

## User Manual – Entry Line Industrial Fast Ethernet Switch 5x 10/100Base-TX, 4x PoE+ up to 30W



Entry Line Fast Ethernet Switch

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## 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

- 5x10/100Base-TX
- 4x 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 Flow Control
- Back-plane (Switching Fabric): 1.2 Gbps
- 1 MB Packet Buffer
- 1K MAC Address Table
- Alarm output relay for power failures

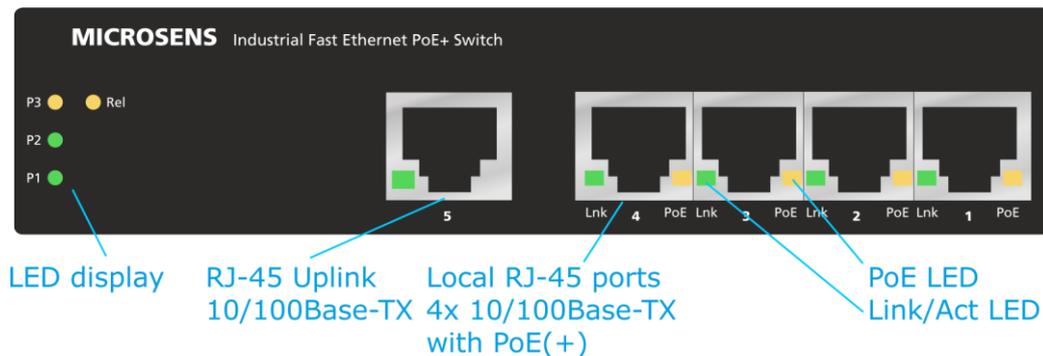
### Power Supply

- 9..56 VDC Redundant Dual Power Input
- 44..56 VDC for PoE operation
- Additional Power DIN connector (P3)
- Overload current protection
- Reverse polarity protection

### Chassis/Installation

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

## Front View

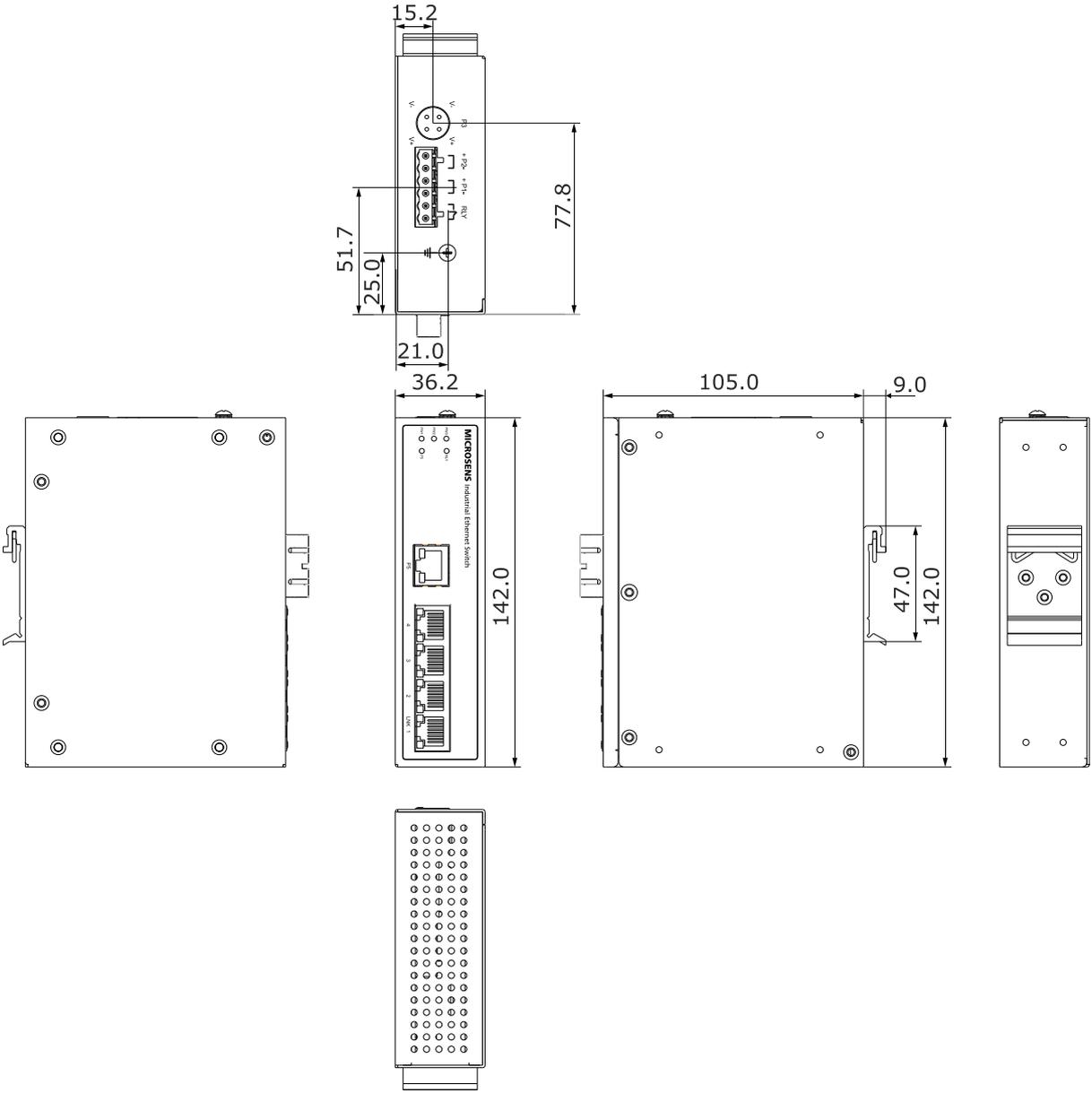


## LED Display

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>P3</b>	Green	On	Power 3 is active
		Off	Power 3 is inactive
<b>RLY (Relay)</b>	Red	On	Power failure (Relay status) P1 or P2 off
		Off	No failure
<b>Port 1-5 (Lnk/Act)</b>	Green	On	Valid link established
		Off	No link established
		Flashing	The port is transmitting or receiving data packets
<b>Port 1-4 (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.

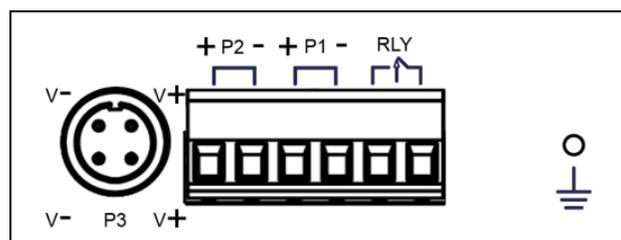
1. First, use the screws included in the package to combine the industrial switch and metal mounting kit and remove the DIN-rail adapter.
2. Then fix the switch with some screws to the wall.



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. Alternative the power DIN connector P3 can be used.



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:

<b>Input power condition</b>	<b>Relay status</b>
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>	Fast Ethernet PoE+ Switch 1x 10/100Base-TX, 4x 10/100Base-TX with PoE+ capability
<b>Cable type</b>	Unshielded/shielded twisted pair cable, 100 Ohm, min. category 5e
<b>Data rate</b>	10 or 100 Mbps
<b>Power-over-Ethernet</b>	PoE+ up to 30 W per port according IEEE802.3af/at
<b>LED displays</b>	Power 1/2/3 Alarm relay status (red) Per TX Port: (link / activity) 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>	9..56 VDC (44..56 VDC for PoE operation), connections with screw terminals, redundant ports, additional 4-pin power DIN connector (P3)
<b>Power / relay wiring</b>	Wire range: 0.34 mm <sup>2</sup> to 2.5 mm <sup>2</sup> Solid wire (AWG):12-24 / 14-22 Stranded wire (AWG): 12-24 / 14-22 Torque:5 lb-In / 0.5 Nm / 0.56 Nm Wire Strip length: 7-8 mm
<b>Power consumption</b>	Typ. 3.8 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>MTBF</b>	> 500.000 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), EN 61000-4-4 (EFT), EN 61000-4-5 (Surge), 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
<b>CE</b>	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 802.3x 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

Art.-No.	Description	Connectors
MS657100PX	Industrial Fast Ethernet Switch, 5x 10/100Base-TX, 4x Power-over-Ethernet up to 30W/port acc. IEEE802.3af/at, 40..+75°C	5x RJ-45 3x Power 1x Alarm

## Accessories

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

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