Entry Line
Industrial Fast Ethernet Switch
4x 10/100Base-TX, 1(2)x 100Base-FX

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

• 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.

Fig. 1: Entry Line Fast Ethernet Switches

Benefits

System Interface/Performance

- RJ-45 port support Auto MDI/MDI-X Function
- Store-and-Forward Switching Architecture
- Back-plane (Switching Fabric): 1.2Gbps
- 1Mbits Packet Buffer
- 2K MAC Address Table

Power Supply

- Wide-Range Redundant Power Design
- Power Polarity Reverse Protect
- Overload Current Removable Fuse Present
- Power-Fault-Alarm Relay Contact

Chassis/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 und 100Base-FX Fast Ethernet
- IEEE802.3x Flow Control and Back Pressure

Technical specifications

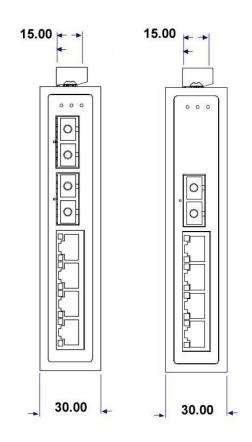|	
Type	Fast Ethernet Switch with 4x 10/100Base-TX, 1x (2x) 100Base-FX for industrial use
Fiber type	Multimode 62,5/125um or 50/125µm, distance: 2 km Single Mode 9/125µm, duplex, distance: 30km (standard)
Cable type	Shielded Twisted Pair cable, 100 Ohm, Category 5, Pin out RJ45-ports auto crossing
Data rate	10 or 100 Mbps
LED displays	Per port: Link/Activity (Green), Full duplex/Collision (yellow) Per unit: Power1 (green), Power2 (green), Fault (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, CE EN61000-6-2, CE EN61000-6-4
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Dimensions

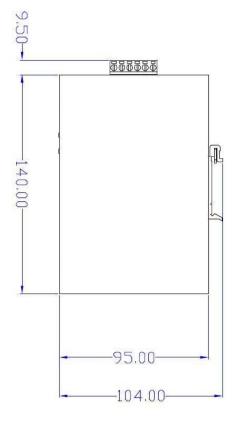Figure 2a: Front View of 4 10/100TX + 1x or 2x 100FX Industrial Switch

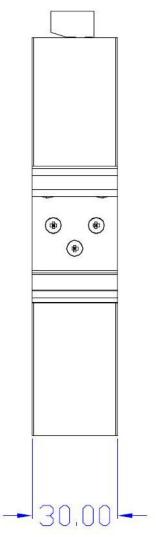Figure 2b: Side View of 4 10/100TX + 1x or 2x 100FX Industrial Switch

Figure 2c: Rear View of 4 10/100TX + 1x or 2x 100FX Industrial Switch

Switch Features

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

Up to 2048 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.
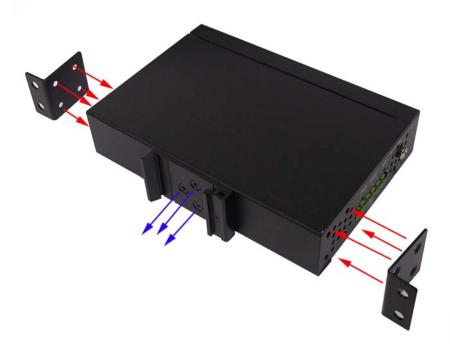

Fig. 3: DIN-Rail holder and Wall Brackets

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. 4: Installation to DIN-Rail Step 1

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

Fig. 5: 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.
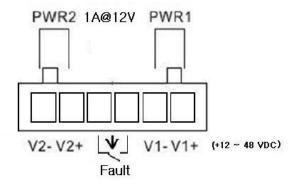
Fig. 6: Pin out Power Connector and Alarm Contact

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

Fiber Connections

The 4x 10/100TX + 1x or 2x 100FX Industrial Switch has the SC type fiber port using in Multimode (2km) or Single Mode (30km). When you connect the fiber port to another one, please follow the below figure to connect it. Wrong connection will not allow the port to work normally.
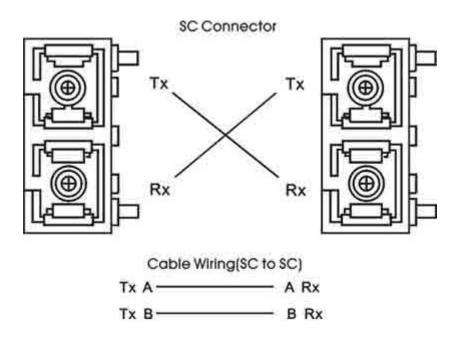
Fig. 7: Connecting the Fiber Ports

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
MS655102	Industrial Fast Ethernet Switch, Entry Line, 4x 10/100Base-TX, 1x100Base-FX Multimode SC	4x RJ-45 1x SC duplex
MS655122	Industrial Fast Ethernet Switch, Entry Line, 4x 10/100Base-TX, 2x100Base-FX Multimode SC	4x RJ-45 2x SC duplex
MS655124	Industrial Fast Ethernet Switch, Entry Line, 4x 10/100Base-TX, 2x100Base-FX Single Mode SC	4x RJ-45 2x SC duplex

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
MS700434	DC/DC DIN-Rail power supply 24 Watt 24 V / 1 A, wide range input 18-75 V DC	In: 3-pin Out: 2-pin

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