Installation-Switch 45x45 with Twisted Pair Uplink

MICROSENS

Introduction

Future proof Concept
The MICROSENS fiber to the office concept with the intelligent combination of fiber and twisted pair cabling offers a long term and future proof investment.

Easy Installation
Due to the tool-less snap-in mounting the installation of the switches is made very easy and fast. With this most compact system available on the market, the compatibility to the most common manufacturers of building installation systems is given.

Optional Version with Power-over-Ethernet (PoE)
With the implementation of the IEEE802.3af standard it is possible to supply end devices such as IP-telephones, Access Points and cameras direct with electrical from the installation switch. The switch is able to operate either as a power source (Power Source Equipment = PSE) or can be supplied with power (Powered Device = PD) over the TP-uplink.

Comprehensive Management
The integrated management offers the complete configuration, monitoring and administration of all devices in the network via a powerful software packet, the MICROSENS Device Manager. Additional features such as VLANs, Data prioritisation (QoS) and Power-over-Ethernet can be configured individually.

Using the firmware upgrade option it is possible to expand the functionality of the switch without any hardware changes (e.g. authentication, SNMP, Telnet, etc.).

Features

- **Switch**
  Fan less Fast Ethernet 10/100 Mbps installation switch according IEEE802.3
  Layer 2 non-blocking switch, wire speed forwarding, store-and-forward, ma. 1024 MAC addresses, auto learning and aging, 1 MB RAM, Full Duplex Frame according IEEE802.3x
- **Installation**
  Simple installation due to snap-in (without screws) into cable trunks and sub floor boxes, small dimensions
- **Power Supply**
  Integrated power supply 100-240 V AC, PoE Version with 48 V DC input (via external power supply) for switch and Power-over-Ethernet, max. power consumption of the switch 3.5 W (without PoE supply), PoE max. 60 W (4x 15 W per port)
  Depending on the application the use of a power supply is complete unnecessary. The switch is supplied with power direct via the PoE capable TP-uplink (Powered Device = PD)
- **Twisted-Pair Ports**
  5x 10/100Base-TX (RJ-45), auto negotiation for the detection of the speed 10/100 Mbps and half or full duplex, auto crossover for the automatic configuration of the pinout enabling implementation of homogeneous cabling
  Full Power-over-Ethernet function according IEEE802.3af on all ports
- **Management**
  Integrated management agent, port based configuration via PC based Management Tool for speed (10/100 Mbps), full/half duplex, auto negotiation, auto crossover and port Power-over-Ethernet
  Data prioritisation (Quality of Service): 4 priority levels, port based (hardware priority), Tag based (IEEE 802.1p/Q VLAN-Tag), IP TOS-field (DiffServ. Codepoints)
- **Firmware Options**
  SNMP, Telnet, RADIUS authentication, web based management

System Components

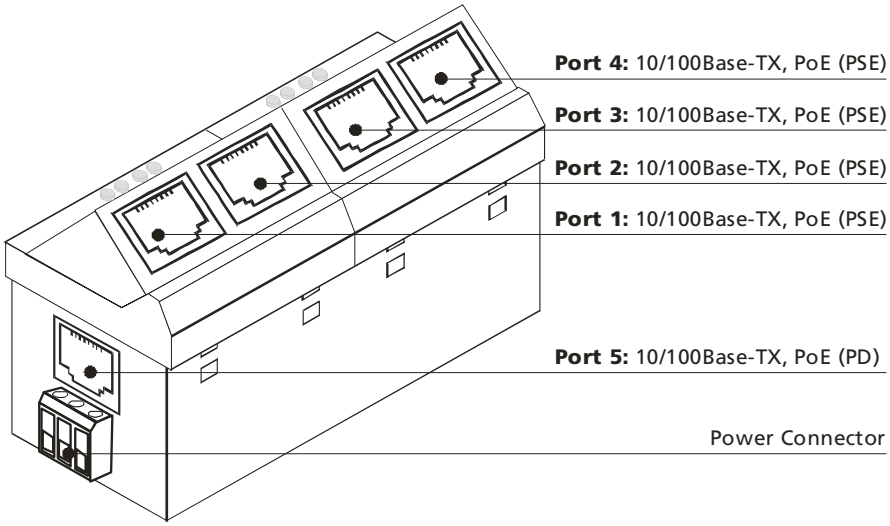

Fig. 1: Connectors

Power Supply

There are two options for the power supply:

MS450150M: This model has an integrated power supply. 100 – 240 V AC is connected direct to the screw terminal (3x 1.5 mm^2).

MS450154PM-48: This model supports Power-over-Ethernet according IEEE802.3af. The power supply is done by an external power supply (MS700675, not included at delivery). The power supply has a max. output of 65 W and is supplying the switch and the PoE end devices (max. 4x 15 W).

Alternatively the switch (MS450154PM-48) can be supplied via the TP uplink and PoE with power (Powered Device = PD). The received power (15.4 W class 0) is not only for the supply of the switch, it can be used also for the supply of the connected end devices (port 1-4) acting as a Power Source Equipment (PSE).

In this application the following has to be considered:

- for the power to the connected end devices (PSE) a max. power of
  1x 7.5 W (class 2) or
  2x 4 W (class 1) is available
- at the uplink port has to receive a minimum voltage of 46 V DC

Note: The end devices available on the market today are often not using the complete power specified in their class. This allows the connection of end devices according class 3 or class 0, because their real power consumption does not exceed the limit of the MICROSENS switch.

In this case the "Forces Mode" of the power mode is selected via the network management. The power consumption at the ports is monitored permanent and if the limit of 10 W is reached the specific port is switched off.

Technical Specifications

Type	Fast Ethernet Installation-Switch 45x45 5 Ports 10/100Base-TX according IEEE 802.3 for cable trunk/sub floor box mounting		
Cable type	STP-cable, 100 Ω, Category 5 with RJ-45 connector		
Max. cable length	100 m		
Data rate	10 or 100 Mbps		
LED displays	*ON*	Ready for operation	
	L0	on:	Link at Uplink-Port
		flashing:	Data transmitted on uplink port
	FD	off:	Uplink connection half duplex mode
		flashing:	Collision in half duplex mode
		on:	Uplink full duplex
	each TP-Port 1..4:		
	Ln	on:	Link at Port *n*
		flashing:	Data transmitted on Port *n*
Power Supply	Direct –current voltage 48 VDC (44 to 55 V DC) max. 3.5 W for switch plus max. 4x 15.4 W for the supply of connected end devices (PD)		
Operating temperature	0°C to 50°C		
Storage temperature	-20°C to 85°C		
Rel. humidity	5% to 80% non condensing		
PoE	optional (only MS450154PM-48 version) Integrated controller according IEEE 802.3af: - max. 15.4 W per port (by using an external power supply) - max. 10 W total (in operation mode as Powered Device)		

Dimensions

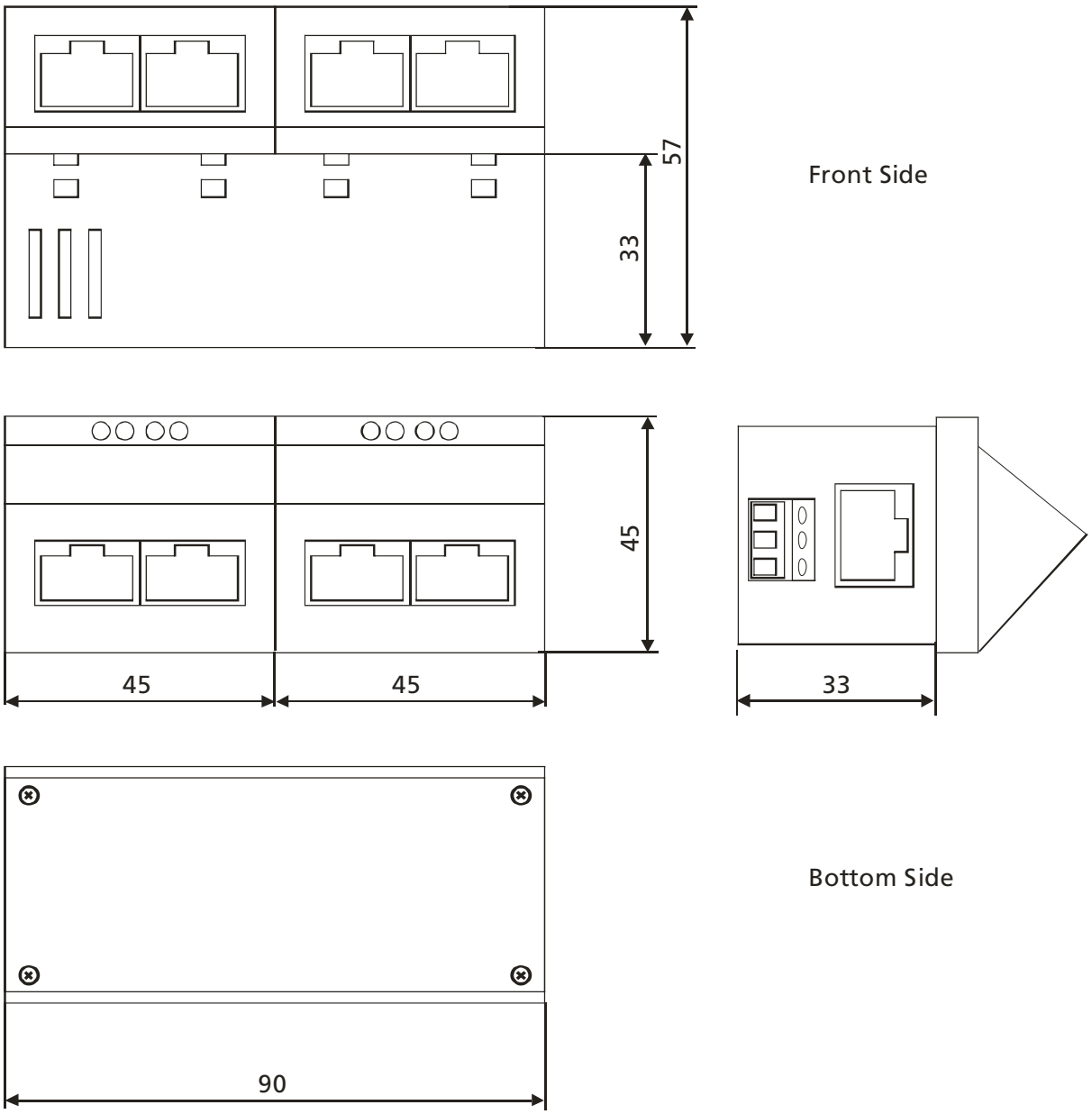

Fig. 2: Dimensions

Resetting of the Switch

It is possible to reset the Switch by using the two buttons, which are integrated in the RJ45 sockets of the ports 1 and 2.

The buttons have following functions:

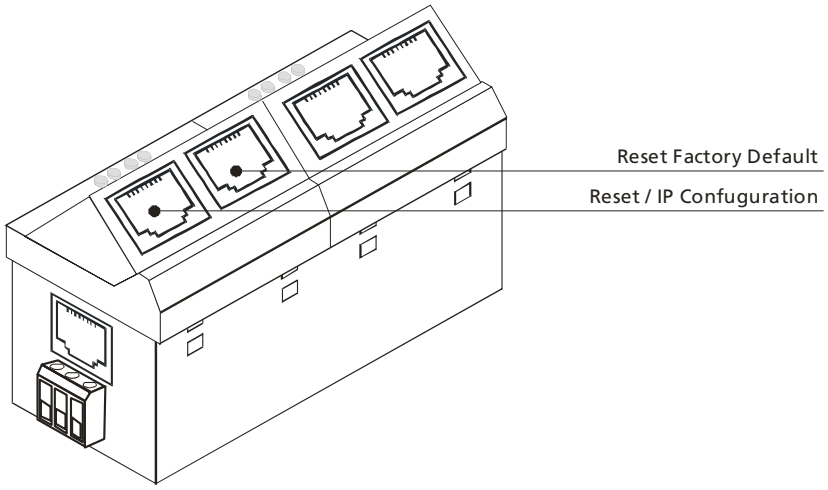

Fig.. 3: Position of the reset buttons

1. Reset / IP-Configuration

Reset:
The switch can be reset by short pressing of the relevant button. Then the last stored configuration is loaded into the unit. The Management configuration such as IP address and unit name is not changed.

Attention: During the reset the data transmission via the switch is interrupted

IP-Configuration:
Longer pressing (approx. 5 sec) of the relevant button causes the IP Configuration after the done reset. Now the IP address and the unit name can be given in via a network computer with started Device Manager Software.

2. Factory Reset

By continuously pressing of the relevant factory reset button while activity of the reset button (port 1) all in the unit stored configuration settings are reset to factory adjustments. The configuration of the agent like IP address and unit name will not be changed.

The "factory reset" is only relevant for the switch data, not for the integrated management agent. Only port configurations, priorities and VLAN settings will be reset.

Management

The Installation Switch is equipped with an integrated management agent. Variants without integrated network management are not available. The functionality of the network management is fixed by the installed firmware and can be updated via a TFTP upload.

The following interfaces are available:

Standard
Support of the Device Manager Software (version 3.35), SNMP traps, SNMP system table (interface table)

Telnet (optional, MS200230)
Telnet Command Line Interface (CLI),
Device Manager Software from version 3.35, SNMP traps

SNMP (optional, MS200222)
Full SNMP support (standard and private MIB on CD), SNMP traps, support of the Device Manager Software (version 3.35 and higher)

Following features can be configured via the network management::

- Hardware and access adjustments of the Switch
- Data prioritization (support of 4 Hardware Queues)
- VLANs (support of up to 16 VLANs)
- Power over Ethernet (on / off / forced mode)

Further Documentation

- Datasheet network management
- Datasheet installation accessories

Order Codes

Art.-No.	Description	Connectors	
MS450150M	Ethernet Installation-Switch 45x45 Twisted Pair Uplink, horizontal	5x RJ-45 1x 3-pin	10/100Base-TX 230 V AC
MS450154PM-48	Ethernet Installation-Switch 45x45 1310m Multimode SC, horizontal	4x RJ-45 1x RJ-45 1x 3-pin	10/100Base-TX (PSE) 10/100Base_TX (PD) 48 V DC
MS700675	Switching Power Supply 48V/1.35A 65W for 45x45 Power over Ethernet Switch, power cable	1x 230 V AC 1x 48 V DC	