Product Overview

Gigabit Ethernet Micro Switch 6 Port PoE+ Generation 6

Description

The 6 port GBE Micro Switch Generation 6 constitutes an extension of the Gigabit Ethernet Micro Switch. In addition to the 1000Base-X fiber optic uplink, for linking to the central distributor, this switch has an additional RJ-45 downlink 10/100/1000Base-T. This additional connection is positioned at the rear of the switch and is also covered after the installation. This additional connection can, amongst other things, be used for cascading other Micro Switches in order to obtain additional connection capacities.

The interconnection of two switches via the TP port offers to increase the reliability of the network. If one fiber connection is interrupted the neighbouring switch handles the data traffic via RSTP.

All five RJ-45 ports (4 user ports and 1 downlink) support the complete Powerover- Ethernet functionality according the IEEE Std. 802.3af and 802.3at (min. 54VDC needed). A powerful Linux-OS offers additional services and feature for future use.

The use of memory-card shortens maintenance and service windows. The whole configuration of the Micro Switch can be moved to another system, just by changing the SD-card. A fault-tolerant journaling file-system is used. An encryption of the SD-Card is as option available.

Intelligent power management monitors the active current consumption of connected end equipment. The switches are powered by an external 54 V DC power supply.

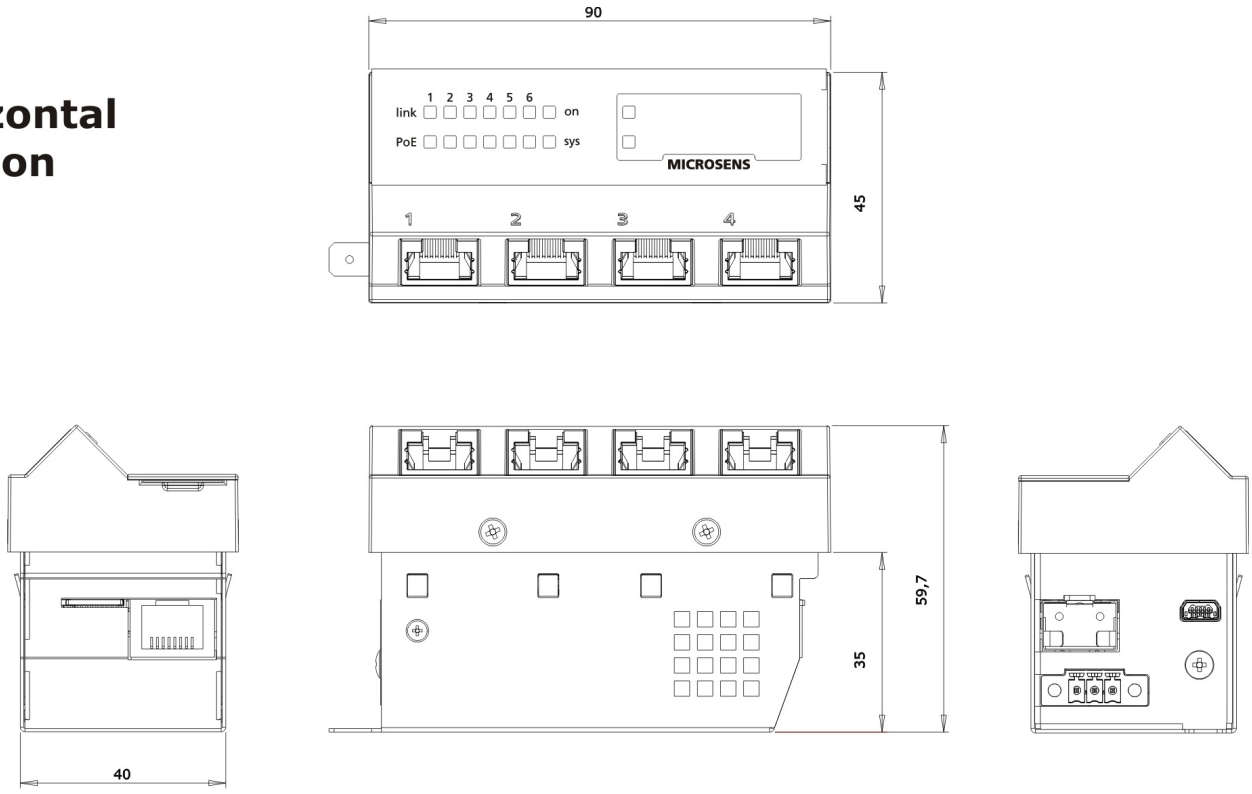
Optional the GBE Micro Switch supports two SFP-Transceivers for redundant fiber-uplinks.

Properties

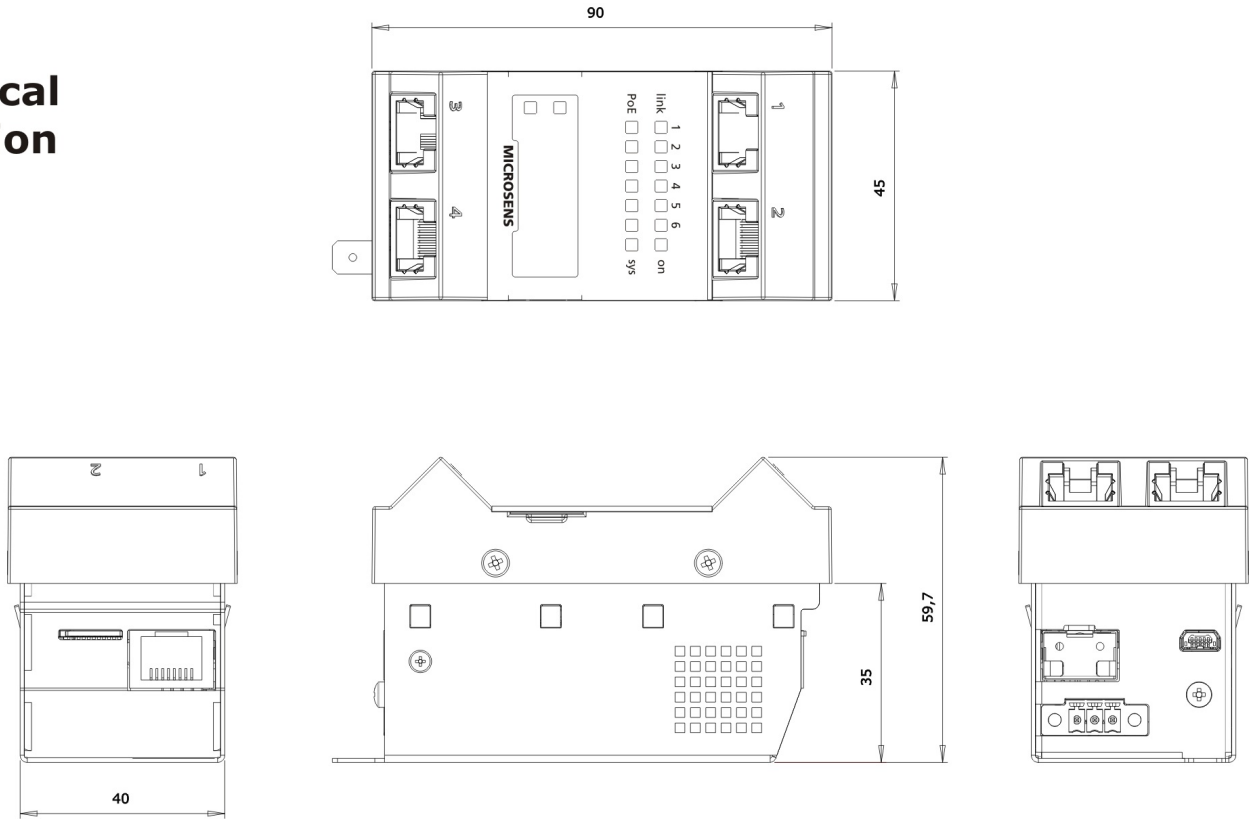
- High performance, full Gigabit Ethernet design
- Energy efficiency by modern chipsets
- RJ-45 downlink-port for hidden connection of Ethernet devices (10/100/1000T)
- Power-over-Ethernet Plus up to 30W at all five RJ-45 ports
- Comfortable administration (Web-, Telnet-, SNMP-interface and NMP-Software)
- High security through VLANs, 802.1X, SSH, HTTPS, accounting etc.
- Fast, tool-free mounting by snap-in installation
- Optional SFP-uplink with dual speed 100/1000 Mbps
- Optional Dual-Fiber-Link support by two SFP slots
- microSD Memory-Card
- Extension-Port for future use

Dimensions

Horizontal Version



Vertical Version



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
Jumbo Frames	max. 10,240 bytes
VLANs	Tagging IEEE 802.3ac Priorisation IEEE 802.1p VLAN IDs 0..4095 256 VLANs Static and dynamic VLAN table VLAN-Modes: access, trunk, hybrid
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, ssh Web: http, https SNMPv1, SNMPv2c, SNMPv3 Microsens NMP-Software

Local Ports (other)

Number of Ports	1
Type	RS 232
Connector	Mini-USB

Uplink (Fixed Optical Transceiver)

Number of Ports	1
Type	Gigabit Ethernet Multimode: 1000Base-SX Single Mode: 1000Base-LX
Connector	ST or DC duplex
Fiber Cable Type	Multimode: 50 or 62.5/125 µm fiber Single Mode: 9/125 µm fiber
Distance	Multimode: 550 m Single Mode: 10 km, 20 km (optional) actual distance may depend on fiber performance
Output Optical Power	Multimode 850nm: -9,5..-4 dBm Single Mode 1310nm 10 km: -9,5..-3 dBm Single Mode 1310nm 20 km: -9,5..+3 dBm

Local Ports (Twisted-Pair)

Number of Ports	4
Type	Gigabit Ethernet, triple speed 10/100/1000Base-T
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 802.3at and 802.3af, max. 30 W

Uplink (Pluggable Transceiver)

Number of Ports	1 (only MS440209PM-48G6 & MS440219PM-48G6) 2x SFP Uplink available (only MS440207PM-48G6 & MS440217PM-48G6) Please use tranceiver with extended temp. range, only!
Type	Fast/Gigabit Ethernet, 100/1000Base-X
Connector	SFP-Slot
Flow Control	Pause frames (IEEE 802.3x), configurable

Receiver Sensitivity	Multimode 850nm: -18 dBm (max. 0 dBm) Single Mode 1310nm 10 km: -20 dBm (max. -3 dBm) Single Mode 1310nm 20 km: -23 dBm (max. -3 dBm)
Flow Control	Pause frames (IEEE 802.3x), configurable

Downlink (Twisted-Pair)

Number of Ports	1
Type	Gigabit Ethernet, triple speed 10/100/1000Base-T
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 802.3at and 802.3af, max. 30 W

Control Panel

Reset Button	Reset of device, last saved configuration is reloaded
Config Button	Pressed separately: Request IP-configuration for management agent. Pressed together with reset-button: Reset to factory default settings, can be disabled

Environment

Operating Temperature	0..40 °C
Storage Temperature	-20..85 °C
Relative	10..90%, non condensing

Uplink (Twisted-Pair)

Number of Ports	1 (MS450186PM-48G6 and MS450187PM-48G6 only)
Type	Gigabit Ethernet, triple speed 10/100/1000Base-T
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 (PD) IEEE 802.3at and 802.3af, max. 30 W

Display

Power	Local ports 1 to 4: green: PoE sourcing blue: PoE+ active orange: PoE standby red: PoE error
Link	Local ports 1 to 4: blinking: activity green: authorized/forwarding orange: blocked red: unauthorized
Status	Switch Status (S) green: device ready Status uplink (5) downlink (6) blinking: activity green: authorized/forwarding orange: blocked red: unauthorized Power Downlink(P) green: PoE sourcing blue: PoE+ active orange: PoE standby red: PoP error
Type	14 LEDs LED-Modes (generally): dynamic: LED display static states and blink when data is present on a port static: LED display static states but do not blink with data quiet: Display is reduced to sys and on LED. Port LEDs remain off dark: All leds are off

Power Supply (DC)

Input Voltage	44..57 VDC (54 VDC typ.) For 802.at services 54VDC (min.) is required.
Power Consumption	Typ. 4 W (device only), max. 80 W (incl. PoE+)

Humidity	

Standards Compliance

CE Mark	2004/108/EC (EMC) 2006/95/EG (Low Voltage)
Safety	EN 60950-1:2011-1
Electromagnetic Emission	EN 55022:2011-12
Electromagnetic Immunity	EN 55024:2011-09
IEEE (Ethernet)	802.3i 10Base-T 802.3u 100Base-T 802.3z 1000Base-X 802.3ab 1000Base-T 802.3az Energy Efficient Ethernet 802.3x Flow Control 802.3ac VLAN Tagging 802.3af PoE 802.3at PoE+ 802.1AB LLDP 802.1D Spanning Tree 802.1Q Tagged VLANs 802.1p Packet Prioritisation 802.1w Rapid Spanning Tree 802.1X Network Access Control
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) IPv6: - RFC 2460/2464/3484/3513 (IPv6) - RFC 2462 (Address Configuration) - RFC 2463 (ICMPv6) - RFC 2461 (Neighbor Discovery Protocol) - RFC 3315 (DHCPv6) - RFC 3810/4604 (MLD) - RFC 4330 (NTP) - 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)

Connector	3 pin screw clamp, PE/-/+ AWG 16
Ground Terminal (PE)	6.3 mm flat-pin plug

Mechanical

Dimensions	90 mm x 45 mm x 58 mm (l x w x d, without connectors) bevelled edge
Mounting depth	35 mm
Weight	320 g
Housing Color	Standard color: pure white (alternative colors on request)

Reliability

MTBF	100.000 h
Method	calculated, MIL-HDBK-217F

Additional Features

Software	- Dual Stack IPv4/IPv6 - Port Monitor - CDP v1, v2

Packaging

Standard	1x Micro Switch 1x MicroSD Card (extra part-no.) 1x Grounding-cable, 20cm 1x Power-plug 1x Quick Installation Guide 1x Set piktogramm-labels
Bulk	20x Micro Switch 20x MicroSD Card (extra part-no.) 20x Grounding-cable, 20cm 20x Power-plug 1x Quick Installation Guide 20x Set piktogramm-label

Order Information

Description	Article Number
Horizontal Mounting	
GBE Installation Switch 4x10/100/1000Base-TX + PoE/PoE+, Uplink: 1x1000Base-SX, ST Multimode 850nm, Downlink: 1x10/100/1000Base-TX + PoE/PoE+, horizontal version, 44..57 VDC power supply	**MS440200PM-48G6**
GBE Installation Switch 4x10/100/1000Base-TX + PoE/PoE+, Uplink: 1x1000Base-SX, SC Multimode 850nm, Downlink: 1x10/100/1000Base-TX + PoE/PoE+, horizontal version, 44..57 VDC power supply	**MS440201PM-48G6**
GBE Installation Switch 4x10/100/1000Base-TX + PoE/PoE+, Uplink: 1x1000Base-LX, SC Single mode 1310 nm, Downlink: 1x10/100/1000Base-TX + PoE/PoE+, horizontal version, 44..57 VDC power supply	**MS440202PM-48G6**
GBE Installation Switch 4x10/100/1000Base-TX + PoE/PoE+, Uplink: 1x1000Base-LX, ST Single mode 1310 nm, Downlink: 1x10/100/1000Base-TX + PoE/PoE+, horizontal version, 44..57 VDC power supply	**MS440203PM-48G6**
GBE Installation Switch 4x10/100/1000Base-TX + PoE/PoE+, Uplink: 2x 100/1000Base-X SFP Slot, horizontal version, 44..57 VDC power supply	**MS440207PM-48G6**
GBE Installation Switch 4x10/100/1000Base-TX + PoE/PoE+, Uplink: 1x 1000Base-X SFP Port, Downlink: 1x10/100/1000Base-TX + PoE/PoE+, horizontal version, 44..57 VDC power supply	**MS440209PM-48G6**
GBE Installation Switch 4x10/100/1000Base-TX + PoE/PoE+, Uplink: 1x10/100/1000Base-TX, Downlink: 1x10/100/1000Base-TX + PoE/PoE+ (PD), horizontal version, 44..57 VDC power supply	**MS450186PM-48G6**
Vertical Mounting	
GBE Installation Switch 4x10/100/1000Base-T + PoE/PoE+, Uplink: 1x1000Base-SX, ST Multimode 850nm, Downlink: 1x10/100/1000Base-T + PoE/PoE+, vertical version, 44..57 VDC power supply	**MS440210PM-48G6**
GBE Installation Switch 4x10/100/1000Base-T + PoE/PoE+, Uplink: 1x1000Base-SX, SC Multimode 850 nm, Downlink: 1x10/100/1000Base-T + PoE/PoE+, vertical version, 44..57 VDC power supply	**MS440211PM-48G6**
GBE Installation Switch 4x10/100/1000Base-T + PoE/PoE+, Uplink: 1x1000Base-LX, SC Single mode 1310 nm, Downlink: 1x10/100/1000Base-T + PoE/PoE+, vertical version, 44..57 VDC power supply	**MS440212PM-48G6**
GBE Installation Switch 4x10/100/1000Base-TX + PoE/PoE+, Uplink: 1x1000Base-LX, ST Single mode 1310 nm, Downlink: 1x10/100/1000Base-TX + PoE/PoE+, vertical version, 44..57 VDC power supply	**MS440213PM-48G6**
GBE Installation Switch 4x10/100/1000Base-TX + PoE/PoE+, Uplink: 2x 100/1000Base-X SFP Slots, vertical version, 44..57 VDC power supply	**MS440217PM-48G6**
GBE Installation Switch 4x10/100/1000Base-T + PoE/PoE+, Uplink: 1x1000Base-SX,1x 1000Base-X SFP Port , Downlink: 1x10/100/1000Base-T + PoE/PoE+, vertical version, 44..57 VDC power supply	**MS440219PM-48G6**
GBE Installation Switch 4x10/100/1000Base-TX + PoE/PoE+, Uplink: 1x10/100/1000Base-TX, Downlink: 1x10/100/1000Base-TX + PoE/PoE+ (PD), horizontal version, 44..57 VDC power supply	**MS450187PM-48G6**

Accessories

Description	Article Number
Micro Storage Media Card 4GB for MICROSENS G6-Switches, incl. Firmware, -25..+85°C	**MS140894X-4G**
Labeling-Sheet (DIN-A4) with 80 labels for G6-Switches, suitable for laser-printers, perforated, 10 sheets per sheet. Form generaotr by NMP-Software	**MS140005**
Mounting set or Ackermann sub floor tanks, triple box with covers, suitable for 45x45 micro switch	**MS140027**
Universal installation set for E2 mounting boxes consisting of adapter plate and cover frame (pure white)	**MS140029**
Installation set consisting of cover frame (168 x 85 mm), adapter plate and 2x device support, pre-assembled, Colour: pure white	**MS140040BR2**
Tehalit cable channel mounting set, front fixed incl. power supply 110-230 VAC / 48 VDC, 65 W	**MS700675-EKTH**
Switching power supply 48V/1.35A 65W for Power-over-Ethernet devices	**MS700680**
Power supply 100-230 VAC / 54 VDC, 1.35 A, 65 W	**MS700701**
Power supply 100-230 VAC / 54 VDC, 1.35 A, 65 W, open wire ends, fixed cable, conducted grounding	**MS700710**
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**
SFP Fast Ethernet Transceiver 100Base-FX, Multimode 1310nm, digital Diagnostics, -40..85°C	**MS100190DX**
SFP Fast Ethernet Transceiver 100Base-FX, Monomode 1310nm, digital Diagnostics, -40..85°C	**MS100191DX**
nmp Professional - MICROSENS Network Management Platform - java software and one year update license	**MS200160-1**
nmp Standard - MICROSENS Network Management Platform - java software and one year update license	**MS200162-1**
NMP Server - management software with 1 year update licence, incl. 5 clients	**MS200164-1**

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