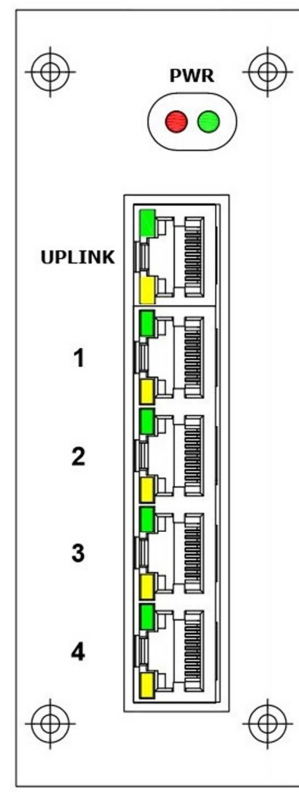

DIN-SW5G44x4

5 Port PoE Switch & Extender

(Repeat Ethernet and PoE)

USER'S MANUAL



MSTRONIC CO., LTD.

1. General Information

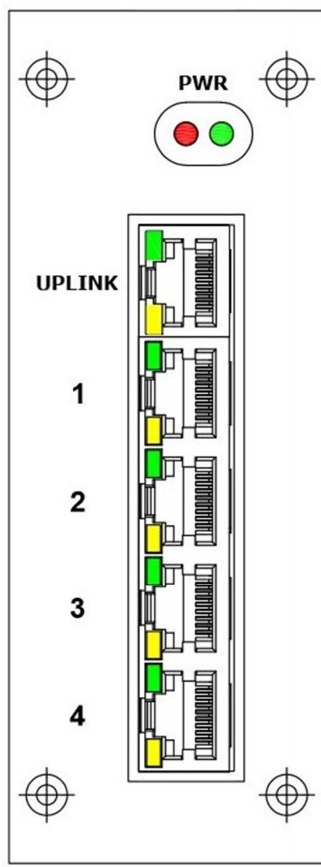
The DIN-SW5G PoE (Power Over Ethernet) Switch family provides four 10M/100M/1000M TX ports with PoE PSE function plus one 10M/100M/1000M TX up-link port with PoE PD function. It accepts power from PoE power sourcing equipment (PSE) and delivers power to PoE powered device (PD), which are compliant with IEEE802.3af and IEEE802.3at 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 top panel or UPLINK on front panel) has valid power supplied. |
| | Red | The indicator is unused for the model |
| | Off | No power supplied. |

*SWITCH LED (the upper indicator on each RJ45)

| LED | STATUS | Description |
|------------------------------|--------------------|--|
| P1~P4 and UPLINK 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 lower indicator on each RJ45)

| | | |
|---------------|--------|--|
| P1~P4 PoE | Yellow | A valid Powered Device (PD) is detected and delivering power on this port. |
| | Off | No PD is detected on this port. |
| UPLINK PoE | Yellow | Power via another PoE Powered on all 4 data pairs. |

| | | |
|--|-----------------|---|
| | Yellow Blanking | Powered on 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

The PoE switch family allows it to be powered by another PoE source on port UPLINK as a PoE repeater or extender. For DIN-SW5G44x4 is 44~57VDC.

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

If powered via the top terminal, please make sure the input current is not over 10A. total output 8A maximum. If powered on port UPLINK, the input current is not over 2Amp. Total output 2A maximum.

Ports 1~4 will deliver DC power over the Ethernet cable as detailed below:

Mode A:

- * 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

Mode B:

- * 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

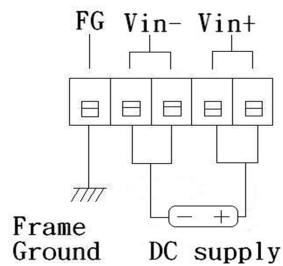
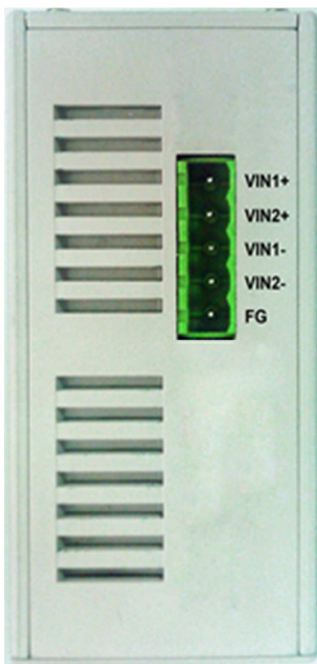
Mode D (dual,=A+B):

- * 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 UPLINK may receive 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 top panel should be wired as detailed below:



*For 48VDC typical model(DIN-SW5G44x4)

The input voltage must be in the range of 44 to 57VDC if running for 802.3af operation.

The input voltage must be in the range of 50 to 57VDC if running for 802.3at operation.

If the 48VDC typical model is not powered with the above designated input voltage, it will only function as an Ethernet switch without PoE output.

| Model | Input Voltage (TOP) | Input Voltage (Port UPLINK) | Output voltage | 802.3af/at | Isolated |
|--|---------------------|-----------------------------|--|------------|----------|
| DIN-SW5G44A4 DIN-SW5G44B4 DIN-SW5G44D4 | 44-57VDC | No input | 44-57VDC (non-regulated) | Yes | No |
| | No input | 44-57VDC | 44-57VDC (non-regulated) | Yes | No |
| | 44-57VDC | 44-57VDC | Higher voltage output (TOP or Port UPLINK) | Yes | No |

*Ethernet Port Wiring

The PoE switch family supports one RJ-45 uplink (port UPLINK 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 C & D (pin 4,5 and pin 7,8) (mode B) to the PD. Port UPLINK 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 35W ability to power up the powered device using the straight-through or cross-over Ethernet cable.

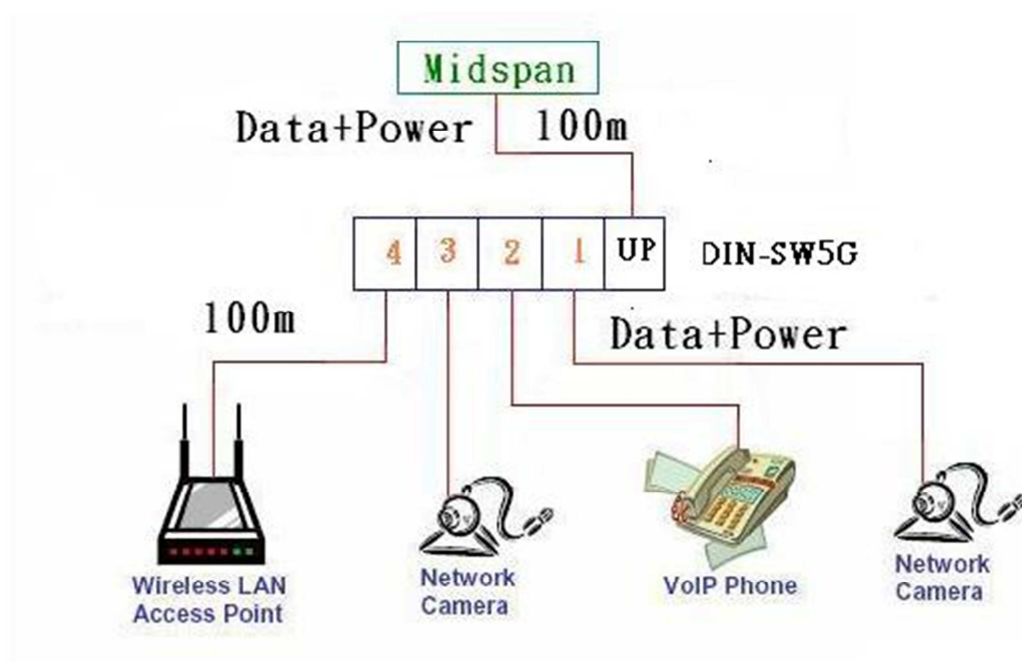
The PoE switch follows the IEEE802.3af Alternative B mode connector assignment. The following table shows pin assignment of alternative A and B for the Power Source Equipment.

| 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, especially the pins 4, 5, 7 and 8. 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 number | Input Voltage | Vout/pin out/Iout | Output Wattage | Remark |
|--------------|-------------------------------|---------------------|----------------|---------|
| DIN-SW5G44A4 | 44~57VDC(DC) 44~57VDC(POE) | Vi/1236/0.625A | 35W/port | 802.3at |
| DIN-SW5G44B4 | 44~57VDC(DC) 44~57VDC(POE) | Vi/4578/0.625A | 35W/port | 802.3at |
| DIN-SW5G44D4 | 44~57VDC(DC) 44~57VDC(POE) | Vi/1236+4578/0.625A | 35W/port | 802.3at |

4. 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 for 1000base-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 mode: data pair A plus V+(1,2), data pair B plus V-(3,6), data pair C (4,5), data pair D (7,8) *B mode: data pair A (1,2), data pair B (3,6), data pair C plus V+(4,5), data pair D plus V-(7,8) |

*A+B mode:

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 UPLINK, 4 pairs PD

Maximum PoE power Port 1-4: IEEE802.3af – 16.8W
IEEE802.3at – 35W

Port UPLINK: 90W (802.3at 2 event classification)

DIN 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 1-4 ON - PD detect

Port UPLINK DIN-SW5G44x4

ON – 4 pair power, Blinking-2 pair power

*POWER Green-normal, Red-alarm

Power input Port UPLINK (UPLINK) from network switch or midspan, or optional
DC power supply.

Power consumption less than 5W when without PD loading

| Input | DIN-SW5G44x4 |
|-------|--------------|
| 12V | 0.190A |
| 24V | 0.104A |
| 48V | 0.061A |
| 56V | 0.056A |

Power efficiency 85% at full load (@48V typical)

Operating temperature $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$

Operation humidity 90% relative humidity, non-condensing

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

Dimension 125mm(H)x46mm(W)x102mm(D) DIN RAIL Mounting

