

# PSE-SW8G44xx

## 8 Port PoE Switch & Extender

# USER'S MANUAL



MSTRONIC CO., LTD.



# 1. General Information

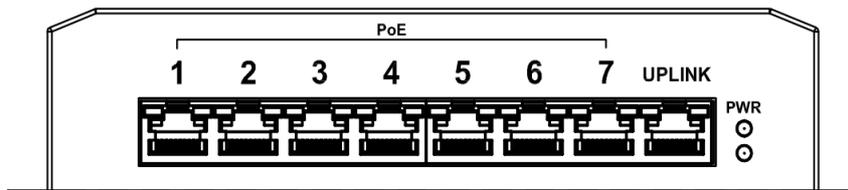
The PoE PSE-SW8G (Power Over Ethernet) Switch family provides seven 10M/100M/1000M TX ports with PoE PSE function plus one 10M/100M/1000M TX up-link port with PoE PD function. It allows power sourcing equipment (PSE) to be powered from PoE and delivers power to any PoE powered device (PD), which is compliant with IEEE802.3af and IEEE802.3at standards to receive and deliver both Ethernet data and DC power through the traditional UTP or STP cable. The PoE Switch can extend Ethernet data and DC power up to 200 meters.

# 2. Hardware Description

## \*LED Indicator

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

Front panel detail



## \*POWER LED

LED	STATUS	Description
Power	Green	LED ON when power input (DC IN on rear panel or Port 8 (UPLINK) on front panel) has valid power supplied.
	Off	No power supplied.

## \*SWITCH LED (the right indicator on RJ45)

LED	STATUS	Description
P1~P8 Link/Act	Green	A network device is detected (1000Mbps), but no communication activity is detected.
	Green Blinking	This port is transmitting to, or receiving package from another device at 1000Mbps.
	Yellow	A network device is detected (10Mbps or 100Mbps), but no communication activity is detected.
	Yellow Blinking	This port is transmitting to, or receiving package from another device at 10Mbps or 100Mbps.
	Off	No device is detected.

## \*PoE LED (the left indicator on RJ45)

P1~P7 PoE	Yellow	A valid Powered Device (PD) is detected and delivering power on this port.
	Off	No PD is detected on this port.
UPLINK (P8) PoE	Yellow	powered via all 4 data pairs.
	Yellow Blanking	powered via 2 data pairs. (1,2,3,6 or 4,5,7,8 are all acceptable).
	Off	No power is detected on this port.

## \*Power wiring

48VDC typical (44 to 57VDC) (P/N: PSE-SW8G44A4/PSE-SW8G44B4/PSE-SW8G44D4)

The PoE switch family can be powered by another PoE source on port 8 (UPLINK) as a PoE repeater or extender.

For PSE-SW8G44xx, the range is 44~57VDC,

For PoE operation, make sure your power supply may offer at least 125W for 7x 802.3af PoE ports, or 250W for 7x 802.3at PoE ports. The input voltage must be in the range of 44 to 57VDC if using for 802.3af operation. The input voltage must be in the range of 50 to 57VDC if using for 802.3at operation. If the PoE switch is not powered with the above designated input voltage, it will only function as an Ethernet switch without PoE output.

In the full range voltage model, if powered via the rear terminal, please make sure the input current is not over 15A. If powered on port 8, make sure the input current is not over 2Amps. (over 1A, the gigabit signal will de-rate to 100M)

Ports 1~7 will deliver DC power over the Ethernet cable as detailed below:

In the A mode:

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

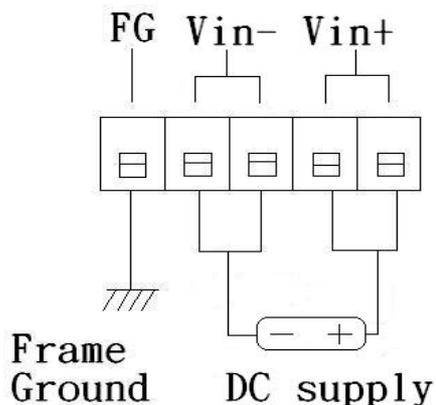
In the B mode:

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

Port 8 may get DC power over the Ethernet cable, as detailed below:

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

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



Model input voltage/output voltage& function select table

Model	Input Voltage (REAR)	Input Voltage (Port 8)	Output voltage	802.3af/at	Isolated
PSE-SW8G44A4 (A mode)	44-57VDC	No input	44-57VDC (non-regulated)	Yes	No
PSE-SW8G44B4 (B mode)	No input	44-57VDC	44-57VDC (non-regulated)	Yes	No
PSE-SW8G44D4 (4 pairs output)	44-57VDC	44-57VDC	Higher voltage (REAR or Port8)	Yes	No

We recommend that you use the PSE-SW8G series with our adaptor products as detailed below:

	MS-180-56	MS-270-56
Maximum output	56VDC/3.21A	56VDC/4.82A
Related model	PSE-SW8G44A4 PSE-SW8G44B4 PSE-SW8G44D4	PSE-SW8G44A4 PSE-SW8G44B4 PSE-SW8G44D4

### \*Ethernet Port Wiring

The PoE switch family supports one RJ-45 uplink (port 8 with PoE PD, and seven RJ-45 ports (port 1~7 with PoE PSE) with automatic MDI/MDI-X crossover, auto-sense for speed and duplex for 10Base-T, 100Base-TX or 1000Base-T connection. 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 7 provides Power over Ethernet function that delivers DC power through the data pairs (mode A, mode B & 8 pairs) to the PD. Port 8 provides Power Device function which receives power from 4 pairs or 2 pairs Ethernet cable.

The following tables describe the wiring diagram of straight-through and crossover cabling. The crossover cables simply cross-connect the transmission 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
Pin 4	Pin 4
Pin 5	Pin 5
Pin 7	Pin 7
Pin 8	Pin 8

Cross-over Cabling	
Pin 1	Pin 3
Pin 2	Pin 6
Pin 3	Pin 1
Pin 6	Pin 2
Pin 4	Pin 7
Pin 5	Pin 8
Pin 7	Pin 4
Pin 8	Pin 5

Connect an Ethernet cable into any switch port and connect the other side to your attached device. The Link/Act LED (green or yellow) 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.

The maximum cable length for 10/100/1000BaseT with Cat 5 twisted pair cables is typically 100m (328 ft.).

## \*PD Port Wiring

Port 1 to 7 provides PoE injection function with a maximum 35W ability to power up the powered device using the straight-through or cross-over Ethernet cable.

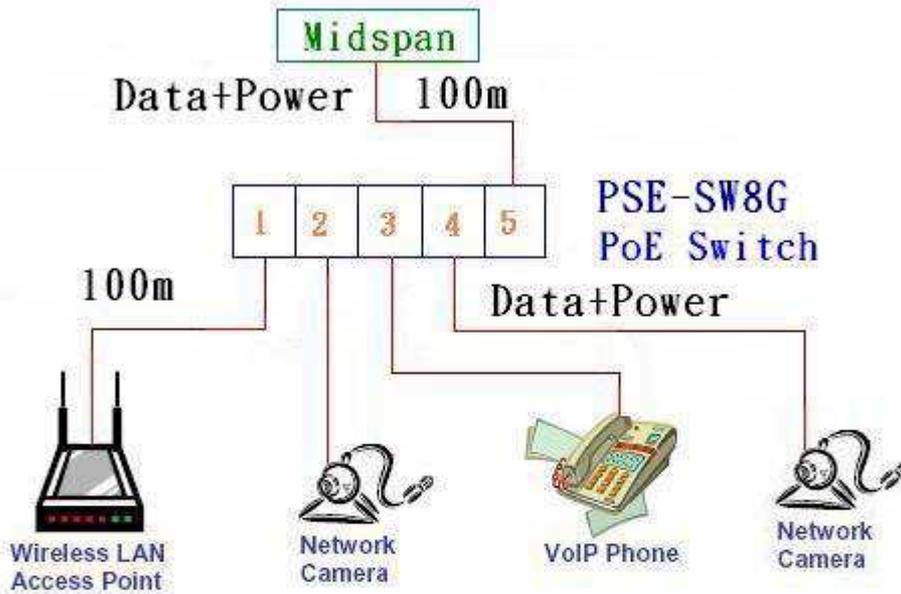
The PoE switch follows the IEEE802.3af Alternative A/B mode connector assignment. The following table shows pin assignment of alternative A and B for the Power Source Equipment.

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	NegativeVport	
7			Negative Vport
8			Negative Vport

Be sure the twisted pair cable is bound with the standard RJ-45 pin. If the RJ-45 is bound with the wrong pin number, the PoE switch will not recognize the PD and won't deliver DC power to the 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.

### \*Network Application

The PoE Switch can receive power from a PoE midspan and provide power to the PD which follows the IEEE 802.3af/at standard in the network. 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 the PoE Switch.



### 3. Model Information

Model	Input Voltage (REAR)	Input Voltage (Port 5)	Output voltage	802.3af/at	Isolated	Mode
PSE-SW8G44A4	44-57VDC	44-57VDC	44-57VDC (non-regulated)	Yes	No	A
PSE-SW8G44B4	44-57VDC	44-57VDC	44-57VDC (non-regulated)	Yes	No	B
PSE-SW8G44D4	44-57VDC	44-57VDC	44-57VDC (non-regulated)	Yes	No	A+B

\*All models are DIN RAIL Mountable

#### AC/DC Adapter (Option)

We recommend that you use the PSE-SW8G series with our adaptor products as detailed below:

	MS-180-56	MS-270-56
Maximum output	56VDC/3.21A	56VDC/4.82A
Related model	PSE-SW8G44A4 PSE-SW8G44B4 PSE-SW8G44D4	PSE-SW8G44A4 PSE-SW8G44B4 PSE-SW8G44D4

**Noted: When use MS-180-56, need to parallel 2 PS for all 7 port full load output.**



## 4. Technical Specifications

Standards	IEEE802.3/IEEE802.3u/IEEE802.3ab standards (10 base-T/100base-TX/1000base-T)
Ports	8 ports with PoE (7 PSE & 1 PD), support auto-crossover & auto-polarity
Transmission speed	1000Mbps (1000base-T).100 Mbps (100base-TX), 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	1488000pps for1000base-T, 148800pps for 100base-T, 14880pps for 10base-T
Address table	8K MAC address table, self-learning
Connect	RJ-45
PoE port	Port 1-7, PSE auto power management Pin assignment: mode A:data pair A plus V+(1,2) data pair B plus V-(3,6) data pair C (4,5) data pair D (7,8) mode B:data pair A (1,2) data pair B (3,6) data pair C plus V+(4,5) data pair D plus V-(7,8) mode A+B:data pair A plus V+(1,2) data pair B plus V-(3,6) data pair C plus V+(4,5) data pair D plus V-(7,8)  Port 8, 4 pairs PD

Maximum PoE power	Port 1-7: IEEE802.3af – 16.8W IEEE802.3at – 35W Port 8: 56W (802.3at 2 event classification) Current limited – 1A (over 1A, the gigabit signal will de-rate to 100M)
PSE 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 @1000Mbps, Yellow/Yellow Blinking @10M/100Mbps) *PoE (Yellow) port 1-7 ON - PD detect Port 8 ON – 4 pair power, Blinking-2 pair power *POWER Green-normal, Red-alarm(for PSE-8G11xx only)
Power input	DC power supply or Port 8 (UPLINK) from network switch or midspan IEEE802.3af 44V~57V IEEE802.3at 51V~57V
Power consumption	5W without PD loading
Power efficiency	83% at full load
Operating temperature	-20°C ~ 70°C
Operation humidity	90% relative humidity, non-condensing
Storage temperature	-30°C ~ +85°C
Dimensions	40mm(H)x190mm(W)x119mm(D)