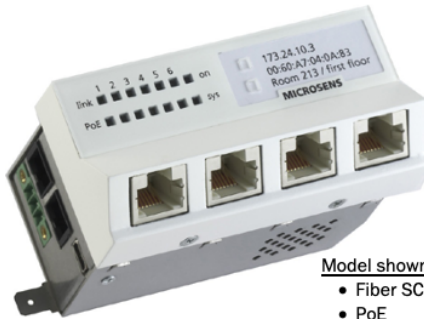


## IB2000-04VS09 HEMERA CITY

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



**Model shown:**

- Fiber SC Uplink
- PoE
- Horizontal mounting

## 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: <ul style="list-style-type: none"> <li>• IP v4 and v6</li> <li>• 802.1p priority</li> <li>• Port</li> </ul> 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)	<p>IPv4</p> <ul style="list-style-type: none"> <li>- RFC 791 (IPv4)</li> <li>- RFC 826 (ARP)</li> <li>- RFC 792 (ICMP)</li> <li>- RFC 2131 (DHCP)</li> <li>- RFC 2474/3260 (IPv4 DiffServ / IPv6 Traffic Class)</li> <li>- RFC 4541 (IGMP)</li> </ul> <p>IPv6</p> <ul style="list-style-type: none"> <li>- RFC 2460/2464/3484/3513 (IPv6)</li> <li>- RFC 2462 (Address Configuration)</li> <li>- RFC 2463 (ICMPv6)</li> <li>- RFC 2461 (Neighbor Discovery Protocol)</li> <li>- RFC 3315 (DHCPv6)</li> <li>- RFC 3810/4604 (MLD)</li> <li>- RFC 4330 (NTP)</li> <li>- RFC 1155/1156/1157 (SNMPv1)</li> <li>- RFC 1901/1905/1906 (SNMPv2)</li> <li>- RFC 3411/3412/3584 (SNMPv3)</li> <li>- RFC 2574/3414 (USM)</li> <li>- RFC 2575/3415 (VACM)</li> <li>- RFC 2865 (RADIUS)</li> <li>- RFC 2866 (Accounting)</li> <li>- RFC 2868 (Tunnel Attributes)</li> <li>- RFC 5424 (Syslog)</li> </ul>
---------------------	--

## 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 $\mu$ SD 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