



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



## I/O Specifications

### Digital Input/Output Series

Model Name	tET-C4/tPET-C4	tET-A4/tPET-A4
Pictures	Available soon 	Available soon 
<b>Digital Output</b>		
Channels	4	
Type	Open Collector	Open Emitter
Sink/Source (NPN/PNP)	Sink	Source
Load Voltage	+5 Vdc ~ +30 Vdc	+10 Vdc ~ +40 Vdc
Max. Load Current	100 mA/channel	650 mA/channel
PWM	100 Hz Max. (High/Low duty cycle range = 5 ~ 65,535 ms)	
Overvoltage Protection	+60 Vdc	+48 Vdc
Short Circuit Protection	-	Yes
Isolation	3750 Vrms	

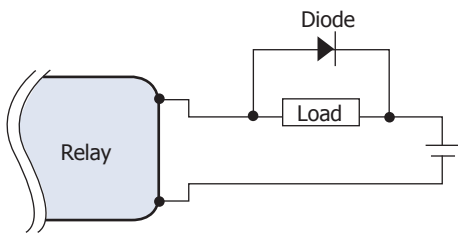
Model Name	tET-P6/tPET-P6	tET-P2C2/tPET-P2C2	tET-P2A2/tPET-P2A2
Pictures	Available soon 	Available soon 	Available soon 
<b>Digital Input</b>			
Channels	6	2	
Contact	Wet Contact		
Sink/Source (NPN/PNP)	Sink/Source		
On Voltage Level	+10 Vdc ~ +50 Vdc		
Off Voltage Level	+4 Vdc Max.		
Input Impedance	10 kΩ		
Counters	Max. Count: 4,294,967,285 (32 bits)		
	Max. Input Frequency: 3.5 kHz		
	Min. Pulse Width: 0.15 ms (without low pass filter)		
Overvoltage Protection	+70 Vdc		
Isolation	3750 Vrms		
<b>Digital Output</b>			
Channels	-	2	
Type	-	Open Collector	Open Emitter
Sink/Source (NPN/PNP)	-	Sink	Source
Load Voltage	-	+5 Vdc ~ +30 Vdc	+10 Vdc ~ +40 Vdc
Max. Load Current	-	100 mA/channel	650 mA/channel
PWM	-	100 Hz Max. (High/Low duty cycle range = 5 ~ 65,535 ms)	
Overvoltage Protection	-	+60 Vdc	+48 Vdc
Short Circuit Protection	-	-	Yes
Isolation	-	3750 Vrms	

Digital Input/Relay Output Series

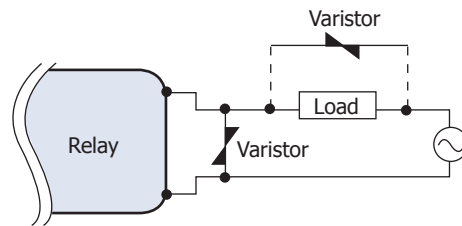
Model Name	tET-P2POR2/tPET-P2POR2	tET-P2R2/tPET-P2R2
Pictures	Available soon 	
<b>PhotoMOS/Power Relay Output</b>		
Channels	2	2
Type	PhotoMOS Relay, Form A (SPST N.O.)	Power Relay, Form A (SPST N.O.)
Load Voltage	60 Vdc/Vac	250 VAc/30 Vdc
Max. Load Current	60 V/1.0 A (Operating Temperature -25 ~ -40°C)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

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

for DC loads



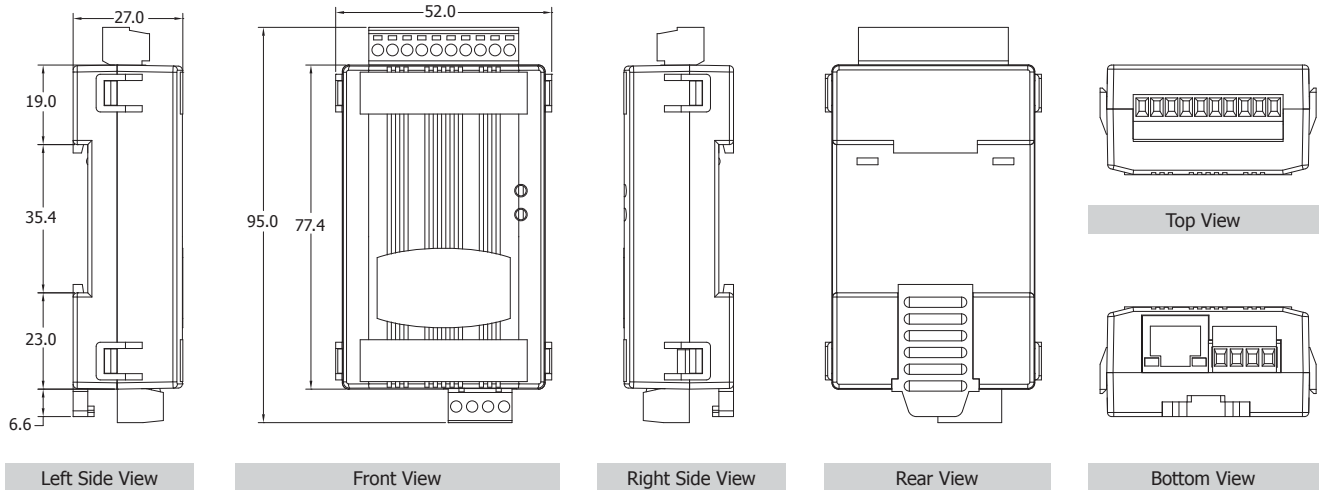
for AC loads



Varistor Selection

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







### ■ Dimensions (Units: mm)



### ■ Ordering Information

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

### ■ Related Products

	NS-205 CR	Unmanaged 5-Port Industrial Ethernet Switch (RoHS)
	NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)
	NS-205PSE-24V CR	Unmanaged 5-Port 10/100 Mbps PoE (PSE) Ethernet Switch; 24 V <sub>DC</sub> 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