MICROSENS

Data Sheet

7/8-Port 10G Micro Switch Rotatable PoE+/++

Made in Germany



10G uplinks (IEEE 802.3ae)
2x 1/10GBase-X ports

User ports (IEEE 802.3ab/z)
4x 10/100/1000Base-T ports

Downlink ports (IEEE 802.3bz)
1x 1/2.5/5/10GBase-T port or 2x 10/100/1000Base-T (depending on variant)

PoE+/++ PSE user and downlink ports (IEEE 802.3af/at/bt)
4x 10/100/1000Base-T user ports with PoE(+)
2x 10/100/1000Base-T downlink ports with PoE(+) or
1x 1/2.5/5/10GBase-T Multigig downlink port with PoE(++) (depending on variant)

Compact M45 mounting format
Compact M45 mounting format for simple and building-standard-compliant installation

Fanless design
Maintenance-friendly hardware design without moving parts and noise emissions

Rotatable user port modules
User port module rotatable by 90°; suitable for horizontal and vertical installation

Standardized network redundancy (ERPS according to ITU-T G.8032v2)
Function set for special redundancy topologies (e.g., ring structures)

MICROSENS Network Management Platform (NMP) integrated
Integrated into the MICROSENS NMP software for simple configuration and administration

Technical Specifications

Switch

Type	Gigabit Ethernet Switch Layer 2+, IEEE 802.3 compliant
Performance	Store-and-forward, full wire-speed, non-blocking on all ports
Switching Capacity	51.2 Gbps
Jumbo Frames	max. 10,240 bytes
Flow Control	Pause frames (IEEE 802.3x), configurable
Packet Forwarding Rate	up to 14.8 Mpps
MAC Addresses	up to 16K addresses, automatic learning and aging

Twisted-Pair Ports

User Ports

Number and Type	4x 10/100/1000Base-T Gigabit Ethernet, triple speed
Connector	RJ-45 port, shielded
Cable Type	Twisted-pair cable, Category 5e, impedance 100 Ohm, max. length 100 m
Pinout	Auto MDI/MDI-X, Auto Polarity
Power over Ethernet (PoE)	4x IEEE 802.3af/at PSE (max. 30W)

Downlink Ports

Number and Type	1x 1/2.5/5/10GBase-T (MS440807PM) or 2x 10/100/1000Base-T (MS440808PM)
Connector	RJ-45 port, shielded
Cable Type	Twisted-pair cable, Category 5e or Category 6a, (see note below) impedance 100 Ohm, max. length 100 m
Pinout	Auto MDI/MDI-X, Auto Polarity
Power over Ethernet (PoE)	1x IEEE 802.3af/at/bt PSE (max. 60W) (MS440807PM) or 2x IEEE 802.3af/at PSE (max. 30W) (MS440808PM)

Fiber Ports (Uplinks)

Number and Type	2x SFP+ slots, 1/10GBase-X supports SFP digital diagnostics function
Connector	LC type (depending on SFP module)

Console Interface

Connector	USB-C
Type	Serial-to-USB Bridge Virtual COM port via USB
Driver	Windows, macOS, Linux

LED Display

Type	18 LEDs
Power	*Red (solid)*: Bootloader *Yellow (solid)*: Booting *Green (solid)*: Switch ready, power supply ok
Status	*Blue (solid)*: Firmware update
Link	RGB LED indicating port status, link, traffic, blocking by redundancy protocols *Off*: No link on port *Blinking (any color)*: Traffic on port (Rx, Tx data) *Green*: 10/100/1000 Mbit link on port *Yellow*: Port blocked *Red*: Port disabled (Authentication Fail)
PoE	RGB LED indicating PoE status of the port, PoE active, active PoE class *Off*: PoE function disabled *Yellow*: PoE enabled, not active *Green*: PoE active (Class 0-3, max. 15.4 W) *Blue*: PoE+ active (Class 4, max. 30 W)

NOTE: Cat 5e cables are suitable for up to 1 Gbps, Cat 6a cables are required for 10 Gbps.

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Technical Specifications (continued)

Control Panel

Button 1 (Reset)	*Position*: Port module 1 *Function*: Hard reset (function also works during CPU crash, no software function) *Default state*: off (not pressed)
Button 2 (Function button)	*Position*: Port module 2 *Function*: Multi-function button, function controlled by software *Default state*: off (not pressed)

Power Supply

Input	44..57 VDC, 54 VDC typ.
Power consumption	Typ. 10W (without PoE) max. 160W (incl. PoE) (Full performance only under suitable installation conditions)
Connector	3-pin screw connector Cable: flexible, 1 mm² conductor cross-section Alternatively: MICROSENS power supply with pre-mounted connector (cross-section may differ)

Environmental Conditions

Temperature	Operation 0..+45 °C Storage -20..+85 °C
Humidity	20..90%, non-condensing
MTBF time	500,000 h

Mechanical

Dimensions	90 mm x 62.2 mm x 45 mm (L x W x H, without connectors)
Weight	max. 300 g
Mounting	45 mm snap-in mounting (without screw fastening)
Port Label Inlay	43.4 mm x 8 mm (L x W)

Delivery / Contents

Standard packaging

Standard packaging unit	1 piece
Contents	1x Micro Switch 1x Power connector 1x Printed Quick Start Guide Included in the device firmware: 1x CLI reference manual 1x Web manual 1x MIB file

Documentation

Quick Start Guide	Flyer, included in delivery; download at www.microsens.com
User Manual	Download at www.microsens.com
CLI Reference Manual	• Included in the device firmware for local download • Download at www.microsens.com
MIB File	Included in the device firmware for local download

Standards

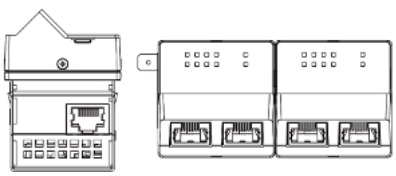
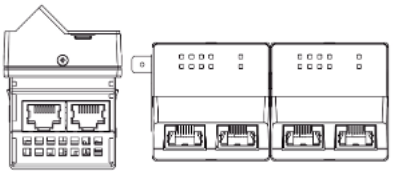
CE	2014/30/EU (EMC) 2011/65/EU (RoHS)
Safety	EN 62368-1
Emitted interference	EN 55032 (Class B)
Immunity	EN 55035

Firmware Specifications

For the latest firmware features and supported IEEE/RFC standards, see the document Firmware Features, which can be downloaded from the Download Center on the respective device's homepage at www.microsens.com.

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Micro Switch Variants

Art. No.	**MS440807PM**	**MS440808PM**
		
Number of ports	7	8
10/100/1000Base-T ports	4	6
1/2.5/5/10GBase-T ports	1	-
PoE+ 30W PSE ports	4	6
PoE++ 60W PSE (Class 6) ports	1	-
PoE budget	150W	150W
1/10G SFP+ ports	2	2

Hardware Description

Legend

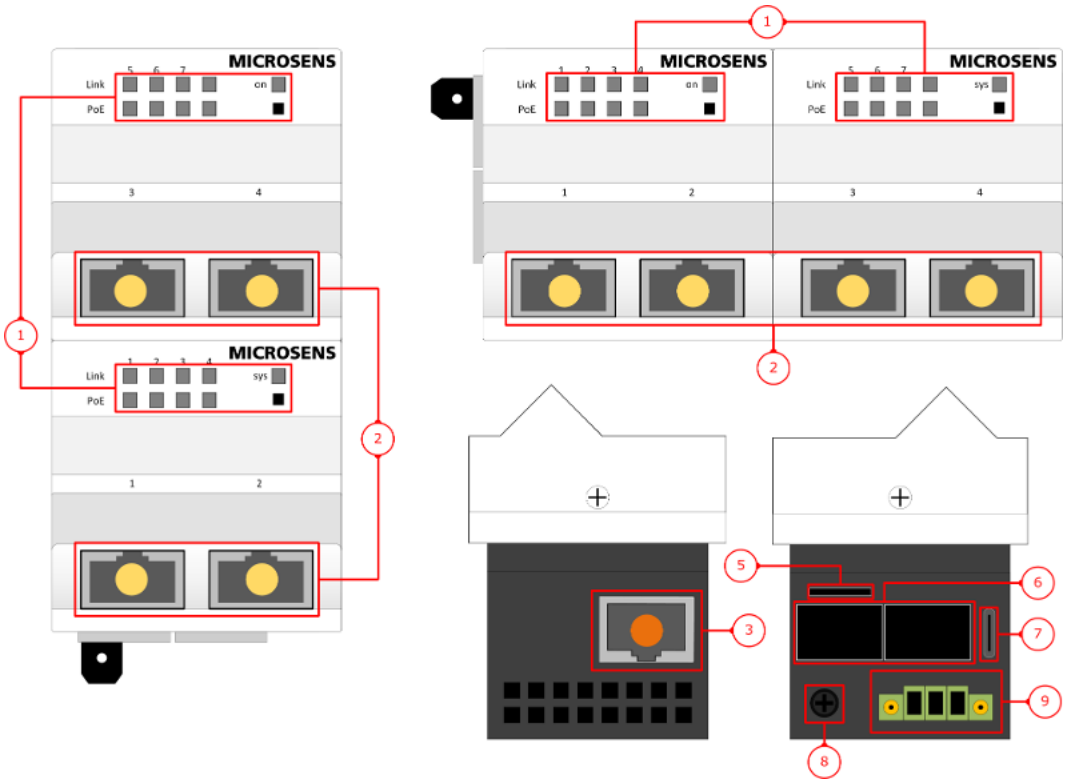
1. LED display and buttons
   Reset button (below on LED) and button for restoring factory defaults (below sys LED)
2. 4x 10/100/1000Base-T ports
   PoE Type 2 output (PSE, max. 30 W)

    PoE Type 2 output (PSE, max. 30 W)

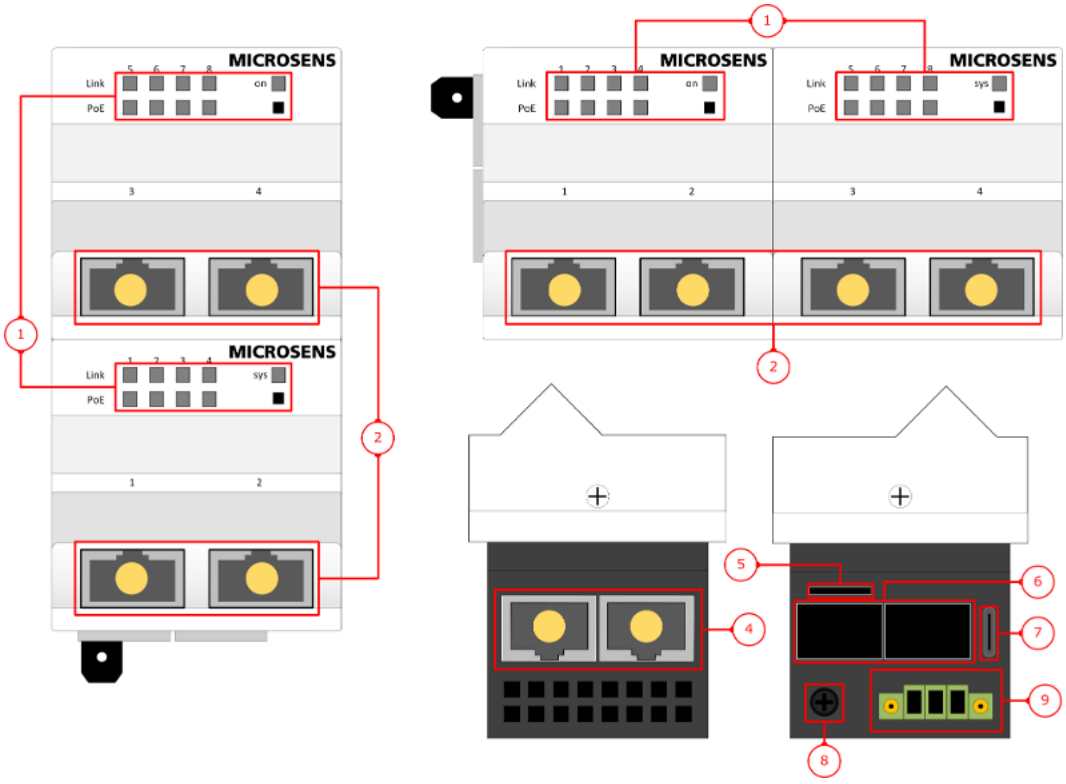
    PoE Type 3 output (PSE, max. 60 W)
3. 1x 10/100/1000Base-T ports (MS440807PM)
   PoE Type 3 output (PSE, max. 60 W)
4. 2x 10/100/1000Base-T ports (MS440808PM)
   PoE Type 2 output (PSE, max. 30 W)
5. Memory card
6. 2x 1/10GBase-X (SFP/SFP+) slots
7. Terminal port USB-C
8. Grounding screw
9. DC Power supply input

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MS440807PM (7-Port)



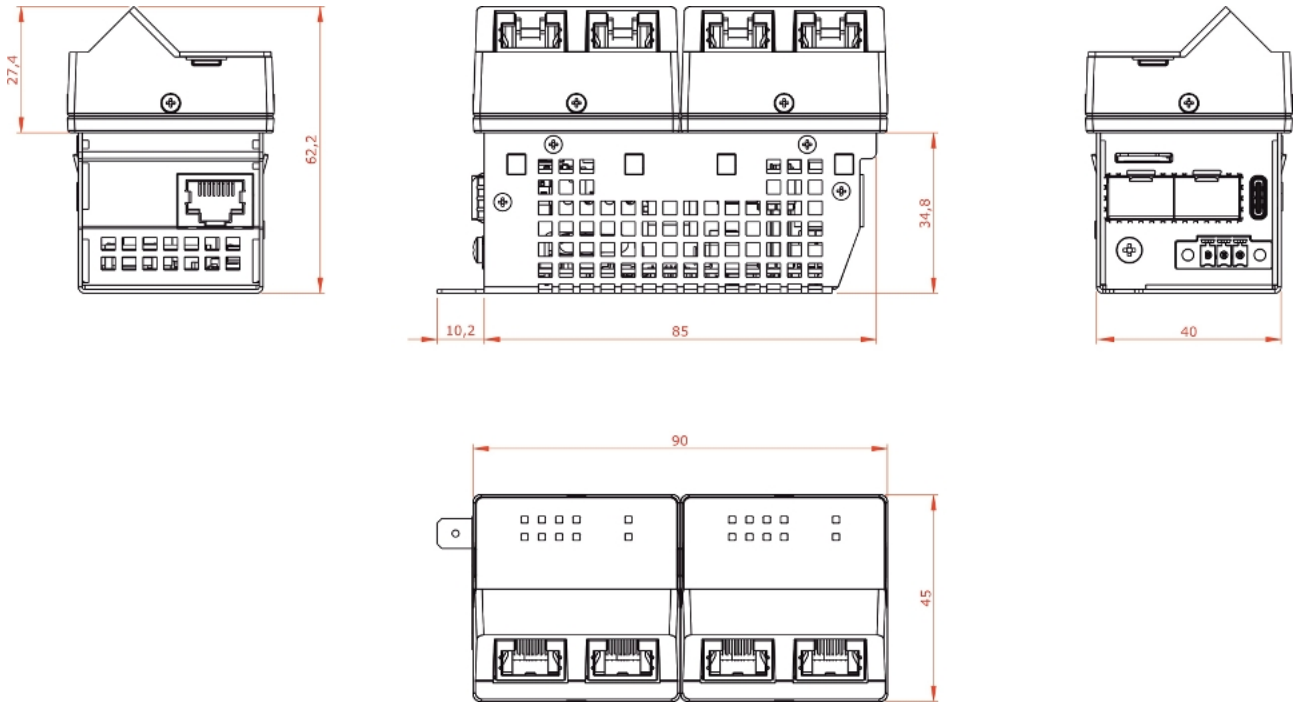
MS440808PM (8-Port)



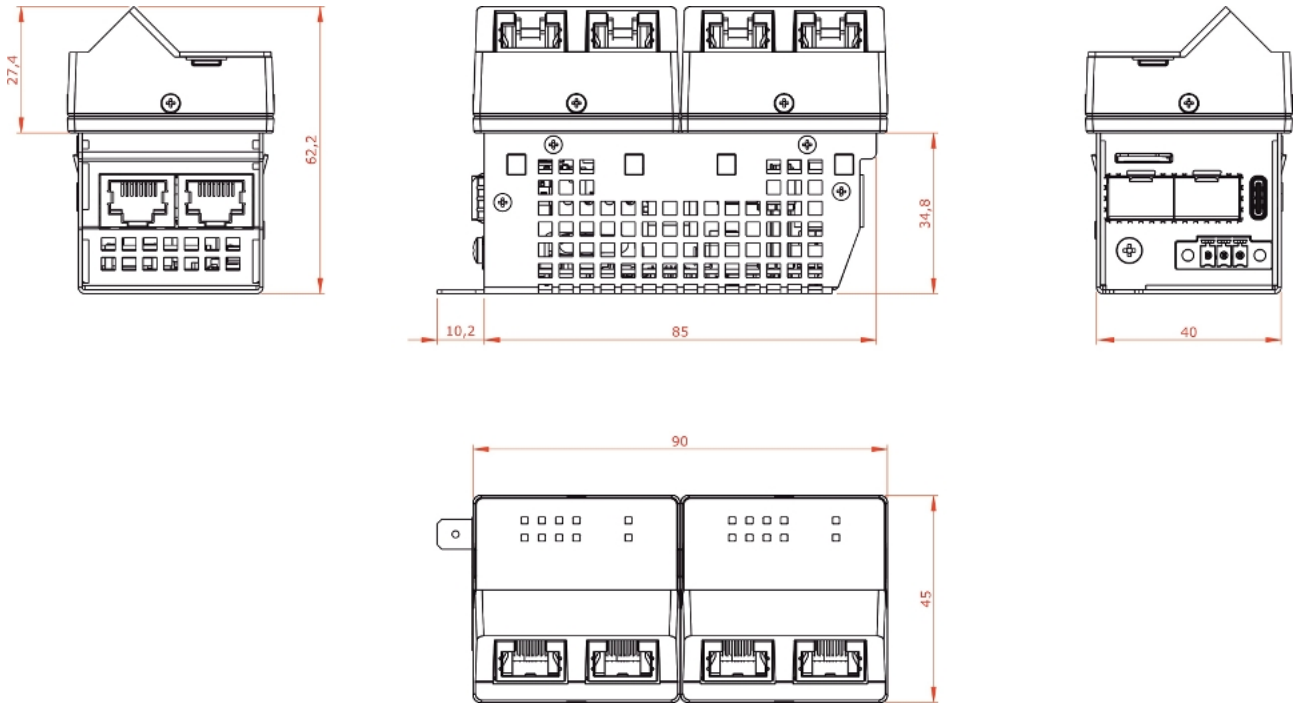
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Dimensions

MS440807PM (7-Port)



MS440808PM (8-Port)

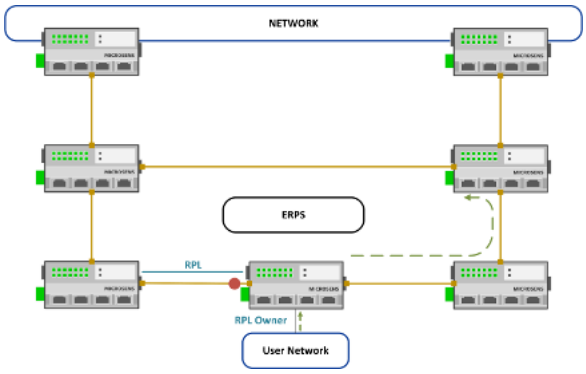


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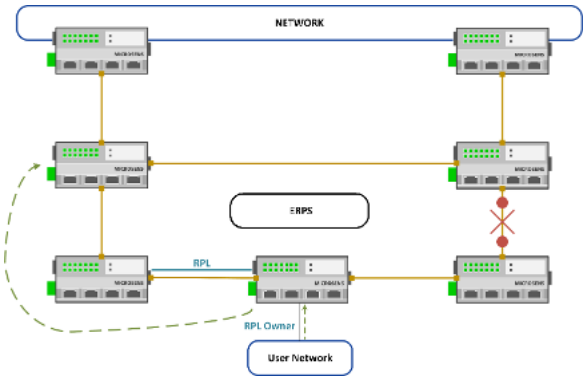
Ethernet Ring Protection Switching (ERPS acc. to ITU-T G.8032v2)

Single Ring ERPS

- Basic Setup: One ring of Ethernet switches.
- How It Works:
  A single link is blocked to prevent loops.



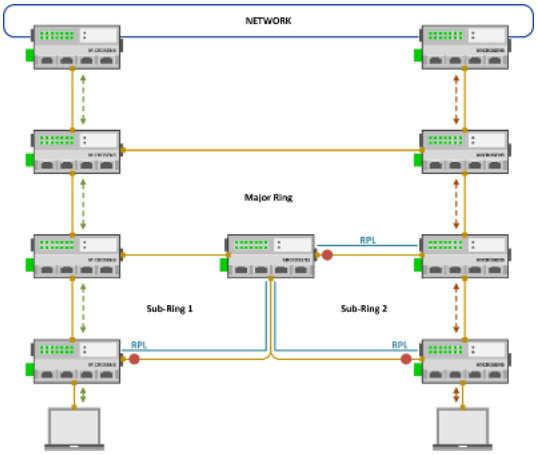
If a failure occurs, ERPS unblocks the backup path.



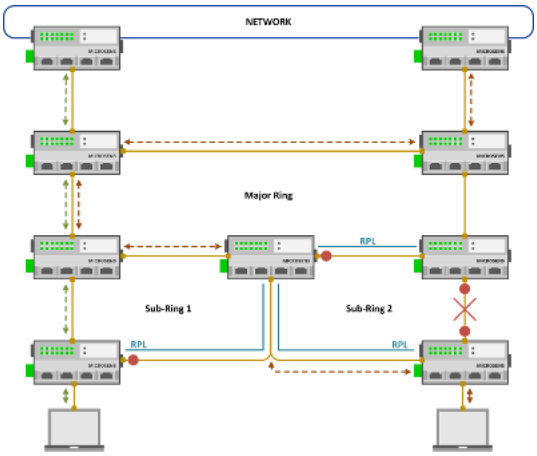
- Use Case: Smaller networks or setups where one ring is enough for redundancy.

Multi-Ring ERPS

- Advanced Setup: Multiple rings connected together.
- How It Works:
  - Different rings are linked through inter-connection nodes (specific switches that connect multiple rings).



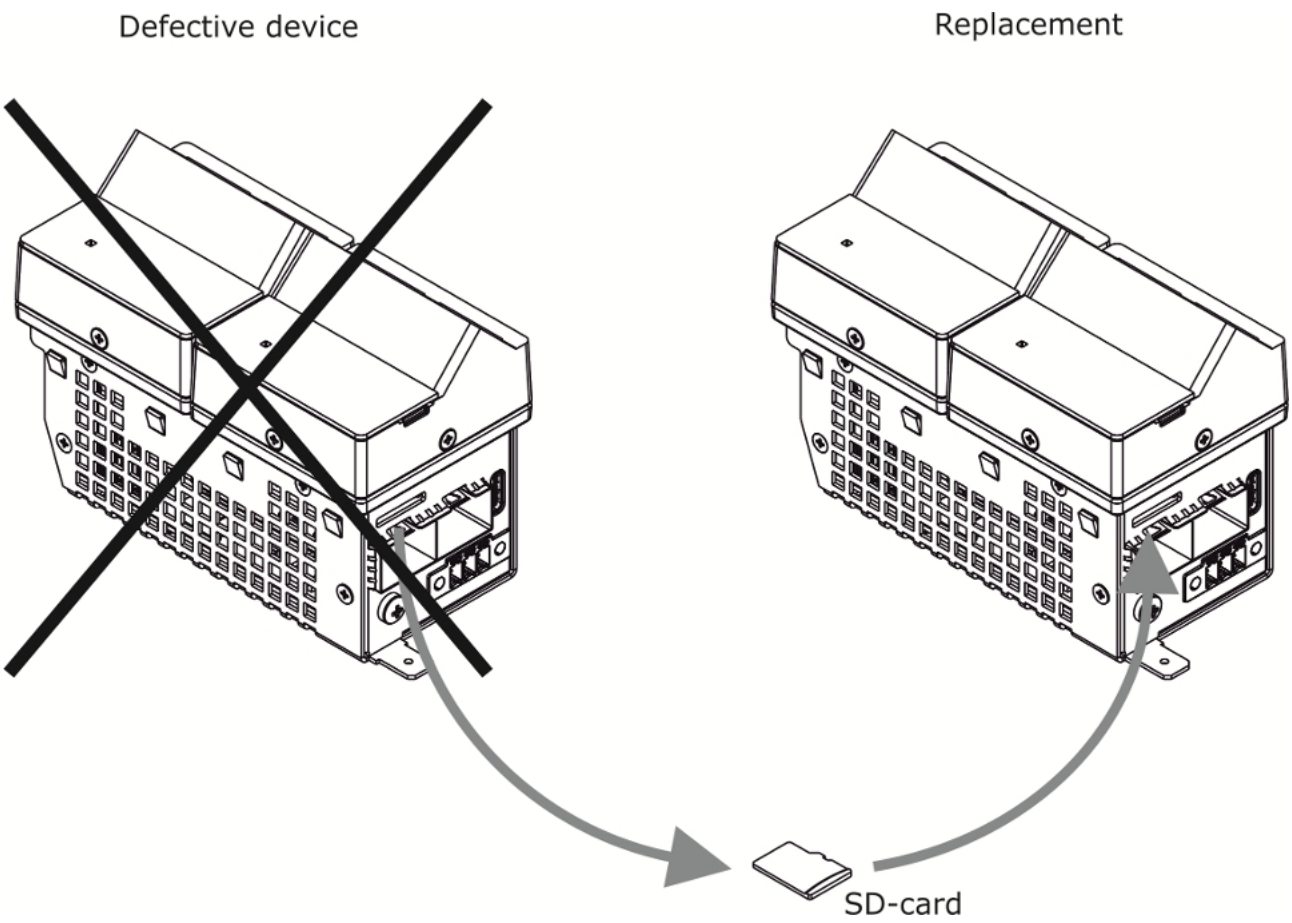
  - If a failure occurs in one ring, ERPS can reroute traffic through another ring.



- Use Case: Larger networks where traffic needs multiple backup paths for better reliability.

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Memory Card



Industrial Memory Card

The industrial memory card can be optionally used for the permanent storage of configuration, script and firmware files. With this memory card it is possible to transfer a configuration to a new device in case of a device failure.

Optionally it is possible to write an own MAC address to the SD memory card. This one has priority compared to the MAC address in the switch.

This allows to provide an exact clone of the device by swapping the memory card.

- Change of memory card transfers the complete device status
- Fault tolerant journaling file system
- Industrial grade-long term stability
- Only MICROSENS memory cards have to be used. Only with these the long term stability over the complete temperature range can be ensured.

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Ordering Infomation

Description	Art.-No.
7-Port 10G Micro Switch PoE++ 2x 1/10GX SFP+-Slots, 4x 10/100/1000T PoE+, Userports rotatable, 1x 1/2.5/5/10G PoE++, microSD-Slot, Console port (USB-C), SNMP-man., 44..57VDC	**MS440807PM**
8-Port 10G Micro Switch PoE+ 2x 1/10GX SFP+-Slots, 4x 10/100/1000T PoE+, Userports rotatable, 2x 10/100/1000T PoE+, microSD-Slot, Console port (USB-C), SNMP-man., 44..57VDC	**MS440808PM**

Accessories

Power Supply Modules	
Installation power supply PoE+ 65W primary 115..230VAC, 1m feed line, open 3x 1.5mm², secondary 54VDC / 1.2A, 1m feed line, Combicon connector, on C-profile adapter, 35 mm rail (Combo / DIN)	**MS700741**
Installation power supply PoE+ 65W primary 115..230VAC, 3x 1.5mm² 1m, secondary 54VDC / 1.2A, 1m, Combicon connector, adapted for C-profile / 35 mm DIN-rail	**MS700741-UNI**
Installation power supply PoE+ 65W primary 115..230VAC, 1m feed line, open 3x 1.5mm², secondary 54VDC / 1.2A, 1m feed line, Combicon connector, on C-profile adapter, on front console (panel) BK 80 mm	**MS700741-FTH**
Installation power supply PoE+ 65W primary 115..230VAC, 1m feed line, open 3x 1.5mm², secondary 54VDC / 1.2A, 1m feed line, Combicon connector	**MS700743**
Installation power supply PoE+ 150W primary 115..230VAC, 1m feed line, open 3x 1.5mm², secondary 54VDC / 2.8A, 1m feed line, Combicon connector, on C-profile adapter, 35 mm rail (Combo / DIN)	**MS700743-UNI**
Installation power supply PoE+ 150W primary 115..230VAC, 1m feed line, open 3x 1.5mm², secondary 54VDC / 2.8A, 1m feed line, Combicon connector, on front console panel adapter BK 80 mm	**MS700743-FTH**
M45 Micro Power Supply PoE+ 70W primary 115..230VAC, Combicon connector, M45 format, secondary 54VDC / 1.2A, 0.5m feed line	**MS700750**
M45 Micro Power Supply PoE+ 150W primary 115..230VAC, Combicon connector, M45 format, secondary 54VDC / 2.8A, 1m feed line	**MS700751**
Memory Card#	
Industrial Micro Storage Media Card Use in corresponding switches with media slot	**MS140895X**

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Accessories

	SFP Transceivers (additional variants available on request)	
	LPC SFP+ 10G Transceiver SR Multimode 850nm, DDM, LC duplex, -40..+85°C	**MS100700DX-V2**
	LPC SFP+ 10G Transceiver LR SingleMode 1310nm, 10km, DDM, LC duplex, -40..+85°C	**MS100702DX-V2**
	LPC SFP+ 10G Transceiver LR SingleMode TX 1270nm, RX 1330nm, 10km, DDM, LC simplex, -40..+85°C	**MS100702DXA-V2**
	LPC SFP+ 10G Transceiver LR SingleMode TX 1330nm, RX 1270nm, 10km, DDM, LC simplex, -40..+85°C	**MS100702DXB-V2**
	SFP GbE Transceiver 1.25G SX Multimode 850nm, DDM, LC diagnostics, -40..85°C	**MS100200DX**
	SFP GbE Transceiver 1.25G LX SingleMode 1310nm, DDM, LC diagnostics, -40..85°C	**MS100210DX**
	Mounting Kits	
	M45 universal mounting kit for E2 device box consisting of mounting adapter and cover frame, RAL9010	**MS140029**
	M45 mounting kit for anchor rail with C-profile consisting of cover frame, mounting adapter, 2x device carriers, preassembled, RAL9010	**MS140040BR2**
	Underfloor mounting kit Ackermann GB3 incl. cup consisting of device carrier, cover, M45 blind module UF, front side milled	**MS140027**
	Mounting Accessories	
	Cover frame as heat sink, aluminium for one FTTO switch 175x90 mm, RAL 9010 Device cover 2 slots	**MS140072**

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Accessories

	Software for network management and configuration	
NMP Web+	**NMP Web+ Enterprise** Base installation, 1x usage license for NMP Web+ Professional, incl. lifetime updates, Server/client on different PCs in networks	**MS200500**
	NMP Web+ Professional Base installation, 1x usage license for NMP Web+ Enterprise, incl. lifetime updates, Server/client on one PC	**MS200501**
	One-year device license grants the right to manage a MICROSENS device via NMP Web+ for one year	**MS200509-01**
	Two-year device license grants the right to manage a MICROSENS device via NMP Web+ for two years	**MS200509-02**
	Additional software variants Further variants of device licenses are listed in the data sheet for NMP Web+; see www.microsens.de	

Services

Description	Art.-No.
Warranty extension after the 24-month manufacturer warranty	
1-year warranty extension	**MSGV01**
2-year warranty extension	**MSGV02**
3-year warranty extension	**MSGV03**
Customer-specific preconfiguration	
Customer-specific preconfiguration of a component	**MSKonfig**
Customer-specific preconfiguration (configuration file already available)	**MSKonfig-OK**
The manufacturer’s warranty is defined in the General Terms and Conditions (§10) of MICROSENS GmbH & Co. KG	

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Document ID: DAT-EN-MS44080xxM-10G-Rotatable-MicroSwitch-PoE_v1.1

Date of Issue: 2026-11-27

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