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# **TYCON TP-SSW5(-NC)**

## **5 port PoE Endspan (Switch)**

# **USER'S MANUAL**



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**TYCON POWER SYSTEM**

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# 1. General Information

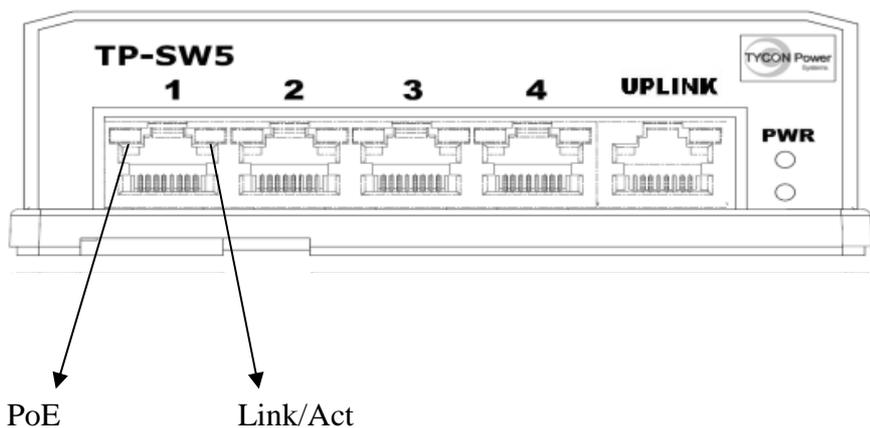
The PoE (Power Over Ethernet) Switch support four ports 10/100 TX ports with PoE injector plus one 10/100TX up-link port. The switch provide Power over Ethernet functions to deliver 35Watts power budget to powered device(PD), which is in compliance with IEEE802.3af/at standard to deliver both of Ethernet data and DC power through the traditional UTP or STP cable to the PD. This manual will help you install and maintain the PoE switch. Installation of the PoE switch is very easy and you will begin to operate as soon as you are powered up.

# 2. Hardware Description

## \*LED Indicator

There are 11 LEDs on the PoE switch to indicate the power and operational status. The following section describes the functions of each LED indicator.

Front panel detail



\*PWR Indicator

LED	STATUS	Description
Power	Green	LED ON if power input has valid power apply.
	Red	LED ON if the following condition happens. *Power input under voltage (Vin<10V) *Power input over voltage (Vin>59V) *PoE over current (2A/per port) the indicator is used on current model only.
	Off	No power in DC input

\*SWITCH LED (the right indicator on RJ45)

LED	STATUS	Description
P1~P4 & UP LINK Link/Act	Green	A network device is detected, but no communication activity is detected.
	Blinking @43ms	This port is transmitting to, or receiving package from another device at 100Mbps.
	Blinking @120ms	This port is transmitting to, or receiving package from another device at 10Mbps.
	Off	No device is detected.

\*PoE LED(the left indicator on RJ45)

LED	STATUS	Description
P1~P4 PoE	Yellow	LED ON if with PoE output.
	Off	No PoE output.

### \*Power wiring

The PoE switch family includes 2 models, be used for different ranges of input voltage as,

TP-SSW5-NC.....full range voltage (12 to 57VDC)

TP-SSW5.....48VDC typical (44 to 57VDC)

For TP-SSW5 operation, make sure your power supply may offer at least 75W for 4x 802.3af PoE port, or 150W for 4x 802.3at PoE port.

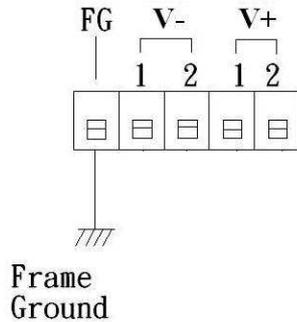
For TP-SSW5-NC operation, please make sure the output current don't over 2A per port and total 4A maximum.

For TP-SSW5 operation, the input voltage must be in the range of 44 to 57 VDC. Otherwise, the PoE switch will function only as an Ethernet switch but will not provide any PoE power output.

The PoE ports will deliver output of DC over the spare pairs of the RJ45 connection:

- \* TX on lines 1 and 2
- \* RX on lines 3 and 6
- \* V+ on line 4 and 5
- \* V- on line 7 and 8

Rear panel terminal block wiring detail:



You could use the TP-SSW5(-NC) with our adaptor products as the below: (OPTION)

	PSHP-18	PSHP-24	PSHP-48
Maximum output	18VDC/7.5A	24VDC/6.25A	48VDC/3.125A
Max. Output Power of the TP-SSW5(-NC)	135W	134.5W	134.5W

### \*Ethernet Port Wiring

The PoE Switch supports Port 1 to Port 5 with automatic MDI/MDI-X crossover, autosense of the speed and duplex for 10Base-T or 100Base-TX connections. Automatic MDI/MDI-X crossover allows you to connect to other devices (switches, hubs, or workstations etc..), without regard to using straight-through or crossover cabling.

Port 1 to port 4 also provides Power over Ethernet function which delivers DC power through the spare pairs (pair 4,5 and pair7,8) to the PD.

The following tables depict the wiring diagram of straight-through and crossover cabling. The crossover cables simply cross-connect the transmit lines at each end to the receive lines at the opposite end.

Straight-through Cabling	
Pin 1	Pin 1
Pin2	Pin 2
Pin3	Pin 3
Pin6	Pin6

Cross-over Cabling	
Pin 1	Pin 3
Pin 2	Pin 6
Pin 3	Pin 1
Pin 6	Pin 2

Connect an Ethernet cable into any switch port and connect the other side to your attached device. The green Link/Act LED will light up when the cable is correctly connected. Refer to the **LED Indicator** section for descriptions of each LED indicator.

If a port LED is off, go back and check for connectivity problems between that port and the network device it is connected to.

The maximum cable length for 10/100BaseT with Cat5 twisted pair cables is typically 100 meters (328 ft.).

## \*PD Port Wiring

Port 1 to 4 provide PoE inject function with maximum 35W(or 2A max.) ability to power up the powered device use the straight-through or cross-over Ethernet cable.

The PoE switch follows the IEEE802.3af Alternative B mode connector assignment. The following table shows pin assignment of alternative A and B for the Power Source Equipment.

Conductor	Alternative A (MDI-X)	Alternative A (MDI)	Alternative B (All)
1	Negative Vport	Positive Vport	
2	Negative Vport	Positive Vport	
3	Positive Vport	Negative port	
4			Positive Vport
5			Positive Vport
6	Positive Vport	NegativenVport	
7			Negative Vport
8			Negative Vport

Be sure the twisted pair cable is bound with the standard RJ-45 pin, especially the pin 4, 5, 7 and 8. If the RJ-45 is bound with the wrong pin number, PoE switch will not recognize the PD and won't deliver DC power to PD. The yellow PoE LED will light up when the cable is correctly connected. Refer to the **LED Indicator** section for descriptions of each LED indicator. If a port LED is off, go back and check for connectivity problems between that port and the network device connected.

### 3. Technical Specifications

Standards	IEEE802.3/IEEE802.3u standards(10 base-T/100base-T)
Ports	5 ports with 4 PoE (PSE), supports auto-crossover & auto-polarity
Transmission speed	100 Mbps(100base-T),10 Mbps(10base-T) Auto-negotiation
Switch technology	store-and-forward
Protocols	CSMA/CD
Flow control	IEEE802.3x (full-duplex),back pressure(half-duplex)
Data transmission rate	148800pps for 100base-T, 14880pps for 10base-T
Address table	1K MAC address table, self-learning
Connect	RJ-45
PoE port	Port 1-4, auto power management Pin assignment: TX(1,2), RX(3,6), V+(4,5), V-(7,8)
Maximum PoE power	IEEE802.3at – 35W/port (TP-SSW5) Current limited – 2A/port, total 4A maximum (TP-SSW5-NC)
PoE disconnect mode	DC disconnect
PoE auto detection	IEEE802.3af & IEEE802.3at (2 event classification signaling)
PoE protection	Over-temperature, over-current, over/under voltage
LEDs	*Link/Activity (Green ON/ Green Blinking every 43ms @100Mbps/ Green Blinking every 120ms @10Mbps) *PoE(Yellow) On-PoE output *POWER Green-normal, Red-alarm

Power input DC(12V~57V).

Power consumption less than 5W when without PD loading

Input Voltage	Input Current
12V	0.032A
24V	0.022A
48V	0.019A
56V	0.019A

Operating temperature  $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$

Operation humidity 90% relative humidity, non-condensing

Storage temperature  $-55^{\circ}\text{C} \sim +105^{\circ}\text{C}$

Dimension 40mm(H)x118mm(W)x90mm(D) (main body)

#### Surge Protection on signal pairs

	Signal
Operating Voltage	Data 5V
Clamping Voltage	Data 16.5V (@I PP =5A, t p =8/20 $\mu$ s, I/O pin to GND)
Peak Pulse Current	20A (tp=8/20 $\mu$ s)
Pin Protected	All 8 pin protected
Max. Shut Capacitance	<3pF (VR = 0V, f = 1MHz, I/O pin to GND) < 1.5 pF (VR = 0V, f = 1MHz, Between I/O pins)
IEC COMPATIBILITY (EN61000-4)	IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact) IEC61000-4-4 (EFT) 40A (5/50ns) IEC61000-4-5 (Lightning) 20A (8/20 $\mu$ s)