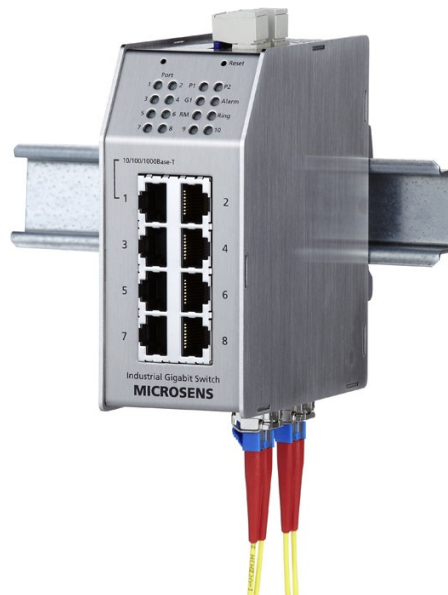


## Product Overview

### Gigabit Ethernet Industrial Switch 10 Port with Ring-Redundancy and PoE



## Description

The 10 Port Gigabit Switch has two 1000Base-X fiber ports to build up fiber rings (fast redundancy) and 8 copper ports for the connection of Ethernet devices, such as machine controls, network uplinks, consoles and other network users.

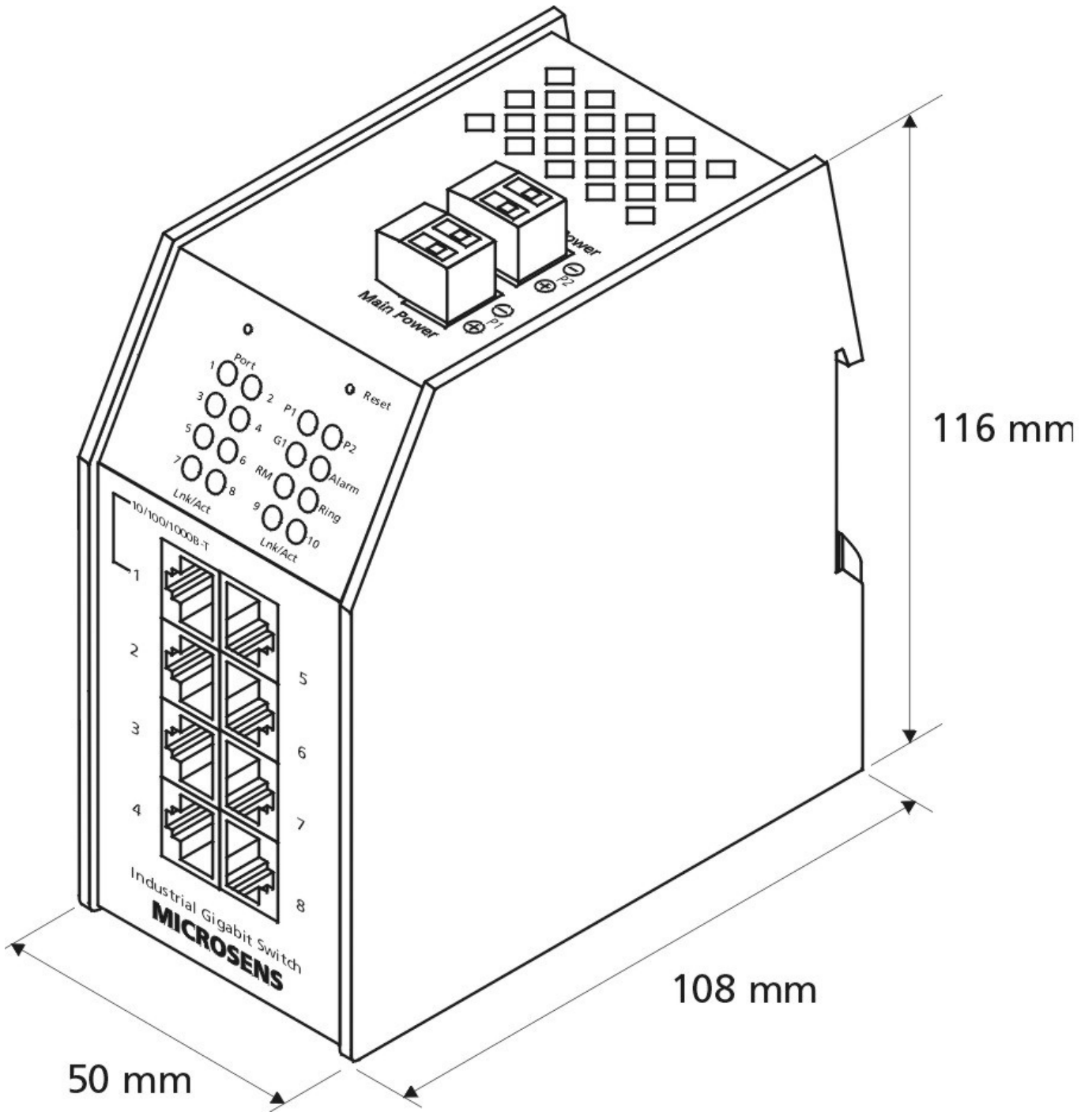
The switch has the full Power-over-Ethernet functions for all 8 ports integrated. The PoE controller according to IEEE802.3af is already integrated. The switch is supplied by an external power supply with 48 V DC.

Optional the switch is available with a third optical port (1000Base-X). The ultra fast recovery is done by the MICROSENS patented mechanism, which reconfigures the network within milliseconds in case of a failure.

## Properties

- Gigabit Ethernet 10 Port Switch, 1x 10/100/1000Base-T, 7x 10/100Base-TX, 2x 1000Base-X
- Power-over-Ethernet according to IEEE 802.3af on all 8 TP-Ports
- Fiber ports allow to build fault tolerant fiber rings, optional SFP version
- Manageable via Web/Telnet/SNMP/MICROSENS NMP-Software
- Full VLAN-functionality / data prioritisation according to IEEE 802.1q
- 48V DC power supply, redundant input
- Robust industrial design with integrated holder for 35 mm DIN-rails

## 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-Adresses</b>	8,192 addresses, automatic learning and aging
<b>VLANs</b>	Tagging IEEE 802.3ac Priorisation 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 (MS650869PM-48, 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

## 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) Alarm: Fiber link interrupted or Power Supply problem

## 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 7x 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
<b>Power-over-Ethernet</b>	Power Sourcing Equipment (PSE) IEEE 802.3af class 0, max. 15.4 W, forced-mode (legacy-devices), pinout wires 1/2 (+), 3/6 (-)

## Uplink (Fixed Optical Transceiver)

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<b>Number of Ports</b>	2 (MS650851PM-48, MS650852PM-48) 3 (MS650861PM-48, MS650862PM-48)
<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

## Environment

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<b>Operating Temperature</b>	-40°C..70°C
<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 802.3af PoE 802.1D Spanning Tree 802.1Q Tagged VLANs 802.1p Packet Prioritisation 802.1w Rapid Spanning Tree 802.1X Network Access Control
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<b>RFC</b>	IPv4: - RFC 791 (IPv4) - RFC 826 (ARP) - RFC 792 (ICMP) - RFC 2131 (DHCP) - RFC 2474/3260 (IPv4 DiffServ/IPv6 Traffic Class) - RFC 4541 (IGMP)  - RFC 1769 (SNTP) - RFC 1155/1156/1157 (SNMPv1) - RFC 1901/1905/1906 (SNMPv2) - RFC 3411/3412/3584 (SNMPv3) - RFC 2574/3414 (USM) - RFC 2575/3415 (VACM) - RFC 2865 (RADIUS) - RFC 2866 (Accounting) - RFC 2868 (Tunnel Attributes) - RFC 5424 (Syslog)
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## Reliability

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<b>MTBF</b>	400.000 h
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## Power Supply (DC)

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<b>Input Voltage</b>	2x 48 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>	- MICROSENS Ring-Protocol - Port Monitor - CDP v1, v2
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## Order Information

Description	Article Number
Gigabit Ethernet Industrial Switch with PoE for ring configuration 1x 10/100/1000Base-T, 7x 10/100Base-TX, 2x 1000Base-SX, SC Multimode 850 nm	<b>MS650851PM-48</b>
Gigabit Ethernet Industrial Switch with PoE for ring configuration 1x 10/100/1000Base-T, 7x 10/100Base-TX, 2x 1000Base-LX, SC Single Mode 1310 nm	<b>MS650852PM-48</b>
Gigabit Ethernet Industrial Switch with PoE for ring configuration 1x 10/100/1000Base-T, 7x 10/100Base-TX, 3x 1000Base-SX, SC Multimode 850 nm	<b>MS650861PM-48</b>
Gigabit Ethernet Industrial Switch with PoE for ring configuration 1x 10/100/1000Base-T, 7x 10/100Base-TX, 3x 1000Base-LX, SC Single Mode 1310 nm	<b>MS650862PM-48</b>
Gigabit Ethernet Industrial Switch with PoE for ring configuration 1x 10/100/1000Base-T, 7x 10/100Base-TX, 3x SFP slot 100/1000Base-X	<b>MS650869PM-48</b>

## Accessories

<b>Description</b>	<b>Article Number</b>
Hat-rail power supply 60 Watt 48 V / 1,25 A, wide range input 85-264 VAC, 85..375 VDC	<b>MS700430</b>
End clamp for DIN rail 35mm, 2 screws, width: 10 mm, color: aluminium	<b>MS140806</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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