

Data Sheet

8-Port GbE/10GbE Micro Switch with PoE+ PSE/PD and optional MACsec



10G uplinks (IEEE 802.3ae)
2x 1/10GBase-X ports (*MS440507PM-54-NA*)



Up- and downlinks (IEEE 802.3ab/z)
2x 100/1000Base-X and 6x 10/100/1000Base-T ports



PoE+ PSE user and downlink ports (IEEE 802.3af/at)
5x 10/100/1000Base-T User ports PoE(+) and 1x 10/100/1000Base-T PD(+)



MACsec Security (IEEE 802.1ae)
MICROSENS SECURE+ Feature set for high level of IT security incl. MACsec (*MS440507PM-54-NA*)



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



Fanless design
Maintenance-friendly hardware design without noise emissions



Docker Virtualization Environment
Integrated Docker system for free programming of custom functions



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



MICROSENS 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 | 16 Gbps 84 Gbps (<i>MS440507PM-54-NA</i>) |
| Jumbo Frames | max. 10,240 bytes |
| Flow Control | Pause frames (IEEE 802.3x), configurable |

Twisted-Pair Ports (User Ports)

| | |
|----------------------------------|--|
| Number | 6 |
| Type | Gigabit Ethernet, triple speed 10/100/1000Base-T |
| 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) | 5x IEEE 802.3af/at PSE (max. 30W) 1x IEEE 802.3af/at PD (max. 25W) |

Fiber Ports (Uplinks)

| | |
|------------------|--|
| Quantity | 2 |
| Type | 2x SFP slots, 100/1000Base-X or # [.small]#1/10GBase-X (<i>MS440507PM-54-NA</i>), supports SFP DDM |
| Connector | LC type (depending on SFP module) |

Console Interface

| | |
|------------------|-------|
| Connector | USB-C |
|------------------|-------|

Security

| | |
|---|--|
| Secure storage of configuration data | SHA-256 encryption for irreversible storage of user passwords |
| Min. key length | <ul style="list-style-type: none"> Asymmetric: 1024 bit Symmetric: 128 bit |
| HASH algorithm | Equivalent to or higher than SHA-256 |
| Excluded encryption | DES, DSA, 3DES |
| Self-protection | Use of an integrated, dedicated secure boot circuit |
| MACsec | Support of MACsec on SFP ports (<i>MS440507PM-54-NA</i>) |

LED Display

| | |
|----------------|--|
| Type | 18 LEDs |
| Link | RJ-45 ports 1..6 Fiber ports 7..8 <i>Off</i> : Link down <i>Green</i> : Link up, port open <i>Red</i> : Link up, blocked |
| PoE (+) | Twisted pair ports 1..5 <i>Off</i> : PoE+ inactive <i>Green</i> : PoE+ on, port supplies power <i>Orange</i> : PoE+ on, port does not supply power <i>Red</i> : PoE error, port does not supply power <i>Blue</i> : PoE++ on, port supplies power |
| On | <i>Off</i> : Device not powered <i>Green</i> : Device powered |
| Sys | <i>Off</i> : System not ready <i>Green</i> : System operating <i>Other</i> : see 'Factory default button' in 'Control Panel' |

Technical Specifications (continued)

Control Panel

| | |
|-------------------------------|--|
| HW Reset Button | Clears memory and MAC tables, reinitializes all connections, current configuration remains intact |
| Factory Default Button | Pressing the button triggers the following actions: <i>2s – Blue:</i> Switch requests an IP address from the Switch IP Configuration Tool or NMP <i>10s – Blue blinking:</i> Switch is reset to factory defaults, IP configuration remains unchanged <i>20s – Magenta blinking:</i> Switch is fully reset to factory defaults, IP configuration is also reset <i>30s – Green:</i> Switch cancels the selected recovery function, complete configuration remains intact |

Power Supply

| | |
|--------------------------|--|
| Input | 17..57 VDC (PoE+: 44..57 VDC, 54 VDC typ.) |
| Power consumption | Typ. 8W (without PoE) max. 130W (incl. PoE) (Full performance only under suitable installation conditions) |
| Connector | 3-pin screw connector, FG/-/+ (1.5 mm ²) |
| Grounding (FG) | 6.3 mm flat plug |

Environmental Conditions

| | |
|--------------------|--|
| Temperature | Operation 0..+40 °C Storage -20..+85 °C |
| Humidity | 10..90%, non-condensing |
| MTBF time | > 200,000 h (SR332) |

Mechanical

| | |
|-------------------|--|
| Dimensions | 90 mm x 60 mm x 45 mm (L x W x H, without connectors) |
| Weight | approx. 300 g |
| Mounting | 45 mm snap-in mounting (without screw fastening) MS440407PM-54 (<i>horizontal</i>) MS440417PM-54 (<i>vertical</i>) MS440408PM-54 (<i>horizontal</i>) MS440418PM-54 (<i>vertical</i>) MS440507PM-54-NA (<i>horizontal</i>) |

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 |

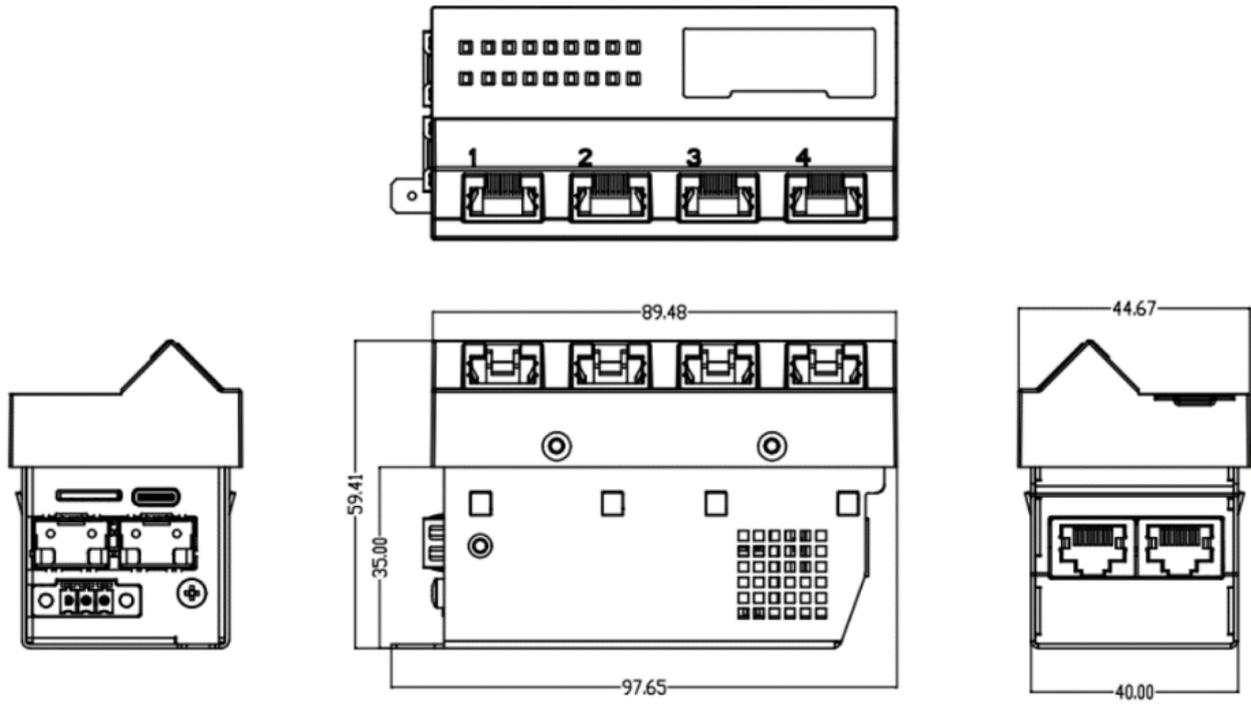
Documentation

| | |
|-----------------------------|--|
| Quick Start Guide | Flyer, included in delivery; download at microsens.de |
| User Manual | Download at microsens.de |
| CLI Reference Manual | <ul style="list-style-type: none"> Included in the device firmware for local download Download at microsens.de |
| MIB File | Included in the device firmware for local download |

Standards

| | |
|-----------------------------|---------------------------------------|
| CE | 2014/30/EU (EMC) 2011/65/EU (RoHS) |
| Security | EN 62368-1 |
| Emitted interference | EN 55032 (Class B) |
| Immunity | EN 55024 EN 55035 EN 61000-6-2 |

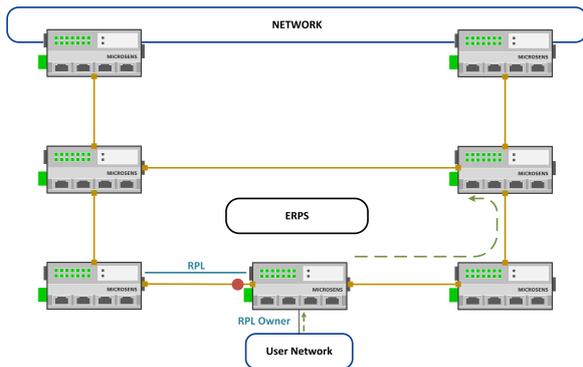
Dimensions



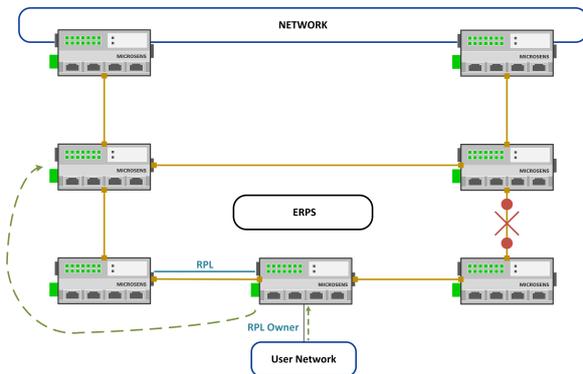
Ethernet Ring Protection Switching (ERPS acc. to ITU-T G.8032v2)

Single Ring ERPS

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



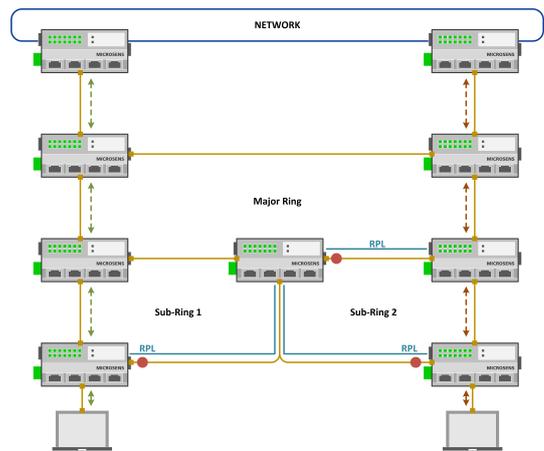
If a failure occurs, ERPS unblocks the backup path.



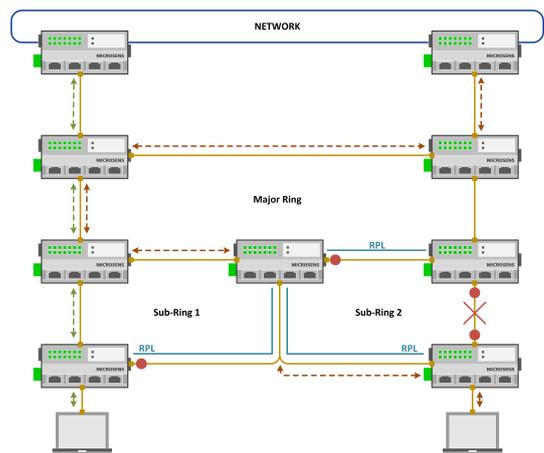
- Use Case: Smaller networks or setups where one ring is enough for redundancy.

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.

Ordering Information

| | Description | Art.-No. |
|--|---|------------------------------|
| | 8-Port GbE Micro Switch MACsec PoE+ 2x 100/1000X SFP-Slots, horizontal, managed, 5x 10/100/1000T PoE+ PSE, 44..57VDC, 1x 10/100/1000T PoE+ PD, microSD-Slot, Console port (USB-C) | MS440407PM-54 |
| | 8-Port GbE Micro Switch MACsec PoE+ 2x 100/1000X SFP-Slots, vertical, managed, 5x 10/100/1000T PoE+ PSE, 44..57VDC, 1x 10/100/1000T PoE+ PD, microSD-Slot, Console port (USB-C) | MS440417PM-54 |
| | 8-Port GbE Micro Switch PoE+ 2x 100/1000X SFP-Slots, horizontal, managed, 5x 10/100/1000T PoE+ PSE, 44..57VDC, 1x 10/100/1000T PoE+ PD, microSD-Slot, Console port (USB-C) | MS440408PM-54 |
| | 8-Port GbE Micro Switch PoE+ 2x 100/1000X SFP-Slots, vertical, managed, 5x 10/100/1000T PoE+ PSE, 44..57VDC, 1x 10/100/1000T PoE+ PD, microSD-Slot, Console port (USB-C) | MS440418PM-54 |
| | 8-Port GbE Micro Switch PoE+ 2x 1/10GBase-R SFP-Slots, horizontal, managed, 5x 10/100/1000T PoE+ PSE, 44..57VDC, 1x 10/100/1000T PoE+ PD, microSD-Slot, Console port (USB-C) | MS440507PM-54- NA |

Accessories

| Power Supply Modules | |
|---|-----------------------|
| Installation power supply PoE+ 65W primary 115..230VAC, 1m feed line, open 3x 1.5mm ² , 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, 1m feed line, open 3x 1.5mm ² , 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 1.5mm ² , secondary 54VDC / 1.2A, 1m feed line, Combicon connector | MS700743 |
| Installation power supply PoE+ 150W primary 115..230VAC, 1m feed line, open 3x 1.5mm ² , 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 1.5mm ² , 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 |
| 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 |

Accessories

| 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 |
| Software for network management and configuration | | |
|  | 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.micosens.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 | |

Our General Terms and Conditions of Sale (GTCS) apply to all orders. Please refer to: https://www.microsens.com/fileadmin/files/downloads/Impressum/MICROSENS_AVB_EN.pdf

Disclaimer

All information in this document is for general information purposes only and is subject to change without notice. MICROSENS GmbH & Co. KG makes no warranty, express or implied, and disclaims any liability for the correctness, completeness or quality of the information provided. MICROSENS GmbH & Co. KG shall not be held liable for any direct, indirect, incidental or consequential damages from the use or misuse of the product or the information contained herein. Any product names mentioned herein may be trademarks and/or registered trademarks of their respective owners.

Document ID: DAT-EN-MS4404-5x7PM-(10)GbE-MicroSwitch-PoE+-opt-MACsec_v1.0

Date of Issue: 2026-01-29