tET-P2R2
tET-PD2R1
tPET-P2R2
tPET-PD2R1

Tiny Ethernet module with Digital Input and Relay Output

Features

- Built-in Web Server
- Cost-effective Tiny Ethernet I/O Modules
- Support Modbus TCP/UDP and MQTT Protocols
- I/O Pair Connection (Push and Pull)
- Redundant Power Inputs:
  PoE (IEEE 802.3af, Class 1) and DC input
- Supports Dual-watchdog
- Supports Web Configuration and Firmware Update Via Ethernet
- Supports Latched DI, 32-bit DI Counters, and Frequency Measurement
- DO Power-on and Safe Value

Introduction

The **tET/tPET** series is an IP-based Ethernet I/O monitoring and control module. The module can be remotely controlled through a 10/100M Ethernet network by using Modbus TCP protocol.

The functionality of the tET/tPET series is almost the same as the ET-7000/PET-7000 series. The module can be used to create DI to DO pair-connect through the Ethernet. Once the configuration is completed, the tET/tPET series module can poll the status of the local DI channels and then use the Modbus/TCP protocol to continuously write to a remote DO device in the background.

The tET/tPET series provides a dual watchdog: CPU watchdog and host watchdog. The CPU watchdog automatically resets itself when the built-in firmware runs abnormally. The host watchdog monitors the host controller (PC or PLC), and the output of the module can go to a predefined state (safe value) when the host fails.

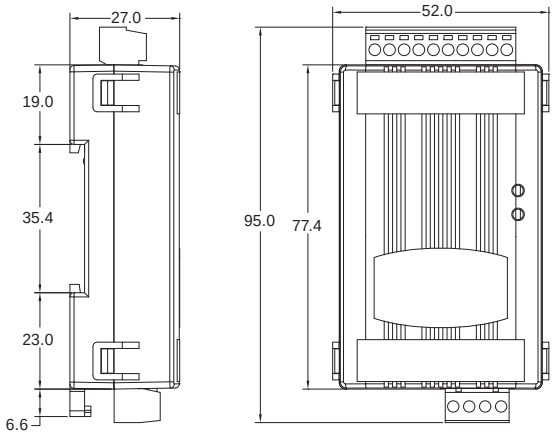
It features a powerful 32-bit ARM MCU to handle efficient network trafficking. The **tPET** series offers true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. When there is no PoE switch on site, the tPET series accepts power input from the DC adapter.

System Specifications

Model	tET-P2R2 tET-PD2R1	tPET-P2R2 tPET-PD2R1
CPU Module		
CPU	32-bit MCU	
Watchdog Timer	Module, Communication (Programmable)	
EMS Protection		
EFT (IEC 61000-4-4)	±4 kV for Power Line	
ESD (IEC 61000-4-2)	±4 kV Contact for Each Terminal ±8 kV Air for Random Point	
LED Indicators		
Status	Run, Ethernet	Run, Ethernet, PoE
Ethernet		
Ports	10/100 Base-TX, 8-Pin RJ-45 x1 (Auto-negotiating, Auto-MDI/MDIX, LED indicator)	
Protocol	Modbus TCP, Modbus UDP, and MQTT	
Power		
Consumption	0.8 W/1.0 W	1.0 W/1.1W
Powered from PoE	-	IEEE 802.3af, Class 1
Powered from Terminal Block	+12 to +48 VDC	
Mechanical		
Dimensions (mm)	52 x 95 x 27 (W x L x H)	
Installation	DIN-Rail mounting	

Environment	
Operating Temperature	-25 ~ +75 °C
Storage Temperature	-30 ~ +80 °C
Humidity	10 ~ 90% RH, Non-condensing

Dimensions (Units: mm)



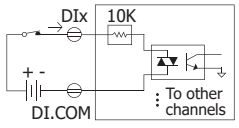
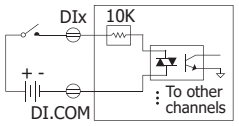
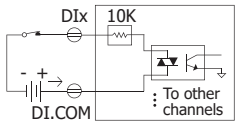
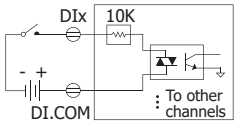
I/O Specifications

Model	t(P)ET-P2R2	t(P)ET-PD2R1
Digital Input/Counter		
Channels	2	
Type	Wet Contact	Dry Contact
Sink/Source (NPN/PNP)	Sink/Source	Source
ON Voltage Level	+10 to +50 VDC	Close to GND
OFF Voltage Level	+4 VDC (max.)	Open
Max. Counts	4,294,967,295 (32-bit)	
Frequency	3.5 kHz (without filter)	
Min. Pulse Width	0.15 ms	
Effective Distance	-	500m (max.)
Isolation	3750 Vrms	
Input Impedance	10 kΩ	-
Overvoltage Protection	+70 VDC	-

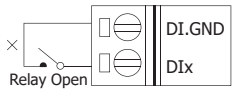
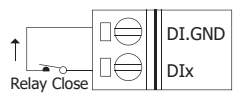
Model	t(P)ET-P2R2	t(P)ET-PD2R1
Relay Output		
Channels	2	1
Type	Power Relay, Form A (SPST N.O.)	
Contact Rating	5.0 A/channel at 25°C	
Operate Time	6 ms	
Release Time	3 ms	
Electrical Endurance	5 A 250 VAC 30,000 ops (10 ops/minute) at 75 °C 5 A 30 VDC 70,000 ops (10 ops/minute) at 75 °C 5 A 250 VAC/30 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	

Wire Connections

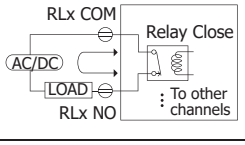
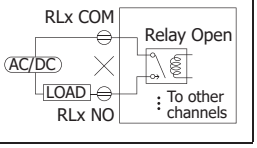
t(P)ET-P2R2

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

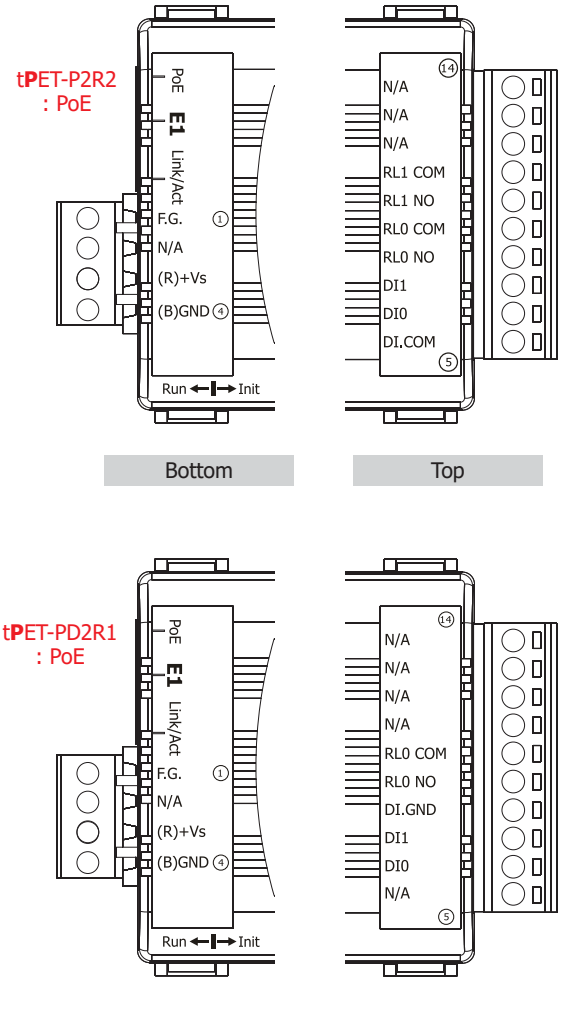
t(P)ET-PD2R1

Digital Input	Readback as 0	Readback as 1
Dry Contact	Relay OFF	Relay ON
		

t(P)ET-P2R2/t(P)ET-PD2R1

Digital Output	Readback as 1	Readback as 0
Relay Output	Relay ON	Relay OFF
		

Pin Assignments



Ordering Information

tET-P2R2 CR	Tiny Ethernet Module with 2-ch Wet Contact DI and 2-ch Power Relay (RoHS)
tET-PD2R1 CR	Tiny Ethernet Module with 2-ch Dry Contact DI and 1-ch Power Relay (RoHS)
tPET-P2R2 CR	Tiny PoE Ethernet Module with 2-ch Wet Contact DI and 2-ch Power Relay (RoHS)
tPET-PD2R1 CR	Tiny PoE Ethernet Module with 2-ch Dry Contact DI and 1-ch Power Relay (RoHS)