MICROSENS

Data Sheet
Gigabit Ethernet PC Bridging Converter
10/100/1000Base-T / SFP 100/1000Base-X

Features

The Gigabit Bridging Converter was designed for installation in a standard PC and as an alternative to implementing a fiber optic network card. Modern computers are equipped with an on board network card fitted with a TP connection which is still required. The Bridging Converter is installed in the computer without changing the software configuration of the system and then connected to the computer's existing network connection using a short twisted pair cable. This "soft" migration eliminates the need for extensive reconfiguration work, resp. reinstallation of the network drivers.

The required power (5 VDC / max. 500 mA) is provided by the PC's internal power supply. There are various models to choose from (X):

| Option	Standard Model	Low Profile
Power supply via A24	X	X
Power supply via USB	X	X
Power supply via PCIe	X	X

When implementing the "A24" option, the power supply is realised by tapping the standby-power from the PC's internal power supply. This guarantees "Wake-on-LAN" functionality, i.e. the internal PC bridge remains active even when the PC is in standby mode.

Specifications

Bridge

Model	Gigabit Ethernet Bridging Converter for linking twisted pair segments (10/100/1000Base-T) to fiber optic segments (100/1000Base-X)
Buffer	128 kB
Ethernet features	Store-and-forward 9k jumbo frames

Twisted Pair Connections

Quantity	1
Model	Gigabit Ethernet, triple speed 10/100/1000Base-T
Connection	RJ-45 socket, shielded
Cable type	Twisted pair cable, min. category 5e (Cat 5e), impedance 100 Ohm, length max. 100 m
Pin assignment	Automatic via MDI/MDI-X, (auto polarity), manual via DIP switch

Fiber Optic Connection

Model	SFP slot (dual speed) 100/1000Base-X for uncoded transceivers
Connection	SFP-dependent, typically LC

Power Supply

Input	5 VDC
Power input	Max. 500 mA
Connection	Model-dependent, using the following adapters: A24, internal USB or PCI Express

Display

Model	4 LEDs
Pwr	Ready
SFP Lnk/Act	Fiber optic connection intact, data transmission
TP Lnk/Act	Twisted pair connection intact, data transmission
FDX	Full duplex

Control Panel

Model	DIP switch with 8 switch positions

Operating Environment

Temperature	Operation 0 ... +50° C Storage -20 ... +60° C
Air humidity	5 ... 90 %, non-condensing

Mechanical Dimensions

Dimensions	86.5 x 58 x 25 mm (L x W x H, excl. slot bracket)
Weight	125 g

Standards

IEEE	IEEE 802.3 IEEE 802.3u IEEE 802.3ab IEEE 802.3z
CE	2004/108/EC (EMC) 2006/95/EC (low voltage)
Emitted interference	EN 55022:2010
Interference immunity	EN 55024:2010

Scope of Delivery

Standard packaging

No. of units/pack	1 unit
Dimensions	250 x 160 x 45 mm
Weight	200 g
Delivery includes	1x PC bridge card 1x power cable adapter 1x quick guide

Bulk packaging

No. of units/pack	36 units
Dimensions	400 x 310 x 260 mm
Weight	5.3 kg
Delivery includes	36x PC bridge cards 36x cable adapters 1x quick guide

Design
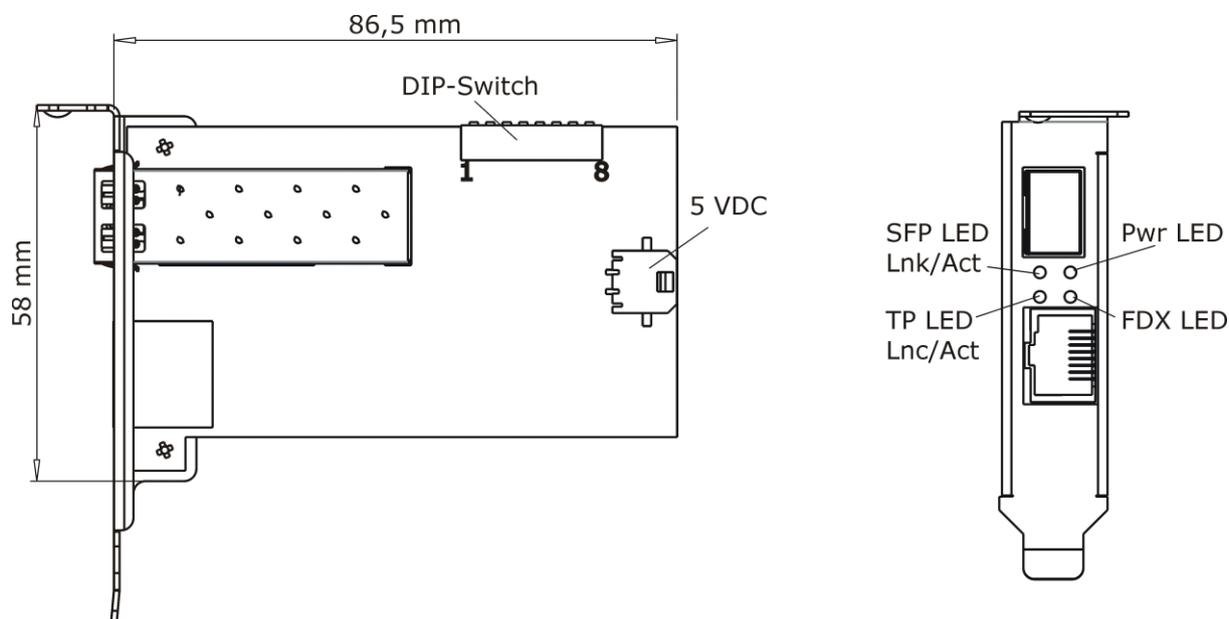
Illustration shows the low profile model

LED Lights

LED	Status	Function
Pwr	Green	Ready
FDX (RJ-45 port)	Green	Full duplex
	Off	Half duplex
Lnk/Act (RJ-45 port)	Green	Active connection
	Flashing	Data transmission
	Off	No connection
Lnk/Act (SFP port)	Green	100 Mbit/s connection
	Orange	1000 Mbit/s connection
	Flashing	Data transmission
	Off	No connection

Configuration

The Gigabit Ethernet Bridge can be manually configured using DIP switches. The factory default is set to auto negotiation on with the link alarm function deactivated.

DIP Switch	Status	Function
1	On	Auto negotiation for RJ-45 port
	Off	Manual configuration of the RJ-45 port
2	On	Data rate RJ-45 port: 100 Mbit/s (only when DIP 1+3 = OFF, pls. refer to notes 1+2)
	Off	Data rate RJ-45 port: 10 Mbit/s (only when DIP 1+3 = OFF, pls. refer to notes 1+2)
3	On	Data rate RJ-45 port: 1000 Mbit/s (only when DIP 1 = OFF, pls. refer to note 1)
	Off	No function
4	On	SFP port: Data rate is set automatically (100/1000B-X)
	Off	SFP port: Manual configuration
5	On	SFP port: 1000 Mbit/s (only when DIP 4 = OFF)
	Off	SFP port: 100 Mbit/s (only when DIP 4 = OFF)
6	On	Auto negotiation for SFP port activated
	Off	Auto negotiation for SFP port deactivated
7	On	No function
	Off	No function
8	On	Link Through activated
	Off	Link Through deactivated

Notes:
1. Switch 1 must first be deactivated before the data rate of the RJ-45 port can be changed.

2. If one wants to change the data rate of the RJ-45 port to either 10 or 100 Mbit/s, switch 3 must first be turned off.

3. Switch 4 must first be deactivated before the data rate of the SFP port can be changed.

4. In the case of Gigabit Ethernet, only full duplex is supported.

Power Supply

The required 5 VDC power supply – 5 VDC with max. 500 mA – is provided by the PC's internal power supply. Various adapter cables (ATX, USB or PCI Express) are available for tapping the power – dependent on the respective article number (please refer to page 6).

The A24 and PCIe cable adapters are placed between the cable leading from the PC power supply and the mainboard and are both designed as a Y-cable with a plug/socket connector.

The USB option taps the power supply directly from the USB 2.0 interface on the mainboard using a 9-pole pin connector. This means, however, that the USB interface can then no longer be used for other purposes.

Option	Illustration	Note
A24		Adapter cable for ATX 2.0: 24-pole molex plug and socket designed to tap 5 V SB standby power (violet)
USB 2.0 (inside the PC!)		9-pole pin connector for mainboard (internal USB connection)
PCIe		Uses the 6-pole PCIe electrical interface of the power supply unit (12 VDC) This adapter cable is equipped with an integrated DC/DC converter to generate 5 VDC for the converter.
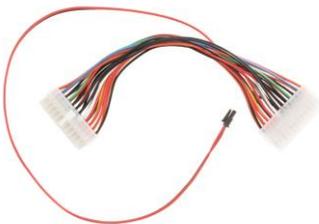
Notes:

Many mainboards provide options for configuring the power supply for operating and standby mode (energy-saving mode) in both the BIOS and operating system (energy management).

To enable Wake-on-LAN functionality, it is important to ensure that the PC Bridging Converter is also supplied with power in standby mode.

Ordering Information

Description	Article Number Standard Model	Article Number Low Profile
PC Bridging Converter		
Gigabit Ethernet PC Bridging Converter 10/100/1000Base-T (RJ-45) to 100/1000Base-X (SFP slot) incl. adapter cable for power supply via **A24**	**MS484189A24**	**MS484189A24-LP**
Gigabit Ethernet PC Bridging Converter 10/100/1000Base-T (RJ-45) to 100/1000Base-X (SFP slot) incl. adapter cable for power supply via **USB**	**MS484189USB**	**MS484189USB-LP**
Gigabit Ethernet PC Bridging Converter 10/100/1000Base-T (RJ-45) to 100/1000Base-X (SFP slot) incl. adapter cable for power supply via **PCIe**	**MS484189YPE**	**MS484189YPE-LP**

Accessories

Description	Art. No.
SFP transceivers (more models available upon request)	
SFP transceiver, Gigabit Ethernet (1000Base-SX) 850 nm multimode, LC duplex	**MS100200**
SFP transceiver, Gigabit Ethernet (1000Base-LX) 1310 nm single-mode, LC duplex	**MS100210**
SFP transceiver, Fast Ethernet (100Base-FX) 1310 nm multimode, LC duplex	**MS100190**
SFP transceiver, Fast Ethernet (100Base-FX) 1310 nm single-mode, LC duplex	**MS100191**
Short RJ-45 patch cable	
RJ-45 patch cable to connect the PC Bridging Converter to the PC's existing RJ-45 port Cat.5e shielded (STP), grey, length = 15 cm	**MS190300-0,15**
RJ-45 patch cable to connect the PC Bridging Converter to the PC's existing RJ-45 port Cat.5e shielded (STP), grey, length = 25 cm	**MS190300-0,25**
RJ-45 patch cable to connect the PC Bridging Converter to the PC's existing RJ-45 port Cat.5e shielded (STP), grey, length = 50 cm	**MS190300-0,5**