PSE-SW8 series

8 Port PoE Switch (Endspan)

(Extend Ethernet and PoE)

USER'S MANUAL

MSTRONIC CO., LTD.

1. General Information

The PSE-SW8 PoE Switch family provides a PoE/Data input port that is compatible with 802.3af and 802.3at (Type 1 and Type 2) and it has seven 10M/100M TX ports with PoE PSE function. In addition to the ability to accept 48VDC PoE input on Port 8, the model provides secondary DC wire terminal input for PoE switch operation from 12V to 57VDC. If powered the model via rear DC terminal, the PoE output voltage is equal to the input voltage. The PoE Switch can be used as an Ethernet/PoE repeater to extend Ethernet data and DC power up to 200 meters. 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.
The PSE-SW8 comes with DIN rail mounting clips for ease of mounting in network cabinets.

2. Hardware Description

*LED Indicator

There are 18 LEDs on the PoE switch to indicate the power and operational status. The following section describes the functions of each LED indicator.

5	6	7	8
1	2	3	4

Front panel detail
the port number is as the diagram shows.

*PWR Indicator

LED	STATUS	Description
Power	Green	LED ON if power input has valid power supplied. (via the terminal block on rear panel or Port 8 on front panel)
	Red	LED ON if the following condition happens. *Power input under voltage (Vin<12V) *Power input over voltage (Vin>58V) *PoE over current(2A) The indicator is unused on PSE-SW8D
	Off	No power in DC input

*SWITCH indicator (the right LED on RJ45)

LED	STATUS	Description
P1~P8 Link/Act	Green	A network device is detected at 100Mbps, but no communication activity is detected.
	Green Blinking	This port is transmitting to, or receiving package from another device at 100Mbps.
	Yellow	A network device is detected at 10Mbps, but no communication activity is detected.
	Yellow Blinking	This port is transmitting to, or receiving package from another device at 10Mbps.
	Off	No device is detected.

*PoE indicator (the left LED on RJ45)

LED	STATUS	Description
P1~P7 PoE PSE	Yellow	LED ON when PoE power output.
	Off	No PoE output
P8 PoE PD	Yellow	PSE-SW8D:4 pairs power source receive. PSE-SW8S:2 or 4 pairs power source receive.
	Yellow Blinking	PSE-SW8D:2 pairs power source receive. PSE-SW8S:unused.
	Off	No power is detected on this port.

*Power wiring

The PoE switch accepts input voltage from terminal block P3 or DIN 4P connector (rear panel) or RJ45 (port 8).

For PSE-SW8S,
If power input from terminal block P3, the input voltage must be in the range of 12 to 57 VDC. The output current is 1A/port (continuously), it can up to 2A/port maximum for temporary, but total output power MUST limited at 7A maximum. If power input from port 8, the input current is limited at 2A maximum, the output is 0.25A/port.

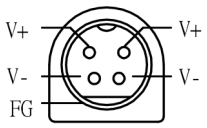
For PSE-SW8D
The input voltage must be in the range of 44 to 57VDC if running for 802.3af operation or 50 to 57VDC if running for 802.3at operation. If the model is not powered within designated voltage, it will only function as an Ethernet switch without PoE output.
If power input from terminal block P3, and if output power to 802.3af devices, the output current is 0.35A/port, if output power to 802.3at devices, the output power is 0.625A/port maximum.
If power input from port 8, the input current is limited at 2A maximum, the output is 0.25A/port.

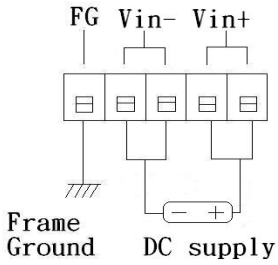
The PoE PSE ports (port 1-7) will deliver DC power over the spare pairs as the connection:
* TX on lines 1 and 2
* RX on lines 3 and 6
* V+ on line 4 and 5
* V- on line 7 and 8

The Port 8 may get power over the signal pair or spare pairs, the connection as:

* Data pair A plus V+ /V- on lines 1 and 2
* Data pair B plus V-/V+ on lines 3 and 6
* V+/V- on line 4 and 5
* V-/V+ on line 7 and 8

The terminal block on the rear panel should be wired as detailed below:





The DIN-4P connector on the rear panel also used for power input, you can use an AC/DC adapter with DIN-4P connector directly, recommends adaptor as detailed below: (OPTION)

	MS-180-18	MS-180-24	MS-180-56
Maximum output	18VDC/8.33A	24VDC/6.25A	56VDC/3.21A
Related model	PSE-SW8S	PSE-SW8S	PSE-SW8S PSE-SW8D

*Ethernet Port/PD Port Wiring

The PoE Switch supports Port 1 to Port 8 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 7 also provides PSE function which delivers DC power through the spare pairs (pair 4,5 and pair7,8) to the PD. Port 8 provides PD function that receive power from 4 pairs or 2 pairs Ethernet cable.

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.

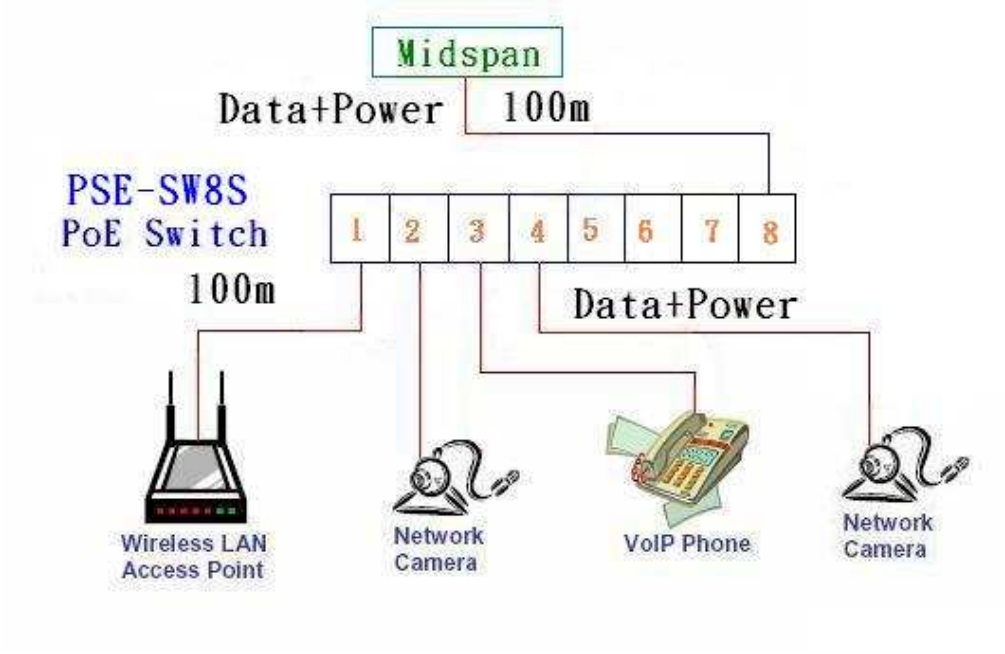
Straight-through Cabling	
Pin 1	Pin 1
Pin 2	Pin 2
Pin 3	Pin 3
Pin 6	Pin 6

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 or yellow 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 Cat 5 twisted pair cables is typically 100 meters (328 ft.).

3. Network Application

The PoE Switch can receive power from PoE midspan and provide power to the PD. It will power 802.3af compliant devices if it is powered at 48VDC although it will not perform the 802.3af handshake with the client device. The PoE Switch can be installed in a more appropriate position for better performance to extend Ethernet to 200 meters. The following figure is an example of a network application for PoE Switch.



4. Model Information

Model	Input Voltage (REAR)	Input Voltage (Port 8)	Output voltage
PSE-SW8S	12-57VDC	No input	12-57VDC (As input voltage) (non-regulated) (non-802.3at compliant)
	No input	12-57VDC	12-57VDC (As input voltage) (non-regulated) (non-802.3at compliant)
	12-57VDC	12-57VDC	Higher input voltage (As input voltage) (non-regulated) (non-802.3at compliant)
PSE-SW8D	44-57VDC	No input	44-57VDC (As input voltage) (non-regulated) (802.3at compliant)
	No input	44-57VDC	44-57VDC (As input voltage) (non-regulated) (802.3at compliant)
	44-57VDC	44-57VDC	Higher input voltage (As input voltage) (non-regulated) (802.3at compliant)

	MS-180-18	MS-180-24	MS-180-56
Maximum output	18VDC/8.33A	24VDC/6.25A	56VDC/3.21A
Related model	PSE-SW8S	PSE-SW8S	PSE-SW8S PSE-SW8D

5. Technical Specifications

Standards	IEEE802.3/IEEE802.3u standards (10 base-T/100base-T)
Ports	8 ports with 7 PoE PSE & 1 PoE PD, 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	2K MAC address table, self-learning
Connect	RJ-45
PoE port	Port 1-7, Pin assignment: TX(1,2), RX(3,6), V+(4,5), V-(7,8) Port 8, 4 pairs PD
Maximum PoE power	Port 1-7: IEEE802.3af –16.8W (0.35A/port) IEEE802.3at—35W (0.625A/port) 2 A/port , total 7A Maximum (PSE-SW8S) Port 8: 90W (802.3at 2 event classification)
PoE disconnect mode	DC disconnect
PoE auto detection	IEEE802.3af and IEEE802.3at(2 event classification)
PoE protection	Over-current, over/under voltage

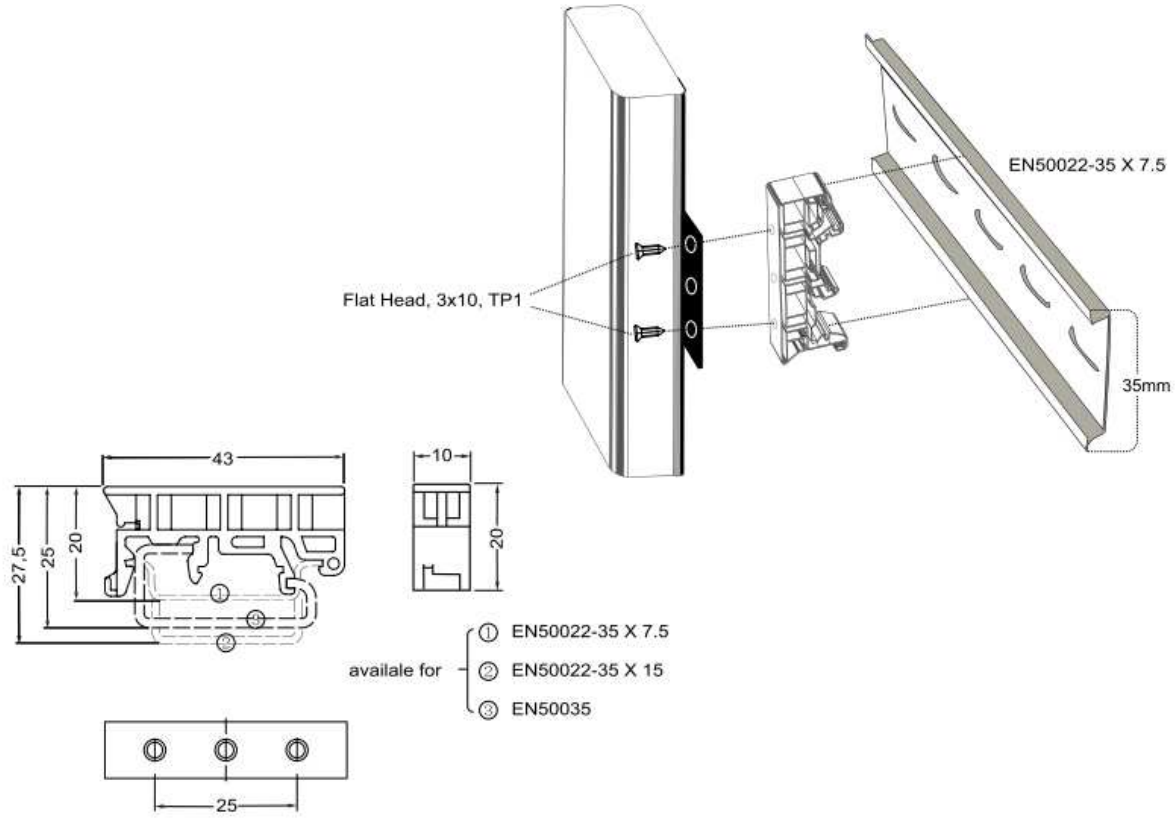
LEDs	*Link/Activity (Green ON/ Green Blinking @100Mbps/ Yellow/Yellow Blinking @10Mbps) *PoE (Yellow) port 1-7 ON - PD detect Port 8 PSE-SW8D:ON – 4 pair power, Blinking-2 pair power PSE-SW8S:ON – 2 or 4 pair power *POWER Green-normal, Red-alarm
Power input	DC(12V~57V) from rear panel or DC(44V~57V) from port 8 from midspan (or network switch)
Power consumption	5W when without PD loading

Input Voltage	Input Current
12V	0.058A
24V	0.037A
48V	0.032A
56V	0.032A

Operating temperature	-40℃~ 85℃
Operation humidity	90% relative humidity, non-condensing
Storage temperature	-40℃~+85℃
Dimension	40mm(H)x118mm(W)x150mm(D) DIN rail mountable

NOTICE:

The product is not comply to LPS requirement, it need to evaluate at final system.



Surge Protection on data pairs (Materials)

	Signal
Operating Voltage	Data 5V
Clamping Voltage	Data 16.5V (@I PP =5A, t p =8/20μs, I/O pin to GND)
Peak Pulse Current	20A (tp=8/20μs)
Pin Protected	4 pin protected (signal pairs)
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) ±15kV (air), ±8kV (contact) IEC61000-4-4 (EFT) 40A (5/50ns) IEC61000-4-5 (Lightning) 20A (8/20μs)