MICROSENS

Data Sheet
Desktop (Mini) Switch G6 Gigabit Ethernet

made
in
Germany

Overview

The Desktop Switch G6 is based on the same hardware and software platform as the current Micro Switches G6 from MICROSENS. Both device versions use the same firmware and therefore offer the same feature set. By using the latest chip technology (switch and management CPU) a new powerful, future-oriented and highly flexible platform was realised.

The Desktop Switch G6 is available in the following variants:

PoE(+) switch with integrated 230VAC power supply	PoE(+) switch with external power supply
1x Fiber-Uplink SFP + 4x RJ-45 PoE+ (PSE) + 1x RJ-45	1x Fiber-Uplink SFP + 4x RJ-45 PoE+ (PSE) + 1x RJ-45 (corresponds to picture above)
1x Fiber-Uplink SFP + 4x RJ-45 PoE (PSE) + 1x RJ-45	1x Fiber-Uplink SFP + 4x RJ-45 PoE (PSE) + 1x RJ-45

The Desktop variant with integrated 230VAC power supply is characterised by its direct connection to the line voltage, while the Desktop Mini variant with external 230VAC power supply scores with its compactness (see picture above).

With the optional microSD memory card for configuration and firmware, the complete device state can be transferred. A fault-tolerant journaling file system is used, which can be encrypted via a security option.

The device has a monolithic design and is fanless, while being extremely robust and reliable.

Features

Gigabit Ethernet Switch

- Fanless Gigabit Ethernet Switch
- Low power consumption switch-chipset, Energy-Efficient Ethernet
- Layer-2+ store-and-forward, full wire-speed, non-blocking
- Max. 8,192 MAC-addresses, automatic learning and aging
- Jumbo-Frames (max. 10,240 Bytes)

Energy-Efficient Ethernet

- IEEE 802.3az
- Optimised power consumption for each RJ-45 port depending on the actual requirement
- Up to 50% reduced power consumption

Network Management

- Support of common management standards
- 800 MHz ARM CPU
- Linux operating system with fast system boot
- Web Manager (HTTPS (default)/HTTP)
- Telnet/SSH/Console, incl. standard-commands (ping, traceroute, etc.)
- SNMP v1/v2c/v3
- Central management software as option (MICROSENS NMP)
- IPv4/IPv6 Dual Stack
- Integrated CLI scripting to automate routine processes
- Firmware, script and configuration files can be loaded, saved and executed directly on the switch
- Incremental firmware updates possible
- Exchangeable MicroSD memory card for configuration, CLI scripts, firmware, and MAC address (optional)

Power-over-Ethernet PoE

- IEEE 802.3af PoE (max. 15 W/Port)
- 4x 10/100/1000Base-T, PoE+ (RJ-45)
- Limitation of the total power consumption of the switch to max. 60 W*

Power-over-Ethernet plus PoE+

- IEEE 802.3at PoE+ (max. 30 W/Port)
- 4x 10/100/1000Base-T, PoE+ (RJ-45)

Limitation of the total power consumption of the switch to max. 100 W* (only MS453502PM-G6+)

*full power only under suitable installation conditions

Connectors

Uplink
- 1x 1000Base-X SFP slot or 1000Base-T (RJ-45)

Local / Downlink
- 5x 10/100/1000Base-T (RJ-45) Auto-Negotiation
- Auto MDI/MDI-X function for the use of uniform patch cables

Extension Port
- RS-232 Console port (mini-USB)
- For optional accessories

Power Supply
- IEC Socket, integrated 230 VAC power supply unit (54 V DC for version with external power supply)

Mounting

- Metal wall bracket for Desktop Mini Switch (optional accessory for version with external power supply)

Compatibility

- Compatibility to standard CISCO Switches verified (amongst others: IEEE 802.1X, QoS, VLAN, CDP, RSTP)

Network management - Feature overview

For the latest functional firmware features, please refer to the document "Firmware Features G6" which can be downloaded from the download center of the particular device home pages at http://www.microsens.com/.
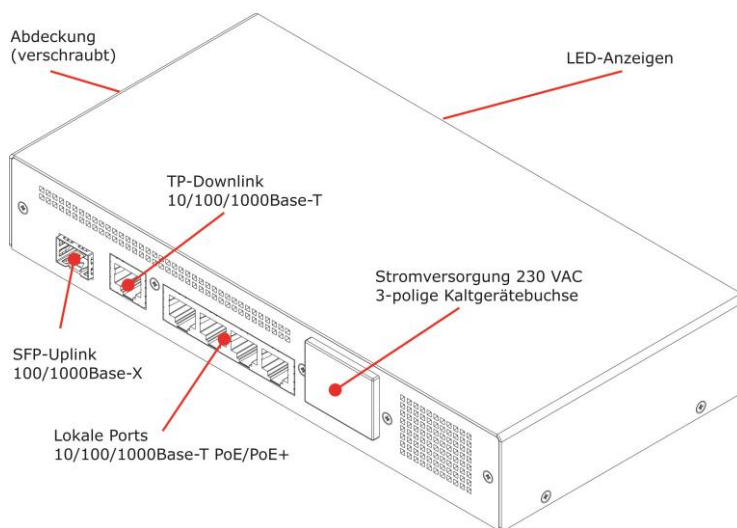
RFC / IEEE Standards

The IEEE standards and RFCs supported by the Micro Switch G6 can also be found in the document "Firmware Features G6"
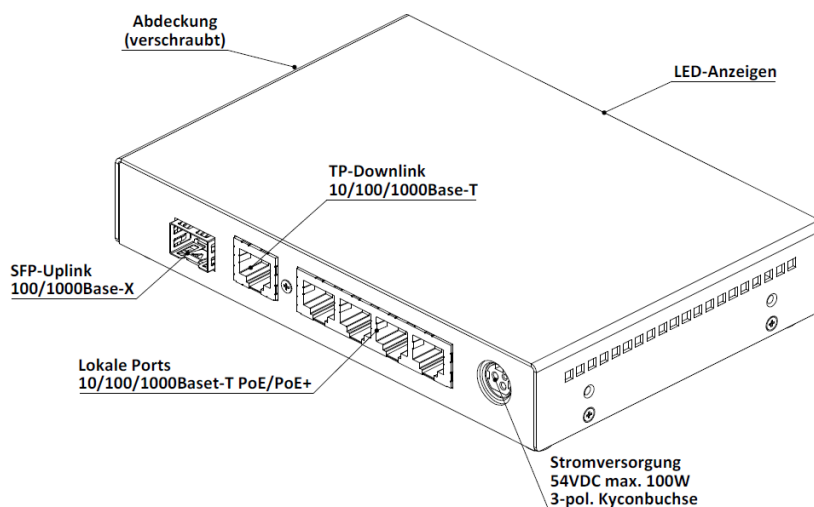
Quality – Made in Germany

To constantly guarantee a high quality of the Micro Switch Generation 6 all models and versions are manufactured in Hamm, Germany.
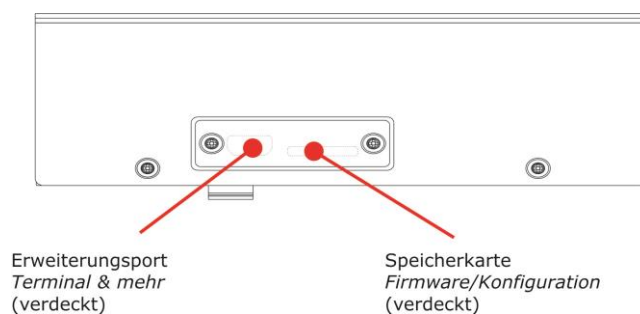
Interfaces

Version with integrated 230VAC power supply

Abdeckung (verschraubt)

LED-Anzeigen

TP-Downlink
10/100/1000Base-T

Stromversorgung 230 VAC
3-polige Kaltgerätebuchse

SFP-Uplink
100/1000Base-X

Lokale Ports
10/100/1000Base-T PoE/PoE+

Version with external power supply unit

Abdeckung
(verschraubt)

LED-Anzeigen

TP-Downlink
10/100/1000Base-T

SFP-Uplink
100/1000Base-X

Lokale Ports
10/100/1000Baset-T PoE/PoE+

Stromversorgung
54VDC max. 100W
3-pol. Kyconbuchse

Positions of console port and memory card (both variants)

Erweiterungsport
Terminal & mehr
(verdeckt)

Speicherkarte
Firmware/Konfiguration
(verdeckt)

Memory Card

- Use is optional
- Stores firmware and configuration
- Change of memory card transfers the **complete** device status
- Firmware update by memory card exchange is possible
- Fault tolerant journaling file system

The optional MicroSD memory card is used for the permanent storage of configuration, script and firmware files.
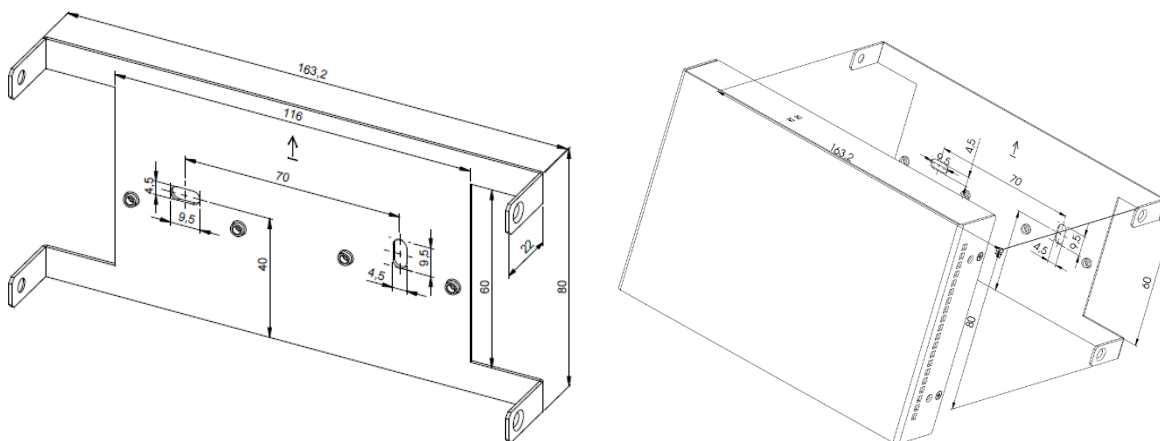
If no memory card is inserted, the system starts or boots from the internal memory of the device.

With this memory card it is possible to transfer a configuration to a new device in case of a device failure.

Optionally, an individual MAC address can be stored on the MicroSD memory card. This MAC address has priority over the switch's internal MAC address. This allows to provide an exact clone of the device by swapping the memory card.
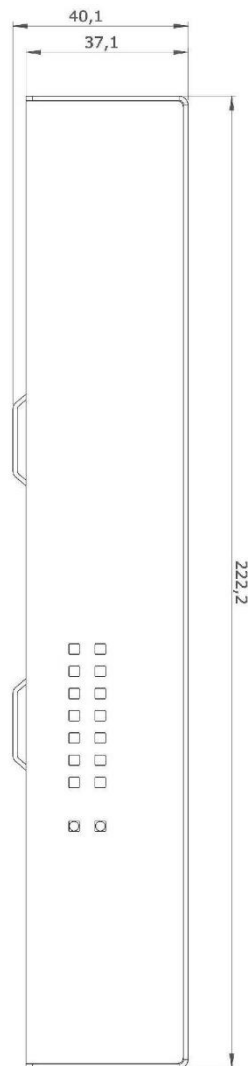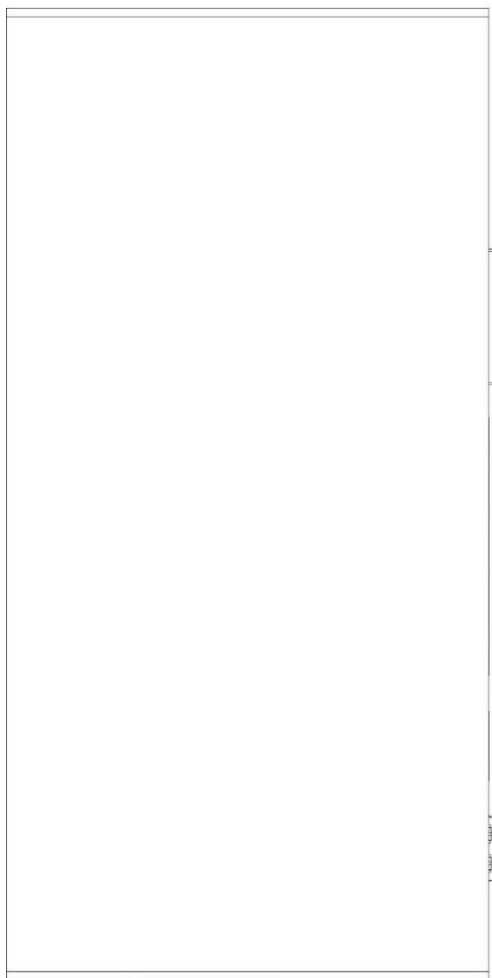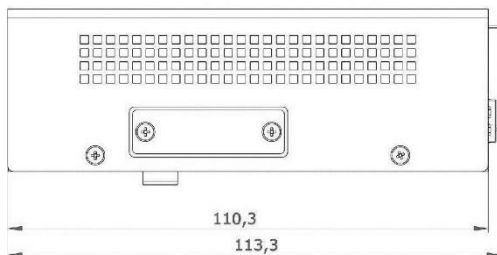
Only MICROSENS memory cards have to be used. Only with this the long term stability over the complete temperature range can be guaranteed.

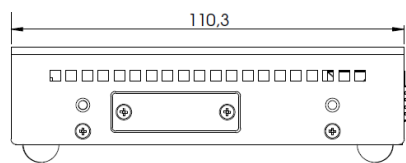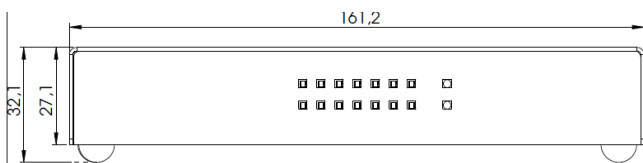## Wall Mount for Desktop Mini Switch G6

Dimensions

Desktop Switch G6

Desktop Mini Switch G6

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
MAC addresses	8,192 addresses, automatic learning and aging
Jumbo Frames	max. 10,240 Bytes

Twisted-Pair Ports

Number	5
Type	Gigabit Ethernet, Triple Speed 10/100/1000Base-T
Connector	RJ-45 port, shielded
Cable type	Twisted-Pair cable, Category 5e, impedance 100 Ohm, length max. 100 m
Flow Control	Pause Frames (IEEE 802.3x), configurable
Pin out	Auto MDI/MDI-X, Auto Polarity
Power-over-Ethernet	Power Sourcing Equipment (PSE) IEEE 802.3af/at Class 0, max. 30 W Forced-mode (Legacy Devices)

Fiber Port

Type	SFP (Dual Speed) 100/1000Base-X, support of SFP digital diagnostics function Optional 2x SFP slot (then only 4x TP)
Connector	LC typ. (depending on SFP)
Flow Control	Pause Frames (IEEE 802.3x), configurable

Power Supply (Desktop Switch G6)

Input internal power supply	100..264 V AC 47..63 Hz
Power Consumption	Typ. 5,5 W (without PoE (PSE)) max. 65W / 100 W (incl. PoE/PoE+) (full power only with suitable installation conditions)
Connector Grounding (FE)	Via power supply

Power Supply (Desktop Mini Switch)

Input external power supply	90..132 and 180..264 V AC 47..63 Hz
Power Consumption	Typ. 5,5 W (without PoE (PSE)) max. 100 W (incl. PoE/PoE+) (full power only with suitable installation conditions)
Connector Grounding (FE)	Via power supply

Displays

Type	14 LEDs	
Link		Twisted pair ports 1..5
	green	Link at port Flashing at data traffic
	orange	Port blocked (via protocol)
	red	Port Access Control rejected
PoE		Twisted pair ports 1..4
	green	PoE supplying
	blue	PoE+ active
	orange	PoE Standby
	red	PoE failure
On (switch status)	green	ready for operation
	flashing	starting sequence
Sys	blue	Factory reset without IP reset in progress
	violet	Factory reset including IP reset in progress
	green	Process completed
	orange	Flashing while Firmware update in progress
LED-modes	Dynamic	Standard-mode
	Static	Standard without flash
	Quiet	Only ON- and Sys-LED
	Dark	all LEDs off
	L-show	permanent LED test

Control Panel

Reset button	Reset of switch, new upload of latest stored configuration (direct hardware function)
System button	Request of IP configuration for management, reset back to factory default settings (can be switched off)

Environmental Conditions

Temperature	Operation	0..+40 °C
	Storage	-20..+85 °C
Humidity	10..90%, non condensing	

Technical Specifications (continued)

Mechanical Dimensions (Desktop Switch G6)

Dimensions	222.2 mm x 40.1 mm x 113.3 mm (w x d x h, without connectors)
Weight	765 g

Mechanical Dimensions (Desktop Mini Switch G6)

Dimensions	222.2 mm x 40.1 mm x 113.3 mm (w x d x h, without connectors)
Weight	510 g (without power supply)

Standards

CE	2014/30/EU (EMC Directive) 2011/65/EU (RoHS Directive) 2015/35/EU (Low Voltage Directive)
Safety	EN 60950-1
Emitted interference	EN 55032
Immunity	EN 55024

Reliability

MTBF	100.000 h
Method	MIL-HDBK-217F

Delivery / Contents

Standard Packaging
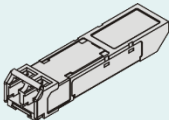
Package unit	1 pcs.
Contents	1x Desktop Switch G6 1x Wall mount (MS45350xPM-G6+ only) 1x power supply cable (MS45350xPM-G6+ only) 1x ext. Power supply unit (MS45350xPM-G6+ only) 1x Quick Start Guide 1x Screwdriver

Order Information

Description	Desktop Switch (int. Power supply 230V)	Desktop Mini Switch (ext. Power supply 65VA inkl.)	
6-Port GbE Desktop Switch G6 PoE 1x 100/1000X SFP-Slot, managed, 5x 10/100/1000T, 4x PoE, 65VA, microSD-Slot, RS-232 Port (mini USB)	MS453501PM-G6+	MS453501PM-48G6+ MS453501PM-48G6+RW	
6-Port GbE Desktop Switch G6 PoE+ 1x 100/1000X SFP-Slot, managed, 5x 10/100/1000T, 4x PoE+, 100VA, microSD-Slot, RS-232 Port (mini USB)	MS453502PM-G6+	MS453502PM-48G6+ MS453502PM-48G6+RW	
6-Port GbE Desktop Switch G6 PoE+ 1x 100/1000X SFP-Slot, managed, 5x 10/100/1000T, 4x PoE+, 65VA, microSD-Slot, RS-232 Port (mini USB)	MS453504PM-G6+	MS453504PM-48G6+ MS453504PM-48G6+RW	

Accessories

	Description	Article No.
	SFP Transceiver (extended temperature range -40 °C up to +85 °C)	
	SFP Transceiver, Gigabit Ethernet, Digital Diagnostic 850 nm Multimode, 1000Base-SX, LC duplex	MS100200DX
	SFP Transceiver, Gigabit Ethernet, Digital Diagnostic 1310 nm Single Mode, 1000Base-LX, LC duplex	MS100210DX
	SFP Transceiver, Fast Ethernet, Digital Diagnostic 1310 nm Multimode, 100Base-FX, LC duplex	MS100190DX
	SFP Transceiver, Fast Ethernet, Digital Diagnostic 1310 nm Single Mode, 100Base-FX, LC duplex	MS100191DX
	Set of A4 sheets, each with 80 labels fitting for the Micro Switch G6 title block, 10 sheets/ per set, suitable for laser printers, perforated	MS140005
	Memory cards for ruggedized Switches G6 (ext. temperature range -25 °C up to +85 °C)	
	MicroSD Memory card 4 GB for MICROSENS G6-Switches,	MS140894X-4G
	MicroSD Memory card 4 GB for MICROSENS G6-Switches, with individual switch configuration according to customer specifications and own MAC address	MS140894X-4G-MC
	NMP 2.x Network Management****	
	NMP 2.x Enterprise Basic package incl. 1 x usage right for NMP Enterprise, 200 x usage rights f. NMP Enterprise Managed Objects, and SW Maintenance for 1 year (download of updates), installation of server SW on max. 1 computer, electronic user manual included	MS200100
	NMP 2.x Enterprise Basic package incl. 1 x usage right for NMP Enterprise, 1000 x usage rights f. NMP Enterprise Managed Objects, and SW Maintenance for 1 year (download of updates), installation of server SW on max. 1 computer, electronic user manual included	MS200102
	NMP 2.x Enterprise Expansion Pack, SW usage right for adding 200 NMP Enterprise Managed Objects,	MS200110

	NMP 2.x Professional Basic package incl. 1 x usage right for NMP Professional, 50 x usage rights f. NMP Professional Managed Objects, and SW Maintenance for 1 year (download of updates), installation of server SW on max. 1 computer, electronic user manual included	**MS200070**
	NMP 2.x Professional Basic package incl. 1 x usage right for NMP Professional, 100 x usage rights f. NMP Professional Managed Objects, and SW Maintenance for 1 year (download of updates), installation of server SW on max. 1 computer, electronic user manual included	**MS200072**
	NMP 2.x Professional Expansion Pack, SW usage right for adding 25 NMP Professional Managed Objects, 1 year download of updates	**MS200080**
	External Power Supplies for industrial use	
(MS700456)	DIN Rail Power Supply 60 Watt 48 VDC / 1.25 A, Adjustment range 48..56VDC, Wide input range 85-264 VAC	**MS700430**
	DIN Rail Power Supply 45..55 VDC / 2.5 A (120 W), Wide input range 90..132/180..264 VAC **For extended temperature range -35..+70°C**	**MS700456**
	DIN Rail Power Supply 24 VDC / 1.0 A (24 W), Wide input range 85..264 VAC, 85..375 VDC	**MS700420**

**   The manufacturer's warranty is defined in the general terms and conditions AGB (§9) of
        MICROSENS GmbH & Co. KG.
***   Please refer to separate data sheets to obtain detailed information on the listed variants.