Fast Ethernet Switch
for industrial use

MICROSENS

General

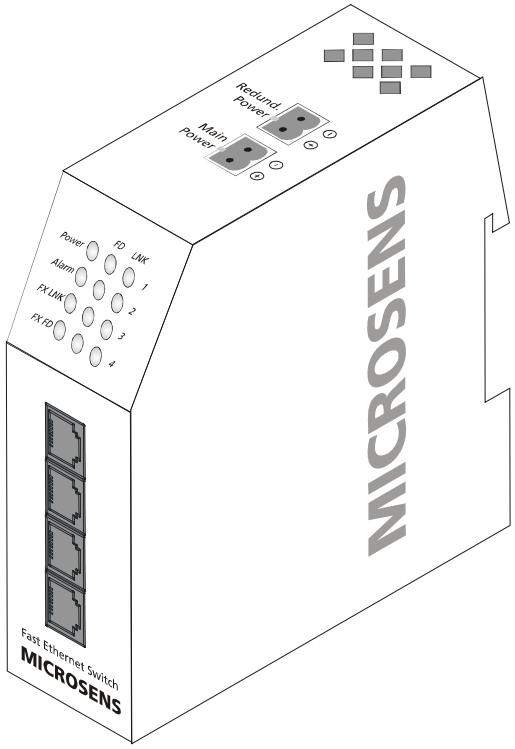
The MICROSENS industrial switch offers the connection of four end devices via twisted-pair cable. An additional port as fiber uplink (100Base-FX) is for the connection to the central distribution.

The industrial switches distinguish themselves with their very robust design. All electrical interfaces are galvanic isolated and protected against over voltage.

The twisted pair ports are adjusting automatically to the correct speed of the connected end device (10/100 autonegotiation). Additionally the copper ports are having the auto crossing feature.

The uplink port for the connection to the central distribution is working with 100 Mbit/s and can be configured to half- or full-duplex mode, depending on the requirements. By the use of the fiber, the galvanic isolation and protection against electromagnetic interferences is given.

The chassis is designed that the device can be mounted on 35 mm hat rails. The power supply is done by external power supplies with a voltage of 24 V DC. Therefore the device can be also used in telecommunication or power distribution centres.



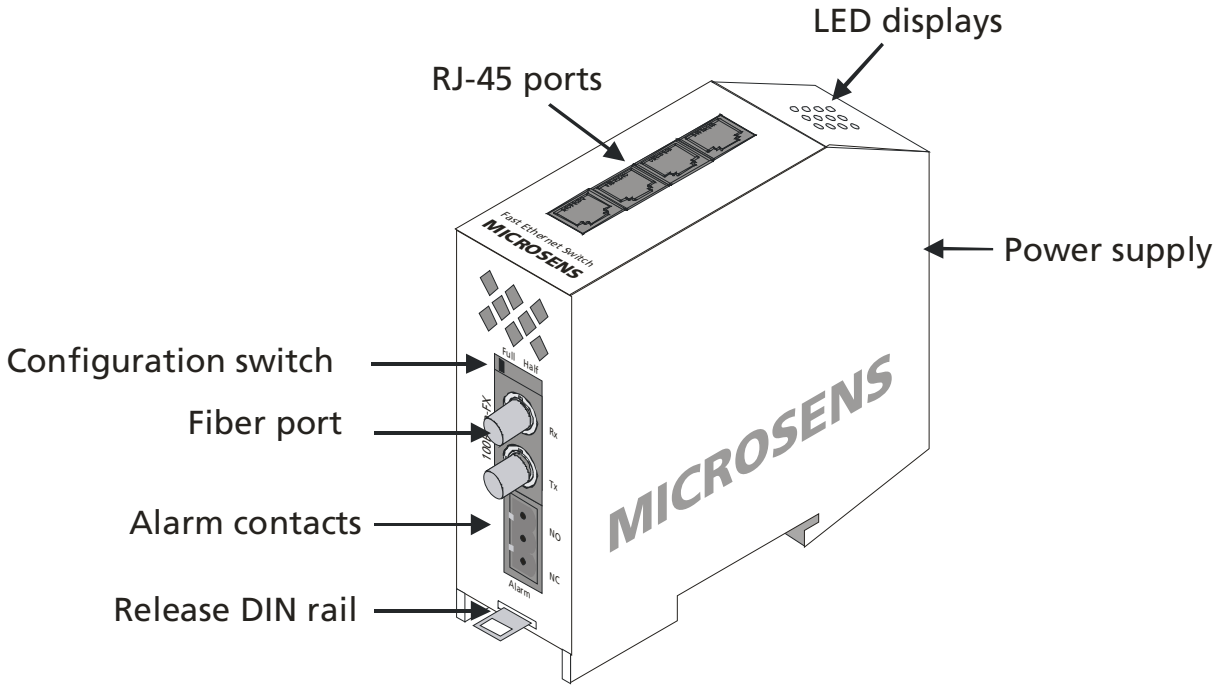
Technical Specifications

Type	Fast Ethernet Switch 4 x 10/100Base-TX with 100Base-FX uplink for industrial use	
Fiber type	Multimode 62.5/125 or 50/125µm, Single mode 9/125µm, duplex	
Cable type	Shielded Twisted Pair cable, 100 Ohm, Category 5, Pin out RJ45-port Auto Crossover	
Data rate	10 or 100 Mbit/s	
LED displays	*Power*	Ready for operation
	Link	Link status each port
	Act	Data traffic each port
	FDX/HDX	Half- or full-duplex each port
	Alarm	Fiber link interrupted
Mounting	35 mm hat rail, according DIN EN 50 022	
Power supply	18 - 36 V DC / max. 500 mA via external power supply screw terminal connection, redundant ports	
Dimensions	38 x 108 x 116 mm (w x d x h)	
Operating temperature	-20°C to 60°C	
Storage temperature	-20°C to 80°C	
Rel. humidity	5% to 90% non condensing	

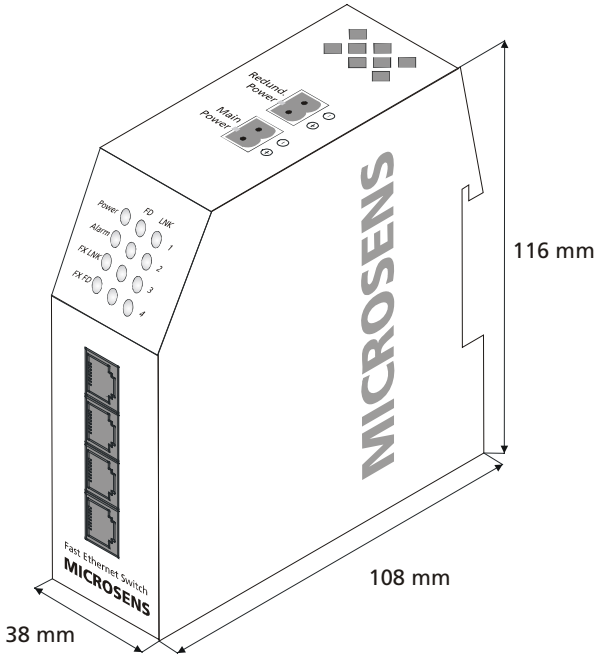
Optical Parameters

Multimode	*min. distance:*	2 km (full duplex)
	transmit power:	-19 dBm
	sensitivity:	-31 dBm
	wavelength:	1310 nm
Single mode 15km	*min. distance:*	15 km (full duplex)
	transmit power:	- 15 dBm
	sensitivity:	- 31 dBm
	wavelength:	1310 nm
Single mode 40km	*min. distance:*	40 km (full duplex)
	transmit power:	- 5 dBm
	sensitivity:	- 34 dBm
	wavelength:	1310 nm

Connectors



Dimensions



Features

The switch has a non blocking architecture and is working with the store and forward procedure. To store the data the switch has an integrated memory of 1 Mbit.

The MAC address handling is done by the integrated address management. The switch can store up to 4096 MAC addresses at the same time. The address is stored after receiving a valid data packet. Five to ten minutes after the last data received the related MAC address is deleted again (aging).

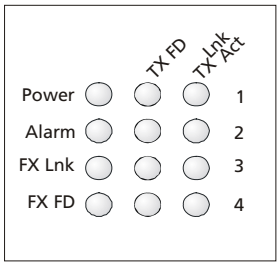
Connections

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.

Transmission speed

The twisted-pair ports are adjusting themselves to the highest possible transmission speed. The LED shows the selected transmission speed.



The transmission in full duplex mode is indicated by the related LED being on. If the half duplex mode is selected, this LED functions as a collision indicator for this segment (flashing).

The transmission mode of the fiber port is selected with a DIP switch. This DIP switch is located direct beside the fiber port at the bottom of the device. It has to be considered that distances of more than 412 m can be realised only in full duplex mode.

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.

Alarm Contacts

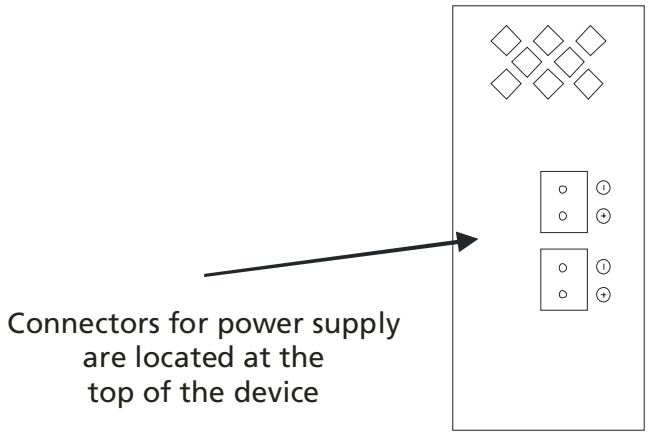
The switch has integrated potential free floating contacts for the connection of external alarm systems. The connection is done by a screw terminal plug at the bottom of the device.

It is possible to select between opening or closing contact (NO/NC). If any of the connections (twisted-pair or fiber) is lost or if the complete device fails, this contact switches.

Power Supply

The power supply is done by an external power supply with the output range of 18 to 36 V DC.

The power supply is not included at delivery. The connection is done by screw terminal connectors at the top of the device. The connection of a redundant power supply is possible by the second power connector.



Mounting

The converter has a solid metal chassis with an integrated holder for the DIN rail mounting. For the mounting of the switch 35 mm DIN rails according DIN EN 50 022 should be used.

The fixation of the device is done by a snap mechanism, which can be released by an eyelet at the bottom of the device. Putting several devices together on one DIN rail is possible, due to the optimised heat sink mechanism of the device.

Order Information

Art.-No.	Description	Connectors
MS650461	Fast Ethernet Industrial Switch Multimode 1310 nm	2 x ST, 4 xRJ45 Power supply, Relay Contacts
MS650462	Fast Ethernet Industrial Switch Multimode 1310 nm	2 x SC, 4 xRJ45 Power supply, Relay Contacts
MS650464	Fast Ethernet Industrial Switch Single mode 1310 nm Laser, min. 15 km	2 x SC, 4 xRJ45 Power supply, Relay Contacts
MS650465	Fast Ethernet Industrial Switch Single mode 1310 nm Laser, min. 15 km	2 x ST, 4 xRJ45 Power supply, Relay Contacts
MS650467	Fast Ethernet Industrial Switch Single mode 1310 nm Laser, min. 40 km	2 x SC, 4 xRJ45 Power supply, Relay Contacts
MS650468	Fast Ethernet Industrial Switch Single mode 1310 nm Laser, min. 40 km	2 x ST, 4 xRJ45 Power supply, Relay Contacts

Accessories

Art.-Nr.	Description	Connectors
MS200150	Device Manager PC-Software V3.x MICROSENS Switch-Management (necessary for Ring Configuration)	
MS700420	AC/DC hat-rail power supply 24 Watt 24 V / 1.0 A, wide range input 85-264 V AC	In: 3-pin Out: 2-pin
MS700421	AC/DC hat-rail power supply 60 Watt 24 V / 2.5 A, wide range input 85-264 V AC	In: 3-pin Out: 5-pin
MS700422	AC/DC hat-rail power supply 120 Watt 24 V / 5.0 A, wide range input 85-264 V AC	In: 3-pin Out: 5-pin
MS700430	AC/DC hat-rail power supply 60 Watt 48 V / 1.25 A, wide range input 85-264 V AC	In: 3-pin Out: 5-pin
MS700434	DC/DC hat-rail power supply 24 Watt 24 V / 1.0 A, wide range input 18-75 V DC	In: 3-pin Out: 2-pin

Further versions on request.