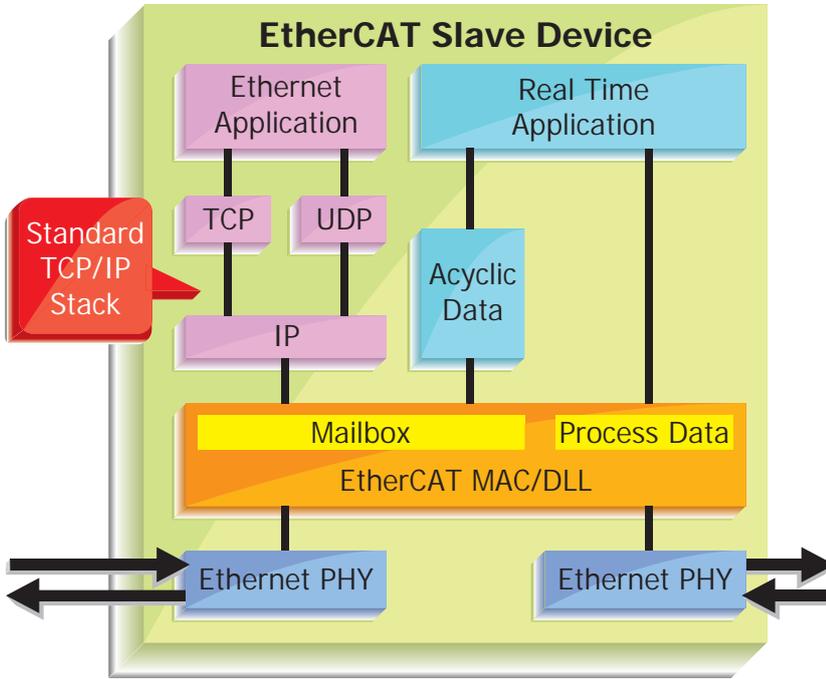
tTET Series	
tTET-P6 CR	Tiny Ethernet module with 6-channel DI (RoHS)
tTET-C4 CR	Tiny Ethernet module with 4-channel DO (NPN, Sink) (RoHS)
tTET-A4 CR	Tiny Ethernet module with 4-channel DO (PNP, Source) (RoHS)
tTET-P2C2 CR	Tiny Ethernet module with 2-channel DI and 2-channel DO (NPN, Sink) (RoHS)
tTET-P2A2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

■ Related Products

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

3.6. EtherCAT Products

• Introduction



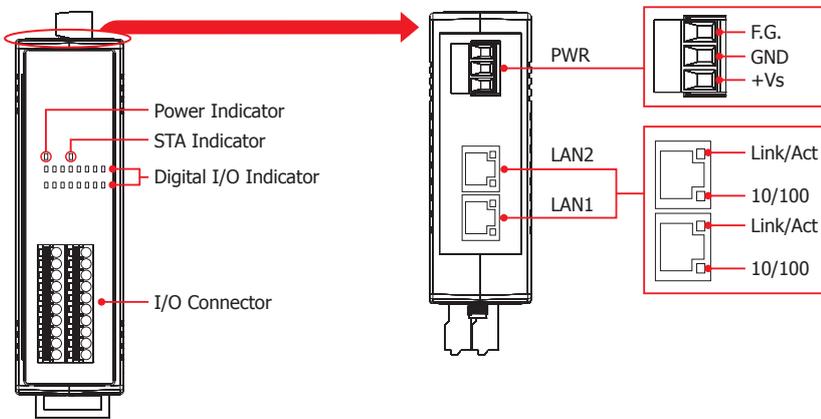
EtherCAT (Ethernet for Control Automation Technology) is an open, high-performance Ethernet-based fieldbus system that makes internet technologies available at the I/O level.

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

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

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Ethernet I/O Products

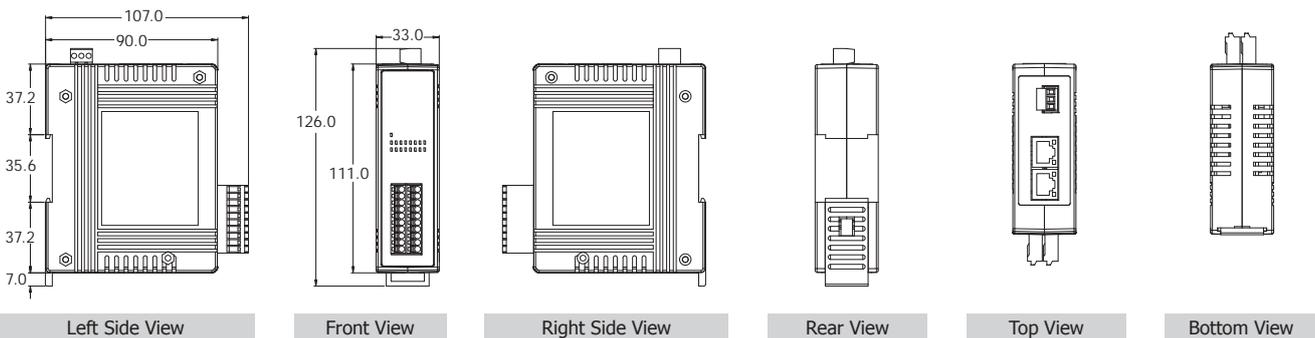
• Appearance



• Features

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

• Dimensions (Units: mm)



Selection Guide

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

Isolated 16-channel DO Module

Available soon
ECAT-2045



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

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

Isolated 16-channel DI Module

Available soon
ECAT-2051



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

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

Isolated 8-channel DI & 8-channel DO Module

Available soon
ECAT-2055



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

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

Isolated 6-channel DI & 6 Relay Output Module

Available soon
ECAT-2060



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

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

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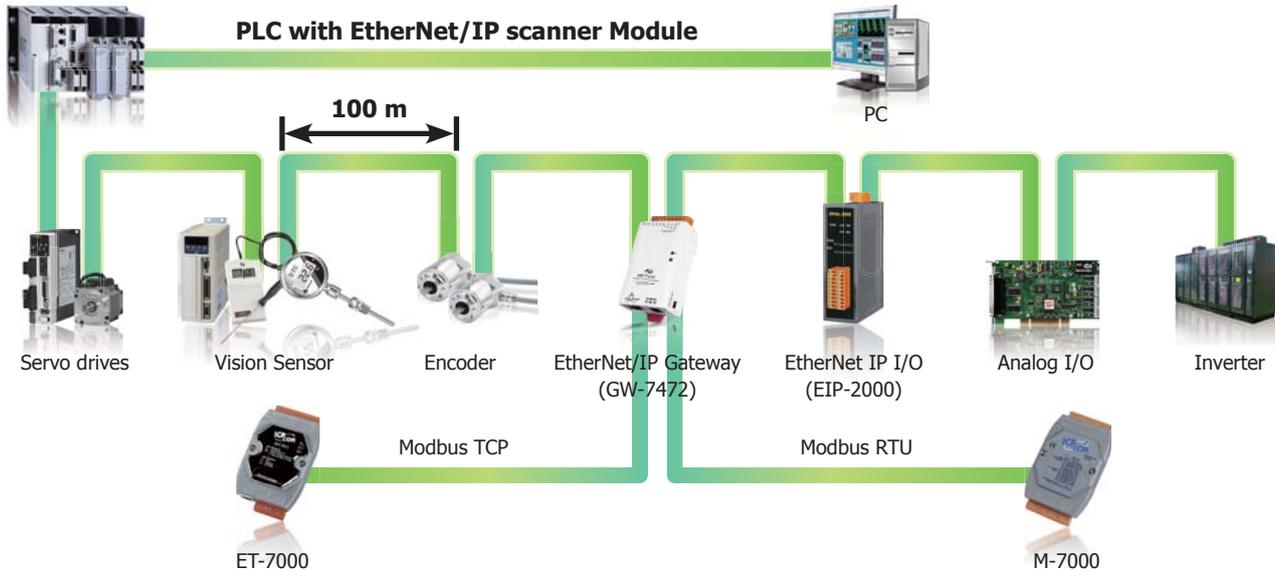
Ethernet I/O Products

3.7. EtherNet/IP Products

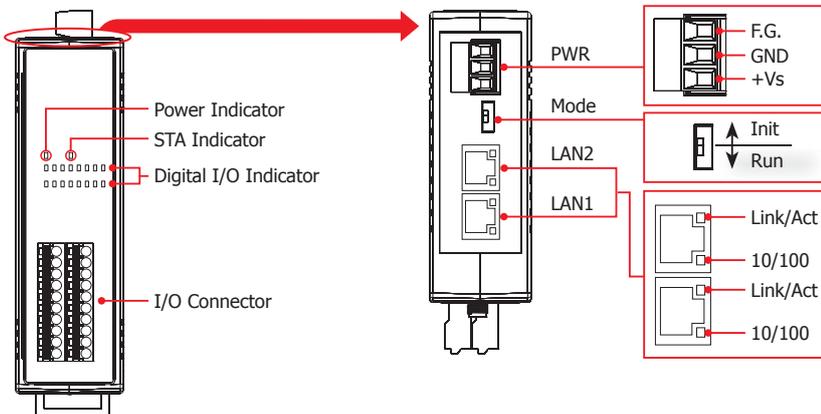
• Introduction

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

3
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Ethernet I/O Products



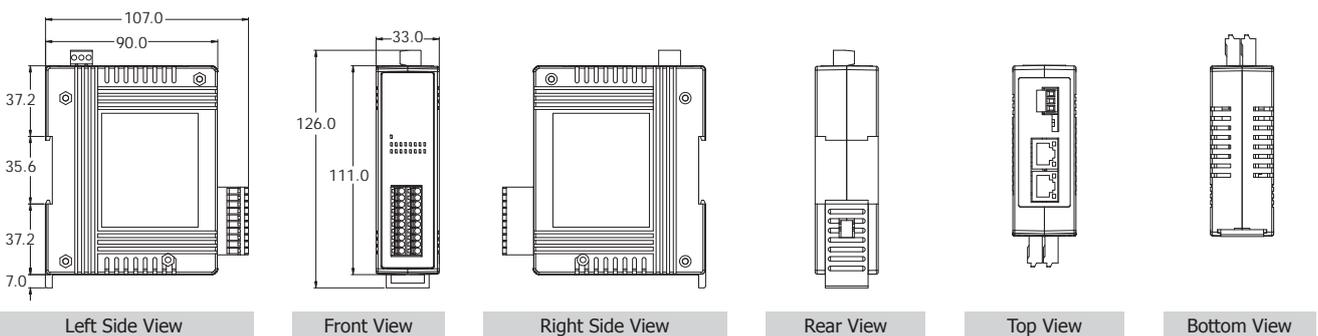
• Appearance



• Features

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

• Dimensions (Units: mm)



Built-in Multi-function I/O

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

Selection Guide

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

Isolated 8-channel DI & 8-channel DO Module

Available soon
EIP-2055



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

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

Isolated 6-channel DI & 6 Relay Output Module

Available soon
EIP-2060

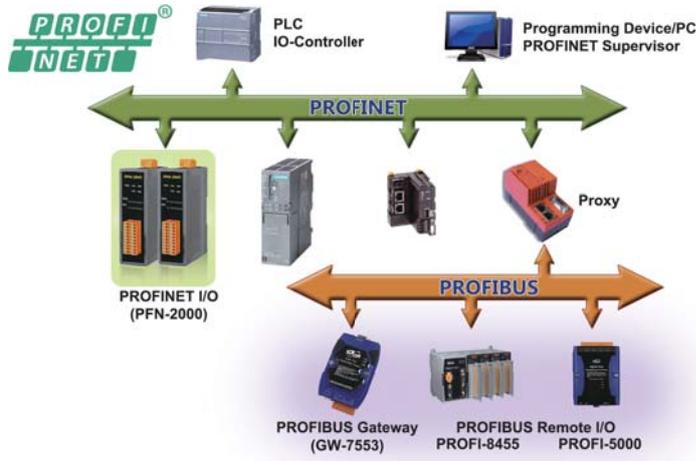


The EIP-2060 is one of the EIP-2000 Industrial EtherNet/IP Remote I/O module series. It provides 6 digital input and 6 relay output. The digital I/O of EIP-2060 supports built-in I/O functions such as DI counter and DO safe value...etc.

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

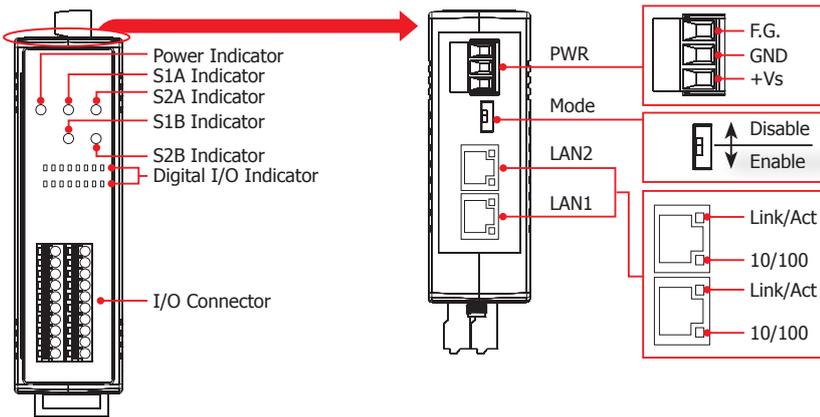
3.8. PROFINET Products

• Introduction



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

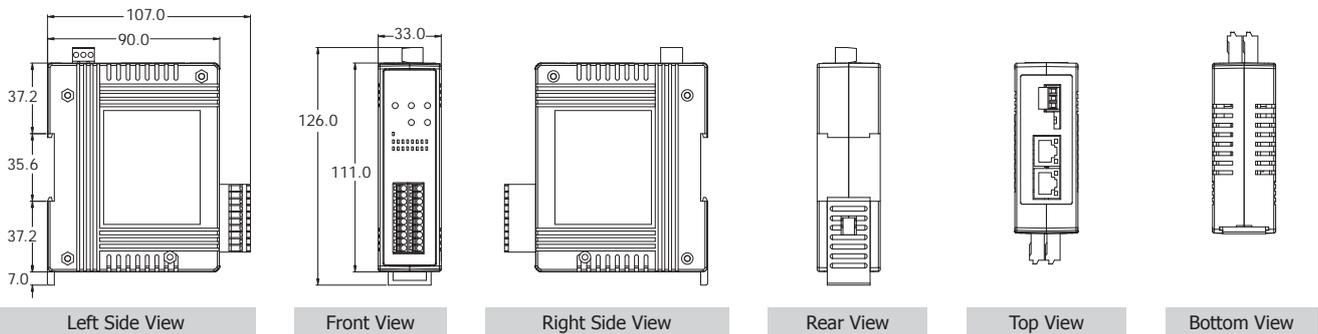
• Appearance



• Features

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

• Dimensions (Units: mm)



• Selection Guide

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3.9. Ethernet/Fiber Switch

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Ethernet I/O Products

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

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

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

High Reliability Industrial Ethernet Switch Catalog

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

