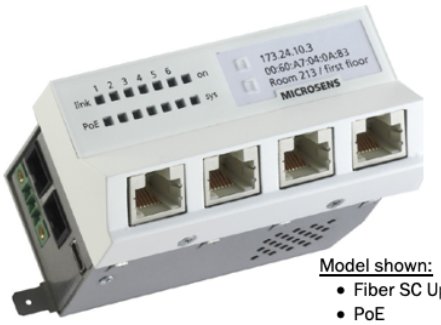


Model shown:

- Fiber SC Uplink
- PoE
- Horizontal mounting

IB2000-04VS09
HEMERA CITY

MC45x45 4Giga SC Fast[+TX] Multi Hor G6+

APPLICATIONS

FTTO (Fiber To The Office) micro-switches, combined with a Tertiary RMS optical architecture, delivers optical fiber to the workstation. It does so using the usual connections preferred by users: RJ45 interfaces.

Heavy-duty versions allow operation from -25°C to + 65°C.

Installation

The clip-on assembly requires no tools, making micro-switch installation quick and easy. The dimensions are compatible with all 45x45 format receptacles (trunking, floor boxes, etc.).

For the hardened versions, the microswitches are delivered with a DIN rail mounting kit

PoE option

Thanks to the Power-over-Ethernet function (PoE+ IEEE 802.3at and PoE IEEE 802.3af), terminals connected via the RJ45 ports can be supplied electricity simultaneously with data transmission. There is no need for an external power supply.

Administration

The micro-switches have an integrated administration interface accessible via a web browser (e.g. Internet Explorer, Firefox), http / https, Telnet / SSH, SNMP v1, v2c, v3 and the MICROSENS NMP platform.

Sample functions: VLANs, priority assignment (QoS), Power-over-Ethernet, PoE+, IPv6, 802.1X authentication, LLDP-Med, configuration option by CLI (Command Line Interface) and script file, etc.

Firmware and configurations can be stored on a Micro-SD card (not included). This new function makes microswitch management easy: preconfiguration, replacement, software updates, etc.

GENERAL CHARACTERISTICS

GENERAL

Microswitch Main Features:

IEEE 802.3 standard 10/100/1000 Mbps 2 Gigabit Ethernet microswitch.

5 RJ45 ports 10/100/1000Base-T 4 in front (port 1 to 4) + 1 side port (port 6).

1 Gigabit Uplink port: fixed fiber, SFP, Compact SFP or 10/100/1000Base-TX (depending on model) (port 5).

Architecture

The microswitch architecture combines an ARM processor and Linux OS.

This new configuration provides advanced functions:

- IPv4/IPv6 Dual Stack
- LLDP/CDP/LLDP-MED
- SNMP v3
- 20" startup
- Storage and automation of routines, mass rollouts
- Server integration (DHCP, RADIUS, etc.)
- VLANs 256,
- IGMP Snooping,
- Energy-Efficient Ethernet,
- SNMP v3 supports data encryption, User-based Security Model (USM), and View-based Access Control Model (VACM)

General	
Type	IEEE 802.3 compliant Gigabit Ethernet Layer 2+ switch
Performance	Store and forward, full wire speed, non blocking on all ports
MAC addresses	8192 addresses with self-learning and automatic updating
Jumbo frames	Maximum 10240 bytes
VLAN	Tagging IEEE 802.3ac IEEE 802.1p prioritization VLAN ID from 0 to 4095 256 VLANs Static and dynamic VLAN table Modes: access, trunk, and hybrid
Quality of Service:	Hardware prioritization of 4 queues per port according to: • IP v4 and v6 • 802.1p priority • Port Configurable queue weighting
Administration	CLI: Telnet, SSH Web (http, https) SNMP v1,v2c and v3 MICROSENS NMP Platform
Additional features	Dual Stack IPv4/IPv6 Port Monitor CDP v1 and v2

Front port 1 to 4 RJ45	
Number of ports	4
Type	Gigabit Ethernet 10/100/1000BaseT
Connector	Shielded RJ45
Type of cable	Twisted pair cable, minimum category 5e, impedance 100 W, maximum length 100 m
Flow Control	Pause frames (IEEE 802.3x), configurable
Pin position	Auto MDI/MDI-X, automatic polarity
Power Over Ethernet (depending on model)	Power Sourcing Equipment (PSE) IEEE 802.3af and 802.3at class 0, max. 30 W

Port 5 Up link Fiber optic (depending on model)	
Number of ports	1
Type	Gigabit Ethernet Multi-mode 1000BaseSX or Single-mode: 1000BaseLX
Connector	ST or SC Duplex
Type of fiber	Multimode 50/125 or 62,5/125 µm Single-mode 9/125* OS2
Distance (*)	Multi-mode 550m Single-mode 10km
Optical power	Multimode 850 nm: -9.5 .. +4dBm Single-mode 1310 nm: -9.5 .. +3dBm
Sensitivity	Multimode 850 nm -18 dBm (max. 0 dBm) Single-mode 1310 nm -20 dBm (max. -3 dBm)
Flow Control	Pause frames (IEEE 802.3x), configurable

(*) The distances provided are based on the assumption of normal optical attenuation and are not guaranteed

Port 5 Up link SFP (depending on model)	
Number of ports	1 (Use only SFPs with extended temperature range -40/+85 °C)
Type	Fast / Gigabit Ethernet 100/1000BaseX
Connection	SFP-Slot
Flow Control	Pause frames (IEEE 802.3x), configurable

Port 5 Up link RJ45 (depending on model)	
Number of ports	1
Type	Gigabit Ethernet 10/100/1000BaseT
Connector	Shielded RJ45
Type of cable	Twisted pair cable, minimum category 5e, impedance 100 W, maximum length 100 m
Flow Control	Pause frames (IEEE 802.3x), configurable
Pin position	Auto MDI/MDI-X, automatic polarity
Power Over Ethernet (depending on model)	Powered Device (PD) IEEE 802.3af and 802.3at class 0, max. 30 W

Port 6 Downlink: RJ45	
Number of ports	1
Type	Gigabit Ethernet 10/100/1000BaseT
Connector	Shielded RJ45
Type of cable	Twisted pair cable, minimum category 5e, impedance 100 W, maximum length 100 m
Flow Control	Pause frames (IEEE 802.3x), configurable
Pin position	Auto MDI/MDI-X, automatic polarity
Power Over Ethernet (depending on model)	Power Sourcing Equipment (PSE) IEEE 802.3af and 802.3at class 0, max. 30 W

Local port (for future applications)	
Number of ports	1
Type	RS232
Connector	Mini-USB

Control buttons	
"Reset" button	Microswitch reset, last saved configuration is reloaded
"Config" button	IP configuration request Reset to factory settings if pressed simultaneously with the "Reset" button (can be deactivated)

Environment	
Ambient temperature	0 / +40°C -25 / +65 °C in hardened version*
Storage temperature	-20 / +85°C -25 / +85 °C in hardened version*
Relative air humidity	10 / 90 %, not condensed

Information LEDs	
Power (PoE models only)	Ports 1 to 4 (front) and 6 (cascade): Green: delivering PoE Blue: delivering PoE+ Orange: waiting for PoE supply Red: error
Link	Ports 1 to 6: Flashing: activity Green: authorized/switching Orange: blocked Red: not authorized
Microswitch status	"on": power supply OK "sys": ready
LED display modes	Dynamic: display of static states and flashing if there is activity on the port Static: display of static states only, no flickering Quiet: display only LEDs "sys" and "on", other LEDs remain off Dark: all LEDs are off

Reliability	
MTBF	500,000 hours
Calculation method	MIL-HDBK-217F

Standards	
CE	2004/108/EC (EMC) 2006/95/EC (Low voltage)
Safety	EN60950-1:2011/1
EMC Emissions	EN 55022:2011/12
EMC Immunity	EN 55024:2011/09
IEEE (Ethernet)	802.3i 10BaseT 802.3u 100BaseTX 802.3z 1000BaseX 802.3ab 1000BaseT 802.3az Energy optimization 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 prioritization 802.1w Rapid Spanning Tree 802.1X Network Access Control

Standards (continued)	
IETF RFC (Internet)	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 (Adress 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 (Accouting) - RFC 2868 (Tunnel Attributes) - RFC 5424 (Syslog)

Enclosure	
Dimensions	Length 90 mm x height 45 mm x total depth 58 mm (excluding connections)
Installation	Installation depth 35 mm Clip-on mounting in 45x45 format
Weight	320g
Colour	White (front) black (hardened versions)
Cooling	Natural convection (without fan)

Power supply	
Input	PoE models: 44 to 57 V direct current (nominal voltage: 54 V). PoE 802.3at requires a minimum of 54 V to operate Non PoE models: 195 to 265 V alternating current (nominal 230 V) at 50 to 60 Hz (nominal 50 Hz)
Consumption	PoE models: Typical 4 W (switching only), maximum 100 W with PoE supply Non PoE models: Typical 5.5W
Connector	3-pole lockable via 2 screws (PE/-/+)
Grounding	Fast-On type tab 6.3 mm

Individual power supply
The individual power supply unit provides the necessary voltage for the PoE-version microswitches.

- Input voltage: 90 to 264 V AC
- Output voltage: 54 V CC
- Power: 65W
- IEEE 802.3af compliant
- Item code: IB2067



ACCESSORIES

Item code	Name
IB2035	4 Gb µSD card for MICROSENS G6 micro switch, operation from -25 to +85 °C
IB2067	Active components - 54V / 65W power supply unit / 90V input and 54V output wires prepared and uncabled

RANGE

Reference*	Name	Up link media	UP link standard	PoE+	Assembly	Temperature
IB2000-04VP11	MC45x45 4Giga 2SFP Hor PoE G6+	SFP	2 x100/1000 Base-X	Yes	Hor	0 +40°C
IB2000-04VP12	MC45x45 4Giga SFP[+TX] Hor PoE G6+	SFP	1 x100/1000 Base-X	Yes	Hor	0 +40°C
IB2000-04VP13	MC45x45 4Giga SC[+TX] Multi Hor PoE G6+	Optical systems	1x1000Base-SX SC duplex multi 850 nm	Yes	Hor	0 +40°C
IB2000-04VP14	MC45x45 4Giga TX[+TX] Hor PoE G6+	RJ45	1x1000 Base-T (PoE)	Yes	Hor	0 +40°C
IB2000-04VP15	MC45x45 4Giga SFP[+TX] Ver PoE G6+ Dur	SFP	1x 100/1000 Base-X	Yes	Ver DIN	-25 / +65°C
IB2000-04VP16	MC45x45 4Giga SC[+TX] Mono Hor PoE G6+	Optical systems	1x1000Base-LX SC duplex simple 1310 nm	Yes	Hor	0 +40°C
IB2000-04VP17	MC45x45 4Giga 2SFP Ver PoE G6+ Dur	SFP	2x 100/1000 Base-X	Yes	Ver DIN	-25 / +65°C
IB2000-04VP18	MC45x45 4Giga SFP[+TX] Ver PoE G6+	SFP	1 x100/1000 Base-X	Yes	Ver	0 +40°C
IB2000-04VP19	MC45x45 4Giga 2RJ Hor PoE G6+ Dur	RJ45	1x1000 Base-T (PoE)	Yes	Hor DIN	-25 / +65°C
IB2000-04VP20	MC45x45 4Giga SC Fas[+TX] MM Hor PoE G6+	Optical systems	1x 100 Base-FX SC duplex multi	Yes	Hor	0 +40°C
IB2000-04VP21	MC45x45 4Giga TX[+TX] Ver PoE G6+	RJ45	1x1000 Base-T (PoE)	Yes	Ver	0 +40°C

Reference*	Name	Up link media	UP link standard	PoE+	Assembly	Temperature
IB2000-04VS05	MC45x45 4Giga SC[+TX] Multi Hor G6+	Optical systems	1x1000Base-SX SC duplex multi 850 nm	No	Hor	0 +40°C
IB2000-04VS06	MC45x45 4Giga SC[+TX] Mono Hor G6+	Optical systems	1x1000Base-LX SC duplex simple 1310 nm	No	Hor	0 +40°C
IB2000-04VS07	MC45x45 4Giga SFP[+TX] Hor G6+	SFP	1 x100/1000 Base-X	No	Hor	0 +40°C
IB2000-04VS08	MC45x45 4Giga SC Fast[+TX] Multi Ver G6+	Optical systems	1x 100 Base-FX ST duplex multi	No	Ver	0 +40°C
IB2000-04VS09	MC45x45 4Giga SC Fast[+TX] Multi Hor G6+	Optical systems	1x 100 Base-FX SC duplex multi	No	Hor	0 +40°C