PSE-SW5B44DB

5 Port PoE Switch & Extender

(Repeat Ethernet and PoE)

USER'S MANUAL

MSTRONIC CO., LTD.

1. General Information

The PoE (Power Over Ethernet) Switch PSE-SW5B44DB provide four 10M/100M/1000M TX ports with PoE PSE(BT) function plus one 10M/100M/1000M TX up-link port with PoE PD function. It allows to be powered from PoE power souring equipment (PSE) and deliver power to PoE powered device (PD), which are compliant with IEEE802.3af ,IEEE802.3at and IEEE802.3bt standard 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 12 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 UPLINK on front panel) has valid power supplied.
	Red	The indicator unused on this model.
	Off	No power supplied.

*SWITCH LED (the right indicator on RJ45)

LED	STATUS	Description
P1~P5 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~P4 PoE	Yellow	A valid Powered Device (PD) is detected and delivering power via 4 data pairs on this port.
	Yellow Blanking	A valid Powered Device (PD) is detected and delivering power via 2 data pairs on this port.
	Off	No PD is detected on this port.
UPLINK (P5) PoE	Yellow	Power via another PoE PSE(2 data pairs or 4 data pairs)
	Off	No power is detected on this port.

*Power wiring

The PSE-SW5B44DB is IEE802.3bt PoE switch, for PoE operation, make sure your power supply could offer **over 70W for 4x 802.3af** PoE ports, or **over 140W for 4x802.3at** PoE ports, or **over 360W for 4x 802.3bt** PoE ports. For 802.3af operation, the input voltage range must in **44V to 57VDC**. For 802.3at or 802.3bt type 3 operation, the input voltage range must in **50V to 57VDC**. For 802.3bt type 4 operation, the input voltage range must in **53V to 57VDC**.

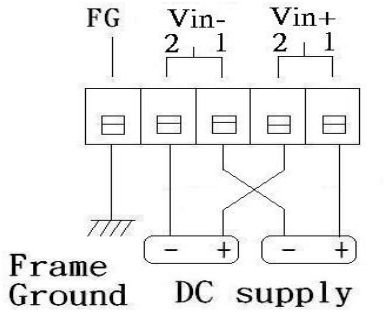
The PoE switch PSE-SW5B44DB allow powered by another PoE source on port 5 (UPLINK) as a PoE repeater or extender. From port 5 (UPLINK) input can get up to 71W (802.3bt Type 4 PD).

If powered via port 5 (UPLINK), Port 1~4 can get 16.8W per port. If only connected to 2 ports, then there can be 35W per port.
If powered via the rear terminal, please make sure the input current is not over 10A. If powered on port 5, make sure the input current is not over 2Amp.

Ports 1~4 will deliver DC power over the Ethernet cable as detailed below:
* Data pair A plus V- on line 1 and 2
* Data pair B plus V+ 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 5 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:
The power input Vin1 supply power to PoE port 1&2, power input Vin2 supply power to PoE port 3&4.



*Ethernet Port Wiring

The PoE switch supports one RJ-45 uplink (port 5 with PoE PD) and four RJ-45 ports (port 1~4 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 4 provides Power over Ethernet function that delivers DC power through the data pairs(4 pairs or 2 pairs) to the PD. Port 5 provides Power Device function that receive 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 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
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 4 provides PoE injection function with maximum 100W 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(MDI-X) + 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/bt 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.

Application:

Note: make sure your power supply could offer
over 70W for 4x 802.3af PoE ports,
or over 140W for 4x802.3at PoE ports,
or over 360W for 4x 802.3bt PoE ports.

Input Voitage range:
44V to 57VDC for 802.3af *4 output
50V to 57VDC for 802.3at *4 or 802.3bt (type 3) *4 output
53V to 57VDC for 802.3bt (type 4) *4 output

(PSE) Port 1-4: IEEE802.3af – 16.8W
IEEE802.3at – 35W
IEEE802.3bt – 90W
(PD) Port 5: 71W (802.3bt input)

From port 5 (UPLINK) input can get up to 71W (802.3bt Type 4 PD).

- If powered via port 5 (UPLINK), Port 1~4 can get 16.8W per port. If only connected to 2 ports, then there can be 35W per port.
- If powered via the rear terminal, please make sure the input current is not over 10A. If powered on port 5, make sure the input current is not over 2Amp.

3. Technical Specifications

Standards	IEEE802.3/IEEE802.3u standards/IEEE802.3ab (10 base-T/100base-TX/1000base-T)
Ports	5 ports with PoE (4 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	2K MAC address table, self-learning
Connect	RJ-45
PoE port	Port 1-4, PSE auto power management Pin assignment: *A+B mode: data pair A plusV-(1,2),data pair B plusV+(3,6), data pair C plusV+(4,5), & data pair D plus V-(7,8) Port 5, 4 pairs PD
Maximum PoE power	※ *Please refer the description of *Power wiring part. (page.4)* (PSE) Port 1-4: IEEE802.3af – 16.8W IEEE802.3at – 35W IEEE802.3bt class 8 – 90W (PD) Port 5: 71W (802.3bt)
PSE disconnect mode	DC disconnect

PoE auto detection	IEEE802.3af , IEEE802.3at (2 event classification) & IEEE802.3bt(multi-event classification)
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 1-4 ON – PD detect, deliver power via 4 data ports Blinking-PD detect, deliver power via 2 data ports Port 5 ON – power via PoE PSE *POWER Green-normal
Power input	Port 5 (UPLINK) from network switch or midspan, or optional DC power supply.
Power consumption	less than 5W when without PD loading
Operating temperature	-20℃~ +70℃
Operation humidity	90% relative humidity, non-condensing
Storage temperature	-40℃~+85℃
Dimension	40mm(H)x118mm(W)x150mm(D) DIN RAIL Mountable