

Manual Entry Line

Industrial Gigabit Ethernet Switch

4x 10/100/1000Base-T, 1x SFP Ports

MICROSENS

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
- 5 Port Gigabit Ethernet switch
- 8 Port Gigabit Ethernet switch
- 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

- RJ-45 port support Auto MDI/MDI-X Function
- SFP (Mini-GBIC) Gigabit
- Store-and-Forward Switching Architecture
- Back-plane (Switching Fabric): 16Gbps
- 1Mbits Packet Buffer
- 8K MAC Address Table
- Jumbo Frame: 9Kbytes

Power Supply

- Wide-range Redundant Power Design
- Power Polarity Reverse Protect
- Overload Current Removable Fuse Present

Installation

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

Safety

- Provides surge protection 3000 VDC for power line
- Supports 4000 VDC Ethernet ESD protection

Standard Compliance

IEEE Standards

- IEEE 802.3 10Base-T Ethernet
- IEEE 802.3u 100Base-TX
- IEEE802.3ab 1000Base-T
- IEEE802.3z Gigabit fiber
- IEEE802.3x Flow Control and Back Pressure

Technical specifications

Type	Gigabit Ethernet switch with 4x 10/100/1000Base-T, 1 x SFP slot (1 Gbps) for industrial use
Fiber type	Depending on the used SFP
Cable type	Shielded Twisted Pair cable, 100 Ohm, Category 5, Pin out RJ45-ports auto crossing
Data rate	10, 100 or 1000 Mbps
LED displays	Per port: Link/Activity (Green), speed (1000 Green) SFP: Link/Activity (Green) PWR: Power active (Green), Power inactive (off) Fault: Power 1 or Power 2 are inactive (Red)
Mounting	35 mm DIN-Rail, according DIN EN 50 022 and wall mount
Power supply	12 - 48 V DC / connections with screw terminals, redundant ports
Dimensions	30 x 95 x 140 mm (w x d x h)
Operating temperature	-10°C to 60°C
Storage temperature	-40°C to 85°C
Rel. humidity	5% to 95% non condensing
EMI	FCC Class A, CE EN61000-4-2, CE EN61000-4-3, CE EN-61000-4-4, CE EN61000-4-5, CE EN61000-4-6, CE EN61000-4-8, CE EN61000-4-11, CE EN61000-4-12
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Switch Features

The integrated switch has a store-and-forward architecture and can transmit all packets non-blocking between the five ports at full wire speed. For data buffering the switch incorporates 1MBit of memory.

Up to 8192 different MAC addresses can be stored simultaneously in the internal switch address tables. An automatic aging mechanism updates the tables max. 5 min. after the last reception of data.

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 pin out of the connected cable and adapts the port accordingly. For all connections standard 1:1 Twisted Pair cables can be used.

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

Mounting

The Industrial switch supports two mounting methods: Wall & DIN-Rail.

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.

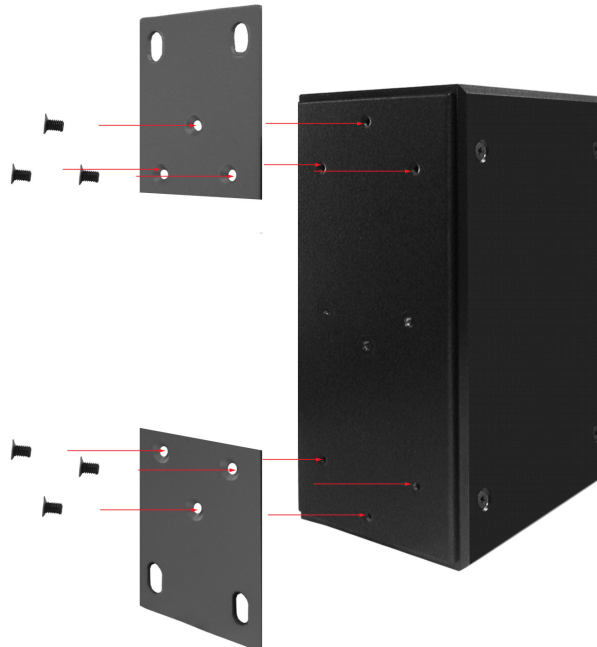


Fig. 2: DIN-Rail holder and wall brackets

2. Then fix the switch with some screws to the wall.

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 the DIN-Rail kit on the switch first.

1. First, hang the Industrial switch to the DIN-Rail with angle of inclination.



Fig. 3: Installation to DIN-Rail Step 1

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



Fig. 4: 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.

Power supply / Alarm Contact

The power supply is done by an external power supply with an output voltage of 12 - 48 V DC. The power supply unit is not included at delivery, but can be ordered separately (e.g. MS700420 24 V DC/24 W). 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. In the following drawing the pin out of the power connector and the alarm contact is described.

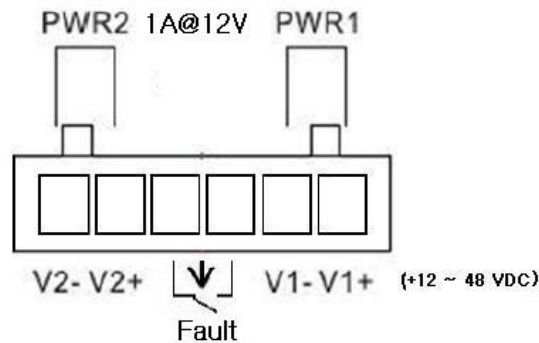


Fig. 5: Pin out Power Connector and Alarm Contact

The alarm contact is normally closed and opens if power input 1 or 2 fails.

RJ-45 / SFP Combo Ports

The switch provides two independent 10/100/1000Base-T / SFP Combo Ports. Both ports work either on the SFP or on the RJ-45 interface. An inserted SFP module will disable the RJ-45 port. The SFP port is capable to operate at different data rates. The selected data rate depends on the inserted SFP transceiver. Gigabit Ethernet modules are automatically detected. They will work at a data rate of 1000Mbps.

All other modules will work in the Fast Ethernet modus. It is recommended use only the approved MICROSENS SFPs.

The RJ-45 ports have auto-crossing and 10/100/1000Base-T Autonegotiation capabilities.

Safety Notes

WARNING: Infrared radiation as used for data transmission within the fiber optic, although invisible to the human eye, can nevertheless cause damage.

To avoid damage to the eyes:

- never look straight into the output of fiber optic components – danger of blinding!
- cover all unused optical connections with caps.
- commission the transmission link only after completing all connections.

The active laser components used with this product comply with the provisions of **Laser Class 1**.

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
MS655201	Industrial Gigabit Ethernet Switch, Entry Line, 4x 10/100/1000Base-T, 1x SFP Ports	1x SFP slot 4x RJ-45 2x Power

SFP Optical Transceivers

Art.-No.	Description	Connectors
MS100193*	SFP, SDH STM-1, ATM OC-3 1310 nm Multimode Transceiver, max. 155 Mbps	LC duplex
MS100010*	SFP, SDH STM-1, ATM OC-3 1310 nm Single Mode Transceiver, max. 155 Mbps, min. 25 km	LC duplex
MS100200*	SFP, Gigabit Ethernet / Fibre Channel 850 nm Multimode Transceiver, max. 1.25 Gbps	LC duplex
MS100210*	SFP, Gigabit Ethernet / Fibre Channel 1310 nm Single Mode Transceiver, max. 1.25 Gbps, min. 10 km	LC duplex

*) Option "D" for Diagnostic Function (e.g. MS100200D)

Accessories

Art.-No.	Description	Connectors
MS700420	DIN-Rail power supply 24 Watt 24 V / 1.0 A, wide range input 85-264 VAC	In: 3-pin Out: 2-pin
MS700421	DIN-Rail power supply 60 Watt 24 V / 2.5 A, wide range input 85-264 VAC	In: 3-pin Out: 5-pin
MS700422	DIN-Rail power supply 120 Watt 24 V / 5 A, wide range input 85-264 VAC	In: 3-pin Out: 5-pin
MS700430	DIN-Rail power supply 60 Watt 48 V / 1.25 A, wide range input 85-264 VAC	In: 3-pin Out: 5-pin
MS700434	DC/DC DIN-Rail power supply 24 Watt 24 V / 1,0 A, wide range input 18-75 V DC	In: 3-pin Out: 2-pin

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