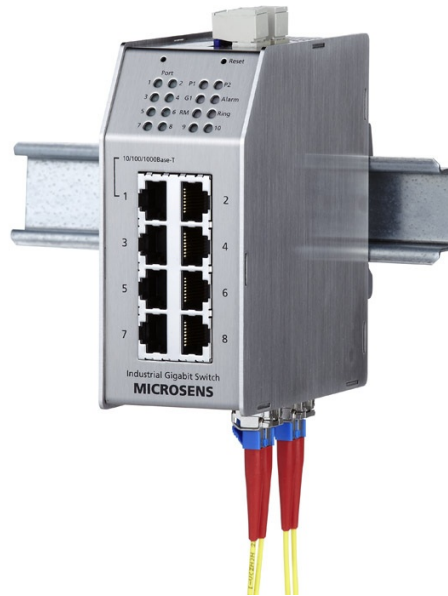


## Product Overview

### Gigabit Ethernet 10 port Industrial Switch with Ring redundancy



## Description

The new 10 port Gigabit Switch is equipped with two 1000Base-SX/LX Gigabit Ethernet fiber optic interfaces and therefore allows the implementation of a fault tolerant optical ring. In case of failure the MICROSENS patented technology assures the reconfiguration of the connection within less than 20 ms.

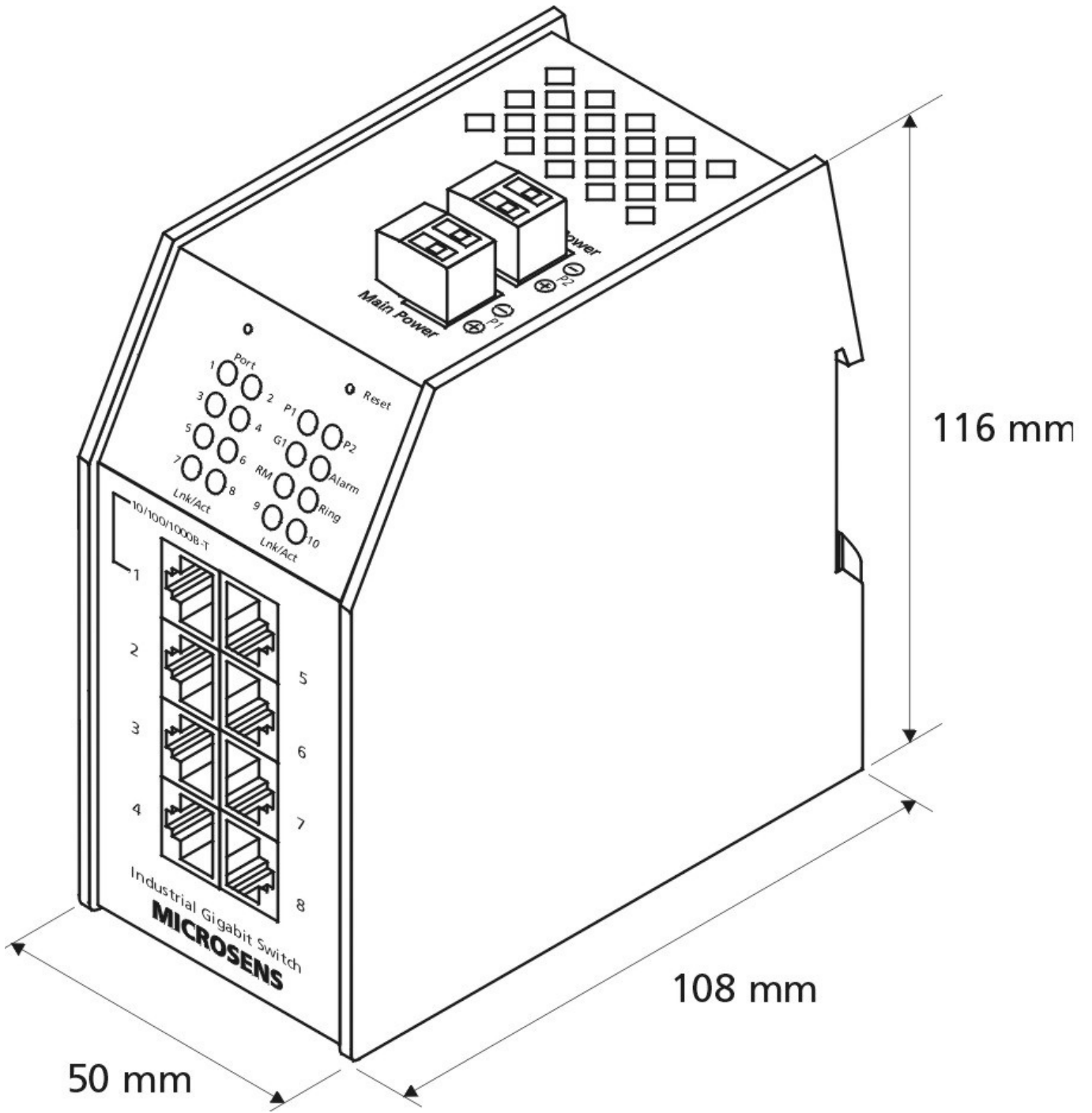
The Industrial Switch is offering 8 copper ports for the connection of Ethernet terminals like control systems, consoles or further network users. The Gigabit Switch can be configured and monitored by the MICROSENS NMP Management Software, a PC based management tool and, optionally, SNMP. The implementation of data prioritization (QoS) and VLANs according to IEEE Std. 802.1Q/p are forming a relevant part of the Industrial Switch.

Optionally, the Gigabit switch is also available with a third Gigabit fiber port (1000Base-SX or LX).

## Properties

- Gigabit Ethernet 10 Port Switch, 7x 10/100Base-TX, 1x10/100/1000-T, 2x 1000Base-SX/LX
- 2 Fiber ports for building fault tolerant fiber rings
- Manageable with Device Manager, SNMP optional
- Full VLAN functionality / data prioritization according to IEEE 802.1q
- Reconfiguration time < 20 ms
- Optional with SFP
- Robust casing in industrial design with integrated holder for 35 mm hat

## Dimensions



# Specifications

## General

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<b>Type</b>	Gigabit Ethernet Switch Layer 2+, IEEE 802.3 compliant
<b>Performance</b>	Store-and-forward, Full wire-speed, non-blocking on all ports
<b>MAC-Addresses</b>	8,192 addresses, automatic learning and aging
<b>VLANs</b>	Tagging IEEE 802.3ac Prioritisation IEEE 802.1p VLAN IDs 0..4095 Static and dynamic VLAN table
<b>Quality of Service</b>	4 hardware-queues per port prioritisation according to: * IPv4/IPV6 * VLAN priority IEEE 802.1p * port queue weighting strict or weighted, configurable"
<b>Management</b>	CLI: telnet Web: http SNMPv1, SNMPv2c Microsens NMP-Software

## Uplink (Pluggable Transceiver)

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<b>Number of Ports</b>	3 (MS650869M only)
<b>Type</b>	Fast/Gigabit Ethernet, 100/1000Base-X
<b>Connector</b>	SFP-Slot
<b>Flow Control</b>	Pause frames (IEEE 802.3x), configurable

## Uplink (Twisted-Pair)

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<b>Number of Ports</b>	1
<b>Type</b>	Gigabit Ethernet, triple speed 10/100/1000Base-T
<b>Connector</b>	RJ-45 jack, shielded
<b>Cable Type</b>	Twisted-Pair cable, category 5e, impedance 100 Ohm, length max. 100 m
<b>Flow Control</b>	Pause frames (IEEE 802.3x), configurable
<b>Pinout</b>	Auto MDI/MDI-X, auto polarity

## Local Ports (Twisted-Pair)

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<b>Number of Ports</b>	8
<b>Type</b>	1x Gigabit Ethernet, triple speed 10/100/1000Base-T 7 x Fast Ethernet, dual speed 10/100Base-TX
<b>Connector</b>	RJ-45 jack, shielded
<b>Cable Type</b>	Twisted-Pair cable, category 5e, impedance 100 Ohm, length max. 100 m
<b>Flow Control</b>	Pause frames (IEEE 802.3x), configurable
<b>Pinout</b>	Auto MDI/MDI-X, auto polarity

## Uplink (Fixed Optical Transceiver)

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<b>Number of Ports</b>	2 (MS650851M, MS650852M)
	3 (MS650861M, MS650862M)
<b>Type</b>	Gigabit Ethernet Multimode: 1000Base-SX Single Mode: 1000Base-LX
<b>Connector</b>	ST or SC duplex
<b>Fiber Cable Type</b>	Multimode: 50 or 62.5/125 µm fiber Single Mode: 9/125 µm fiber
<b>Distance</b>	Multimode: 550 m Single Mode: 10 km actual distance may depend on fiber performance
<b>Output Optical Power</b>	Multimode 850nm: -9,5..-4 dBm Single Mode 1310nm 10 km: -9,5..-3 dBm
<b>Receiver Sensitivity</b>	Multimode 850nm: -18 dBm (max. 0 dBm) Single Mode 1310nm 10 km: -20 dBm (max. -3 dBm)
<b>Flow Control</b>	Pause frames (IEEE 802.3x), configurable

## Power Supply (DC)

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<b>Input Voltage</b>	2x 24 VDC (redundant ports)
<b>Power Consumption</b>	8 W (typ.)
<b>Fuse</b>	1 A
<b>Connector</b>	screw terminals

## Mechanical

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<b>Dimensions</b>	50 mm x 108 mm x 116 mm (w x d x h)
<b>Mounting</b>	DIN rail
<b>Protection class</b>	IP 30

## Additional Features

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<b>Software</b>	<ul style="list-style-type: none"><li>- MICROSENS Ring-Protocol</li><li>- Port Monitor</li><li>- CDP v1, v2</li></ul>
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## Display

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<b>Power</b>	P1 Green: Main Power Supply active Orange: Main Power Supply missing P2 Green: Backup Power Supply active Orange: Backup Power Supply missing
<b>Link</b>	Port 1-8 Link (on) and activity (flashing) of the TP ports Port 9-10 Link (on) and activity (flashing) of the fiber ports
<b>Status</b>	G1 Green: Copper port 1 with Gigabit Ethernet speed Orange: Third SFP fiber port active, copper port 1 without function (optional) Ring: Switch configured for ring mode RM: Ring Master (only in ring mode and if ) Alarm: Fiber link interrupted or Power Supply problem

## Environment

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<b>Operating Temperature</b>	-20..60°C -40..75°C (X-Versions)
<b>Storage Temperature</b>	-40°..85°C
<b>Relative Humidity</b>	5% to 90% non condensing

## Standards Compliance

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<b>IEEE (Ethernet)</b>	802.3i 10Base-T 802.3u 100Base-T 802.3z 1000Base-X 802.3ab 1000Base-T 802.3x Flow Control 802.3ac VLAN Tagging 802.1D Spanning Tree 802.1Q Tagged VLANs 802.1p Packet Prioritisation 802.1w Rapid Spanning Tree 802.1X Network Access Control
<b>RFC</b>	IPv4: <ul style="list-style-type: none"><li>- RFC 791 (IPv4)</li><li>- RFC 826 (ARP)</li><li>- RFC 792 (ICMP)</li><li>- RFC 2131 (DHCP)</li><li>- RFC 2474/3260 (IPv4 DiffServ/IPv6 Traffic Class)</li><li>- RFC 4541 (IGMP)</li></ul> <ul style="list-style-type: none"><li>- RFC 1769 (SNTP)</li><li>- RFC 1155/1156/1157 (SNMPv1)</li><li>- RFC 1901/1905/1906 (SNMPv2)</li><li>- RFC 3411/3412/3584 (SNMPv3)</li><li>- RFC 2574/3414 (USM)</li><li>- RFC 2575/3415 (VACM)</li><li>- RFC 2865 (RADIUS)</li><li>- RFC 2866 (Accounting)</li></ul>

- RFC 2868 (Tunnel Attributes)
- RFC 5424 (Syslog)

## Reliability

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<b>MTBF</b>	400,000 h
<b>Method</b>	calculated, MIL-HDBK-217F

## Order Information

Description	Article Number
10 port Gigabit Ethernet Industrial Switch with Ring redundancy 1x 10/100/1000Base-T, 7x 10/100Base-TX, 2x 1000Base-SX, ST Multimode 850 nm	<b>MS650850M</b>
10 port Gigabit Ethernet Industrial Switch with Ring redundancy 1x 10/100/1000Base-T, 7x 10/100Base-TX, 2x 1000Base-SX, SC Multimode 850 nm	<b>MS650851M</b>
10 port Gigabit Ethernet Industrial Switch with Ring redundancy 1x 10/100/1000Base-T, 7x 10/100Base-TX, 2x 1000Base-LX, SC Single mode 1310 nm	<b>MS650852M</b>
10 port Gigabit Ethernet Industrial Switch with Ring redundancy 1x 10/100/1000Base-T, 7x 10/100Base-TX, 3x 1000Base-SX, SC Multimode 850 nm	<b>MS650861M</b>
10 port Gigabit Ethernet Industrial Switch with Ring redundancy 1x 10/100/1000Base-T, 7x 10/100Base-TX, 3x 1000Base-LX, SC Single mode 1310 nm	<b>MS650862M</b>
10 port Gigabit Ethernet Industrial Switch with Ring redundancy 1x 10/100/1000Base-T, 7x 10/100Base-TX, 3x 1000Base-X, SFP slot	<b>MS650869M</b>
Industrial Gigabit Ethernet Switch, 1x 10/100/1000Base-T or 1000Base-X (auto detect), 7x10/100Base-TX, 3x SFP Ports, Redundant-Uplink with Ultra Fast Ring Recovery, extended temperature range	<b>MS650869MX</b>

## Accessories

<b>Description</b>	<b>Article Number</b>
End clamp for DIN rail 35mm, 2 screws, width: 10 mm, color: aluminium	<b>MS140806</b>
Hat-rail power supply 24 Watt 24 V / 1,0 A, wide range input 85-264 VAC, 85..375 VDC	<b>MS700420</b>
Hat-rail power supply 60 Watt 24 V / 2,5 A, wide range input 85-264 VAC, 85..375 VDC	<b>MS700421</b>
Hat-rail power supply 120 Watt 24 V / 5,0 A, wide range input 85-264 VAC, 85..375 VDC	<b>MS700422</b>
SFP Gigabit Ethernet Transceiver 1000Base-SX, Multimode 850nm, digital Diagnostics, exten. temp.-range: -40..85°C	<b>MS100200DX</b>
SFP Gigabit Ethernet Transceiver 1000Base-LX, Single Mode 1310nm, digital Diagnostics, -40..85°C	<b>MS100210DX</b>

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