

User Manual – Entry Line  
Industrial Gigabit Ethernet Switch  
8x 10/100/1000Base-T with PoE+

**Table of Contents**

General ..... 3

Benefits..... 3

Front View ..... 4

LED Display ..... 4

Dimensional Drawings..... 5

Mounting ..... 6

Power Supply / Alarm Contact ..... 8

Twisted Pair Connections..... 8

Technical Specifications ..... 9

Standard Compliance .....10

Safety Notes .....10

Order Information.....11

Accessories .....11

## General

The IP protocol has already left the in-house environment and is going to take all remaining communication areas. Industrial Ethernet already is an established idea, describing the reliable use of Ethernet components in harsh environments.

Because of the large number of these applications, the market requires simple and also reliable and cost effective products. With the new Industrial Ethernet Entry Line MICROSENS fulfils these requirements. The products are very compact and include:

- 5 and 8 port Fast Ethernet switches
- 6 and 8 Port Gigabit Ethernet switches
- Switches with fiber-uplink
- Media converter for Fast Ethernet and Gigabit Ethernet
- Device Server for the conversion of serial interfaces (RS-232/422/485) to IP.

All new devices distinguish themselves with easy handling (plug & play) and do not need extensive configuration. New developments are focusing on increasing the port numbers and further implementation of Gigabit Ethernet.

## Benefits

### System Interface/Performance

- 8x10/100/1000Base-T PoE+ (PSE) ports
- Supports PSE based on IEEE 802.3af and IEEE 802.3at standards up to 30 Watts per port
- Supports auto-negotiation and auto-MDI/MDI-X
- Supports store-and-forward architecture
- Non-blocking data transmission
- Supports 9 kB Jumbo Frames
- Back-plane (Switching Fabric): 16 Gbps
- 1 MB Packet Buffer
- 8K MAC Address Table
- Alarm output relay for power failures

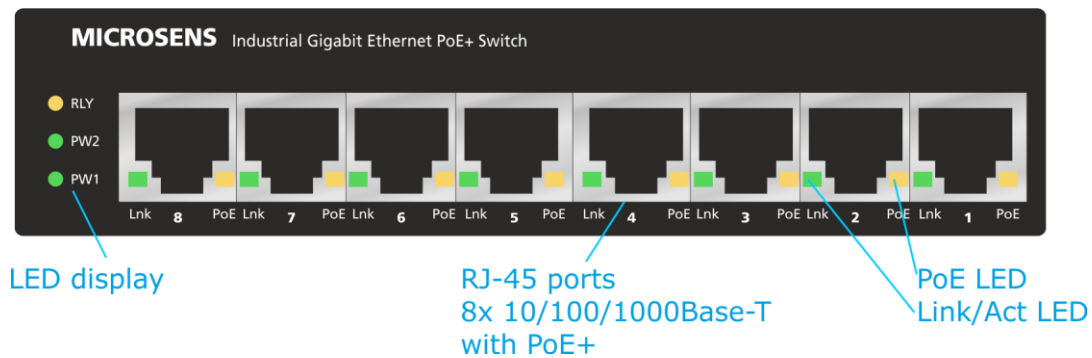
### Power Supply

- 12..56 VDC Redundant Dual Power Input
- 44..56 VDC for PoE operation
- Overload current protection
- Reverse polarity protection

### Chassis/Installation

- IP-30 Protection
- DIN-rail and Wall Mount Design

## Front View

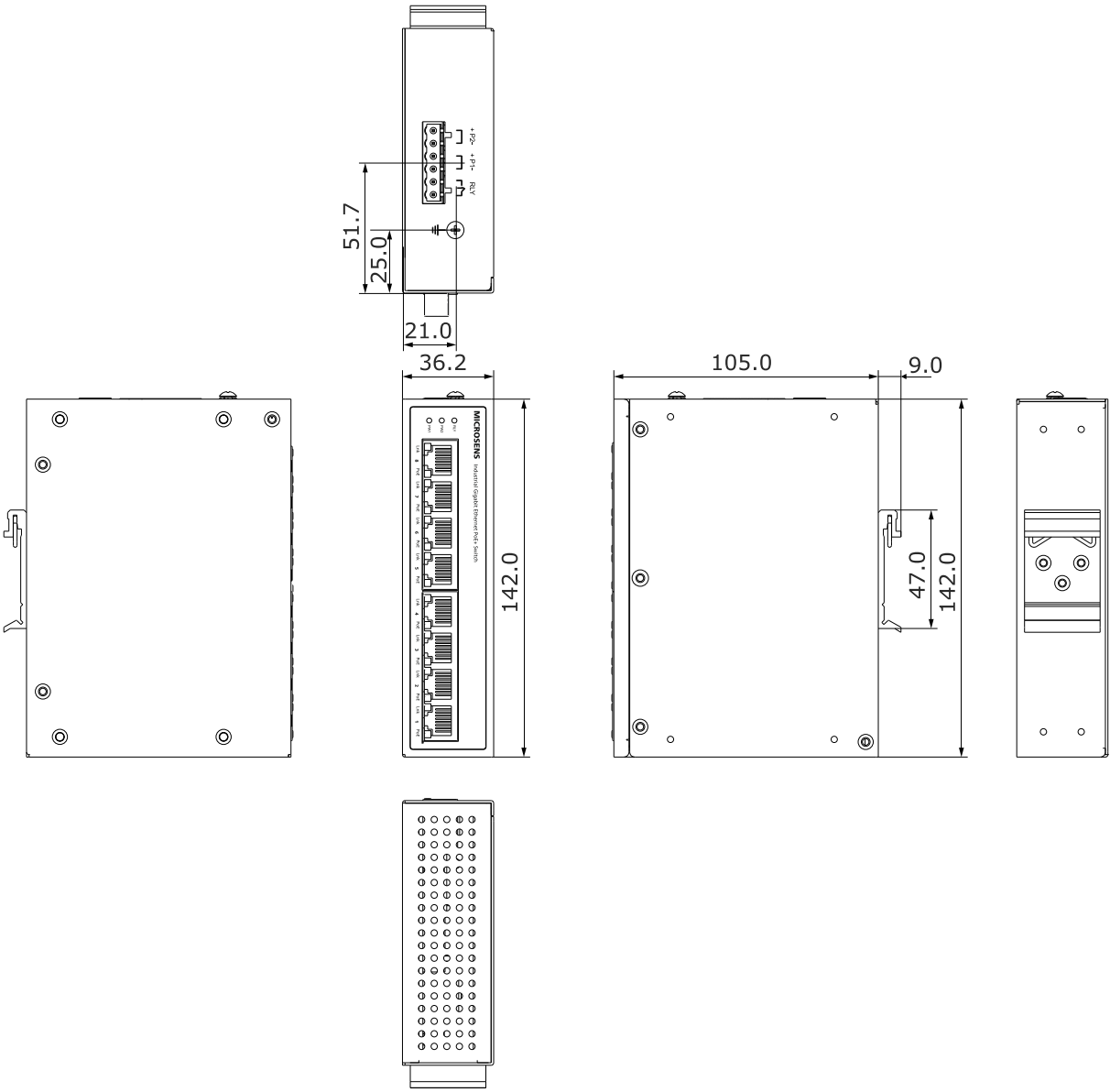


## LED Display

There are diagnostic LED indicators located on the front panel of the industrial switch. They provide real-time information of system and operational status. The following table provides description of the LED status and their meanings for the switch.

| LED                       | Color | Status   | Meaning  |
|---------------------------|-------|----------|--|
| <b>P1</b>                 | Green | On       | Power 1 is active                                  |
|                           |       | Off      | Power 1 is inactive                                |
| <b>P2</b>                 | Green | On       | Power 2 is active                                  |
|                           |       | Off      | Power 2 is inactive                                |
| <b>RLY (Relay)</b>        | Amber | On       | Power failure (Relay status) P1 or P2 off          |
|                           |       | Off      | No failure   |
| <b>Port 1-8 (Lnk/Act)</b> | Green | On       | Valid link established                             |
|                           |       | Off      | No link established                                |
|                           |       | Flashing | The port is transmitting or receiving data packets |
| <b>Port 1-8 (PoE)</b>     | Amber | On       | POE End Device is detected                         |
|                           |       | Off      | No POE End Device detected                         |

**Dimensional Drawings**



Dimensional Drawing

## Mounting

The industrial switch supports two mounting methods: Wall & DIN-rail.

### DIN-Rail Mounting

You can also mount industrial switch on a standard DIN-rail by below steps.

The DIN-rail kit is screwed on the industrial switch at delivery. If the DIN-rail kit is not screwed on the industrial switch, please screw it on the switch first.

1. First, hang the industrial switch to the DIN-rail with angle of inclination.



Installation to DIN-rail (Step 1)

2. Then, lightly push the DIN-rail into the track.



Installation to DIN-rail (Step 2)

3. Check if the DIN-rail is tightened on the track or not.
4. To remove the industrial switch from the track, reverse steps above.

**Wall mounting**

The industrial switch can be wall-mounted by using the included mounting kit.

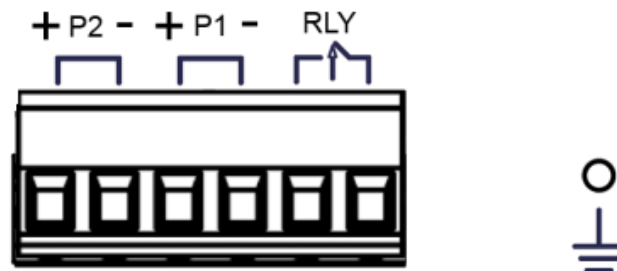
1. First, use the screws included in the package to combine the industrial switch and metal mounting kit and remove the DIN-rail adapter.
2. Then fix the switch with some screws to the wall.



Wall mounting brackets

## Power Supply / Alarm Contact

The power supply is done by an external power supply with an output voltage of 9..56 VDC (44..56 VDC for PoE operation). This power supply is not included at delivery, but can be ordered separately (e.g. MS700455). The connection is done by the pluggable screw terminals on the top of the device. The connection of a redundant power supply can be done by the second screw terminal. Connect positive wire to P+, negative wire to P-, also connect grounding/ earth wire to the grounding screw.



Pin out Power Connector and Alarm Contact

**WARNING: Any exceeded input voltage will not make this unit function and may damage this unit!**

**Warning: Always ground the power source to maintain a clean power input.**

The status of the alarm relay (RLY) contact depends on the power inputs P1 and P2:

| Input power condition   | Relay status |
|-------------------------|--------------|
| Power 1 and 2 connected | Relay open   |
| Power 1 or 2 fails      | Relay closed |
| No power connected      | Relay open   |

Alarm Relay functionality

## Twisted Pair Connections

The integrated auto-crossing function of all twisted pair ports makes the use of crossed patch cables unnecessary. The switch automatically detects the pinout of the connected cable and adapts the port accordingly. For all connections standard 1:1 twisted pair cables can be used.

The Auto-negotiation mechanism detects automatically the speed and transmission mode (full or half duplex) between connected ports. A manual configuration is not required.



## Technical Specifications

|                             |   |
|-----------------------------|---|
| <b>Type</b>                 | Gigabit Ethernet PoE+ Switch 8x 10/100/1000Base-T with PoE+   |
| <b>Cable type</b>           | Unshielded/shielded twisted pair cable, 100 Ohm, min. category 5e   |
| <b>Data rate</b>            | 10, 100 or 1000 Mbps  |
| <b>Power-over-Ethernet</b>  | PoE+ up to 30 W per port according IEEE802.3af/at   |
| <b>LED displays</b>         | Power 1/2 (green)<br>Alarm relay status (amber)<br>Per TX Port: (link / activity)<br>PoE (PoE injected: amber)  |
| <b>Mounting</b>             | 35 mm top-hat rail, according DIN EN 50 022 optional wall mounting set  |
| <b>Power supply</b>         | 12..56 VDC (44..56 VDC for PoE operation), connections with screw terminals, redundant ports,   |
| <b>Power / relay wiring</b> | Wire range: 0.34 mm <sup>2</sup> to 2.5 mm <sup>2</sup><br>Solid wire (AWG):12-24 / 14-22<br>Stranded wire (AWG): 12-24 / 14-22<br>Torque:5 lb-In / 0.5 Nm / 0.56 Nm<br>Wire Strip length: 7-8 mm |
| <b>Power consumption</b>    | Typ. 5.8 W @ 48 VDC (full load without PoE devices)   |
| <b>Alarm relay</b>          | 1 A / 24 V max.   |
| <b>Dimensions</b>           | 36.2 x 105 x 142 mm (w x d x h)   |
| <b>Operating temp.</b>      | -40° C to 75° C   |
| <b>Storage temp.</b>        | -40° C to 85° C   |
| <b>Rel. humidity</b>        | 5% to 95% non-condensing  |
| <b>EMI</b>                  | EN 55022 class A  |
| <b>EMS</b>                  | EN 61000-4-2 (ESD), EN 61000-4-3 (RS),<br>EN 61000-4-4 (EFT), EN 61000-4-5 (Surge),<br>EN 61000-4-6 (CS), EN 61000-4-8, EN 61000-4-11   |
| <b>Shock</b>                | EN 60068-2-27   |
| <b>Free fall</b>            | EN 60068-2-32   |
| <b>Vibration</b>            | EN 60068-2-6  |
| <b>Safety</b>               | EN 60950-1  |

**CE**2014/30/EU EMC Directive  
2011/65/EU RoHS Directive

## Standard Compliance

### IEEE Standards

- IEEE 802.3 10Base-T Ethernet
- IEEE 802.3u 100Base-TX Fast Ethernet
- IEEE 802.3ab 1000Base-T Gigabit Ethernet
- IEEE 802.3z 1000Base-X Gigabit Ethernet
- IEEE 802.3x Flow Control and Back Pressure
- IEEE 802.3af for PoE (up to 15 Watts per port for PSE)
- IEEE 802.3at for PoE+ (up to 30 Watts per port for PSE)

## Safety Notes

**DANGER:** Conductive components of power and telecommunications networks can carry dangerously high voltage.

To avoid electric shock:

- Do not carry out installation or maintenance work during lightning storms.
- All electric installations must be carried out in accordance with local regulations.

**Order Information**

| <b>Art.-No.</b> | <b>Description</b>  | <b>Connectors</b>                |
|-----------------|---|----------------------------------|
| MS657208PX      | Industrial Gigabit Ethernet Switch, Entry Line,<br>8x 10/100/1000Base-T with PoE+ | 8x RJ-45<br>3x Power<br>1x Alarm |

**Accessories**

| <b>Art.-No.</b> | <b>Description</b>   | <b>Connectors</b>       |
|-----------------|--|-------------------------|
| MS700455        | DIN Rail mounting power supply 50 Watt<br>48VDC/1.05 A, input voltage 85-264 VAC,<br>screw terminals, temp. range -10°C..70°C        | In: 3-pin<br>Out: 4-pin |
| MS700456        | DIN Rail mounting power supply 120 Watt<br>48VDC/2.5 A, input voltage 93-132/180-264<br>VAC, screw terminals, temp. range 35°C..70°C | In: 3-pin<br>Out: 6-pin |
| MS700457        | DIN Rail mounting power supply 240 Watt<br>48VDC/5 A, input voltage 93-132/180-264 VAC,<br>screw terminals, temp. range -35°C..70°C  | In: 3-pin<br>Out: 6-pin |

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