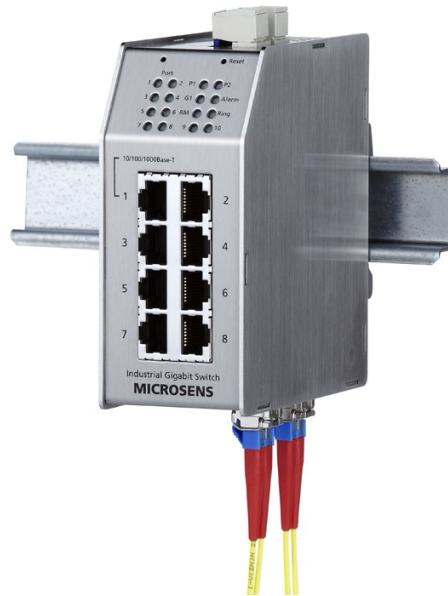


Product Overview

Gigabit Ethernet Industrial Switch 10 Port with Railway and Power Substation Certification



Description

This switch version has been specially certified for applications in the area of rail traffic and power substations. Certification in accordance with the standards EN50121-4:2006 (for more stringent EMC requirements on electromagnetic interference resistance) and EN50125-3:2003 (temperature, climate, vibration and shock resistance) means the device may be installed directly in 1m distance from the rail track.

The accredited Gigabit switch has 1000Base-X fiber optic ports permitting the construction of a fiber optic ring (fast redundancy). The fast redundancy is made possible by a mechanism patented by MICROSENS that executes a reconfiguration of the Ethernet network in a millisecond in the event of a fault.

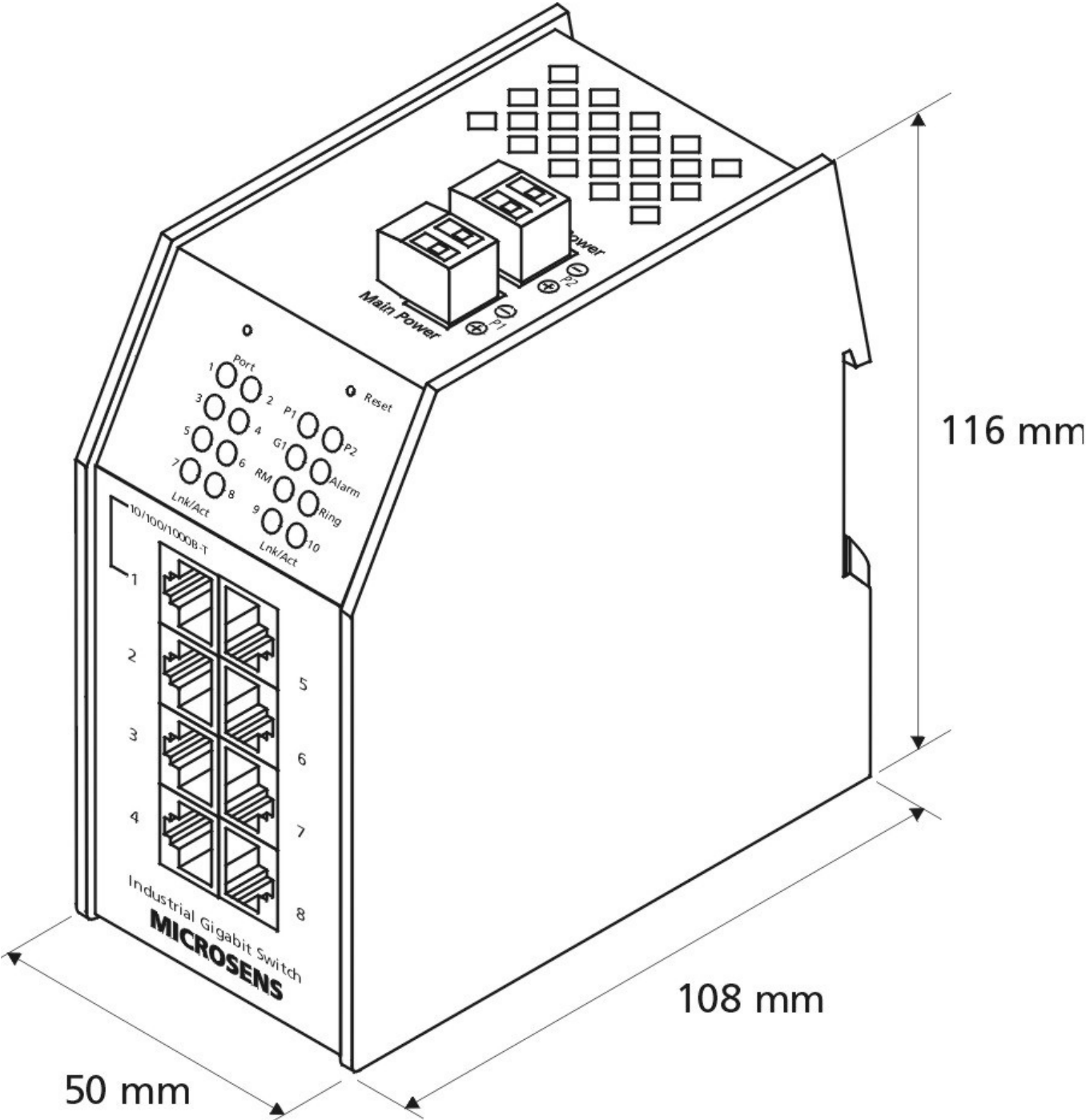
An upgraded version furthermore offers the Power over Ethernet (PoE) functionality. PoE enables IP-telephones, wireless access points, web cameras, access control systems etc. to be supplied with power via the data connection.

It is no longer necessary to install data and power cables to every network device, so that costs can be significantly reduced. The switches are designed to be operated under extreme surrounding conditions and stable operation along the railway line is guaranteed.

Properties

- Railway approval according to EN50121-4:2006 and EN50125- 3:2003
- Power Substation approval according to IEC61850-3 and IEEE1613
- Fault tolerant fiber ring with reconfiguration < 20 ms
- Extensive features such as VLAN, QoS, IGMP-Snooping, STP/RSTP etc.
- Flexibility through SFP version with dual speed 100/1000 Mbps
- Power-over-Ethernet version
- Redundant power supply possible
- Operating temperature range -40..+75 °C
- Power supplies with railway approval with 24 VDC and 48 VDC / 60 W available

Dimensions



Specifications

General

| | |
|---------------------------|---|
| Type | Gigabit Ethernet Switch Layer 2+, IEEE 802.3 compliant |
| Performance | Store-and-forward, Full wire-speed, non-blocking on all ports |
| MAC-Adresses | 8,192 addresses, automatic learning and aging |
| VLANs | Tagging IEEE 802.3ac Priorisation IEEE 802.1p VLAN IDs 0..4095 Static and dynamic VLAN table |
| Quality of Service | 4 hardware-queues per port prioritisation according to: * IPv4/IPv6 * VLAN priority IEEE 802.1p * port queue weighting strict or weighted, configurable" |
| Management | CLI: telnet Web: http SNMPv1, SNMPv2c Microsens NMP-Software |

Uplink (Pluggable Transceiver)

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

Display

| | |
|---------------|--|
| Power | P1 Green: Main Power Supply active Orange: Main Power Supply missing P2 Green: Backup Power Supply active Orange: Backup Power Supply missing |
| Link | Port 1-8 Link (on) and activity (flashing) of the TP ports Port 9-10 Link (on) and activity (flashing) of the fiber ports |
| Status | 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)

| | |
|----------------------------|---|
| Number of Ports | 8 |
| Type | 1x Gigabit Ethernet, triple speed 10/100/1000Base-T 7 x Fast Ethernet, dual speed 10/100Base-TX |
| Connector | RJ-45 jack, shielded |
| Cable Type | Twisted-Pair cable, category 5e, impedance 100 Ohm, length max. 100 m |
| Flow Control | Pause frames (IEEE 802.3x), configurable |
| Pinout | Auto MDI/MDI-X, auto polarity |
| Power-over-Ethernet | Power Sourcing Equipment (PSE) IEEE 802.3af class 0, max. 15.4 W, forced-mode (legacy-devices), pinout wires 1/2 (+), 3/6 (-) (MS6 50869PM-48-B only) |

Uplink (Twisted-Pair)

| | |
|----------------------------|---|
| Number of Ports | 1 |
| Type | Gigabit Ethernet, triple speed 10/100/1000Base-T Combo-Port (3rd SFP-Port) |
| Connector | RJ-45 jack, shielded |
| Cable Type | Twisted-Pair cable, category 5e, impedance 100 Ohm, length max. 100 m |
| Flow Control | Pause frames (IEEE 802.3x), configurable |
| Pinout | Auto MDI/MDI-X, auto polarity |
| Power-over-Ethernet | Powered Device (PSE) IEEE 802.3af class 0, max. 15.4 W, forced-mode (legacy-devices), pinout wires 1/2 (+), 3/6 (-) |

Power Supply (DC)

| | |
|--------------------------|-----------------------------|
| Input Voltage | 2x 48 VDC (redundant ports) |
| Power Consumption | 8 W (typ.) |
| Fuse | 1 A |
| Connector | screw terminals |

Environment

| | |
|------------------------------|--------------------------|
| Operating Temperature | -40°C..70°C |
| Storage Temperature | -40°..85°C |
| Relative Humidity | 5% to 90% non condensing |

Standards Compliance

| | |
|------------------------|--|
| IEEE (Ethernet) | 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 (MS MS650869PM-48-B, only) 802.1D Spanning Tree 802.1Q Tagged VLANs 802.1p Packet Prioritisation 802.1w Rapid Spanning Tree 802.1X Network Access Control |
| Other | EN 50121-4:2006 (railway applications - electromagnetic compatibility) EN 50125-3:2003 (railway applications - environmental conditions) IEC 61850-3 (electrical substation automation) IEEE 1613 (electric power substations) |
| RFC | 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) |

Reliability

| | |
|---------------|---------------------------|
| MTBF | 400,000 h |
| Method | calculated, MIL-HDBK-217F |

Mechanical

| | |
|-------------------------|--|
| Dimensions | 50 mm x 108 mm x 116 mm (w x d x h) |
| Weight | 955 g (MS650869M-B) 743 g (MS650869PM-48-B) |
| Mounting | DIN rail |
| Protection class | IP 30 |

Additional Features

| | |
|-----------------|---|
| Software | - MICROSENS Ring-Protocol - Port Monitor - CDP v1, v2 |
|-----------------|---|

Order Information

Description

Article Number

Gigabit Ethernet Industrial Switch for ring configuration 1x 10/100/1000Base-T, 7x 10/100Base-TX, 3x 100/1000Base-X SFP-Slot, 24 VDC

MS650869M-B

Gigabit Ethernet Industrial Switch for ring configuration 1x 10/100/1000Base-T, 7x 10/100Base-TX, 3x 100/1000Base-X SFP-Slot, Power-over-Ethernet, 48 VDC

MS650869PM-48-B

Accessories

| Description | Article Number |
|---|-----------------------|
| DIN Rail Power Supply 60Watt for Railway Applications, Output Voltage 24 VDC Input Voltage 90-264VAC, temp. range -40..70°C | MS700482-24B |
| DIN Rail Power Supply 60Watt for Railway Applications, Output Voltage 48 VDC Input Voltage 90-264VAC, temp. range -40..70°C | MS700482-48B |
| End clamp for DIN rail 35mm, 2 screws, width: 10 mm, color: aluminium | MS140806 |
| SFP Gigabit Ethernet Transceiver 1000Base-SX, Multimode 850nm, digital Diagnostics, exten. temp.-range: -40..85°C | MS100200DX |
| SFP Gigabit Ethernet Transceiver 1000Base-LX, Single Mode 1310nm, digital Diagnostics, -40..85°C | MS100210DX |

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