Fast Ethernet Bridge PC Card 10/100Base-TX/100Base-FX

MICROSENS

General

The internal MICROSENS bridge enables the direct connection of twisted pair cable (10/100Base-TX) and multimode or single mode fiber (100Base-FX) in a Fast Ethernet network (IEEE 802.3u). In addition to the media conversion, a corresponding speed adjustment is performed.

This involves an adjustment of the data rates 10 and 100 Mbit/s as well as the modes half or full duplex. Existing length restrictions for Ethernet (5 km) and Fast Ethernet segments (412 m) are overcome by the bridge (segment separation).

The bridge offers the possibility to continue to use an existing copper network card without any changes. It is installed in the PC without changing the system and connected to the network card via an external twisted pair cable. Power is supplied via the internal PC power supply.

The bridge supports additional functions for link transparency. The link status of one segment is forwarded. The controllable auto-negotiation protocol allows full duplex connections to be established.

Technical Details

Type	Fast Ethernet Bridge PC Card for connecting Twisted-Pair- (10/100Base-TX) and Fiber- (100Base-FX) Segments	
Fiber type	Multimode 62,5/125 or 50/125 µm, Singlemode 9/125 µm, duplex	
Cable type	Shielded Twisted Pair Cable, 100 Ohm, Category 5,	
max. Cable length	100 m	
Data rate	100 MBit/s	
LED Displays	*FX-Link*	*Fiber-Link* *Activity: Transmission on FO Side*
	FX-Duplex	*Fibre optic operating mode half/full duplex* *Activity: Half duplex collisions*
	TX-Link	Twisted Pair-Link Activity: Transmission on TP-Side
	TXSpeed	*Twisted Pair-Operating mode 10/100 Mbit/s* *On: 100Mbit, Off: 10Mbit Link*
Power Supply	5 V DC / max. 310 mA via internal PC-Power supply	
Operating temp.	0 °C bis 55 °C	
Storage temp.	-20 °C bis 80 °C	
Humidity	5 % bis 80 % non condensing	

Technical Details

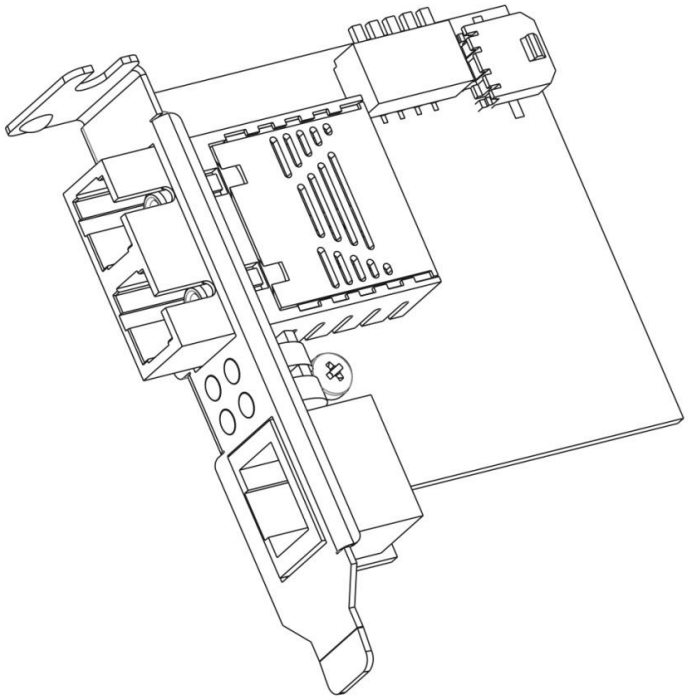
Multimode Model

min. Distance:	2 km (Vollduplex)
min. transmission output:	-19 dBm
min. Sensitivity:	-31 dBm
Wavelength:	1300 nm
Connectors:	SC (MS484160USB-V2)
	ST (MS484161USB-V2)
	SC (MS484160USB-LP)
	ST (MS484161USB-LP)

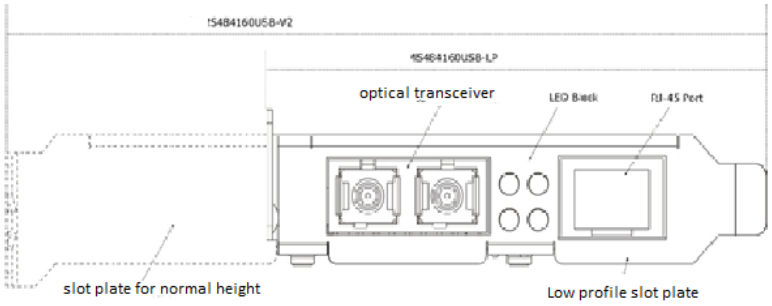
Singlemode Model

min. Distance:	15 km (Vollduplex)
min. transmission output:	-15 dBm
min. Sensitivity:	-31 dBm
Wavelength:	1300 nm
Connectors:	SC (MS484162USB-V2)
	SC (MS484162USB-LP)

Layout



Layout



Length reduction

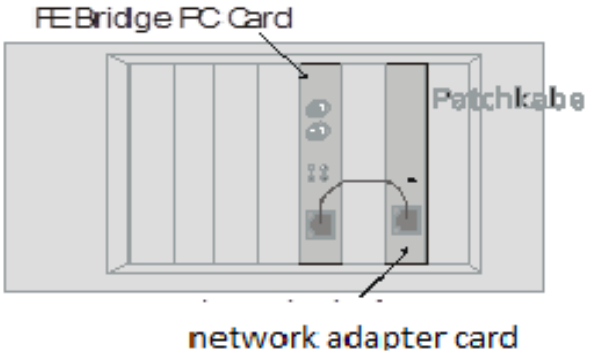
Due to the bridging functionality, the fiber port can be operated in full duplex mode independently of the copper port, allowing segment lengths of 2 km (multimode) or 15 km (single mode) on the fiber side.

Power Supply

Power is supplied via the internal PC power supply unit 5 V DC / max. 310 mA. PC internal connections such as USB ports are used for the connection.

Connections

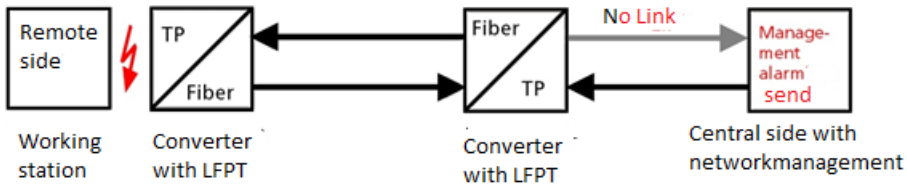
Due to the autocrossing function of the RJ-45 port, the bridge can be connected to the RJ-45 socket of a network adapter card using an uncrossed or crossed patch cable.



Link Transparency

The internal Fast Ethernet Bridge is equipped with link control function to support "Link Fault Pass Through". Here, if the TX link is missing, a Link error ("non-idle pattern") is sent on the FX side. To ensure correct display the remote device must be able to interpret this link error.

If the FX link or link error signaling ("non-idle pattern") is missing, the TXPort is transmitted a a link error status. The TX port then turns off the link. The Link status LEDs are also switched off during this procedure



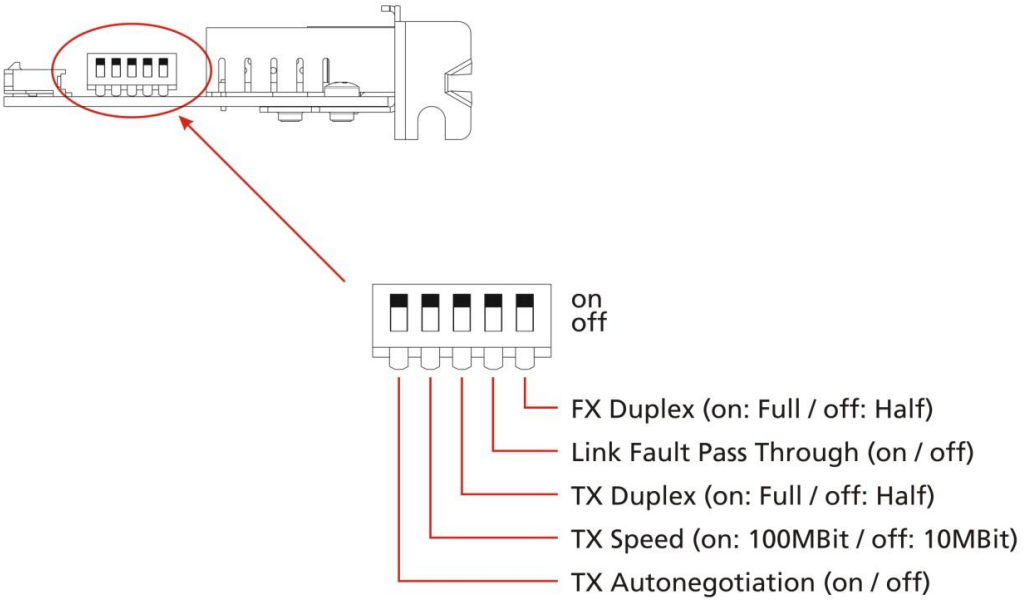
This function is enabled/disabled by DIP switch.

Attention: if the Link Fault Pass Through function is activated, connections are only initialized if both sides (fiber optic and twisted pair) are connected to the bridge.

Configuration DIP-Switches

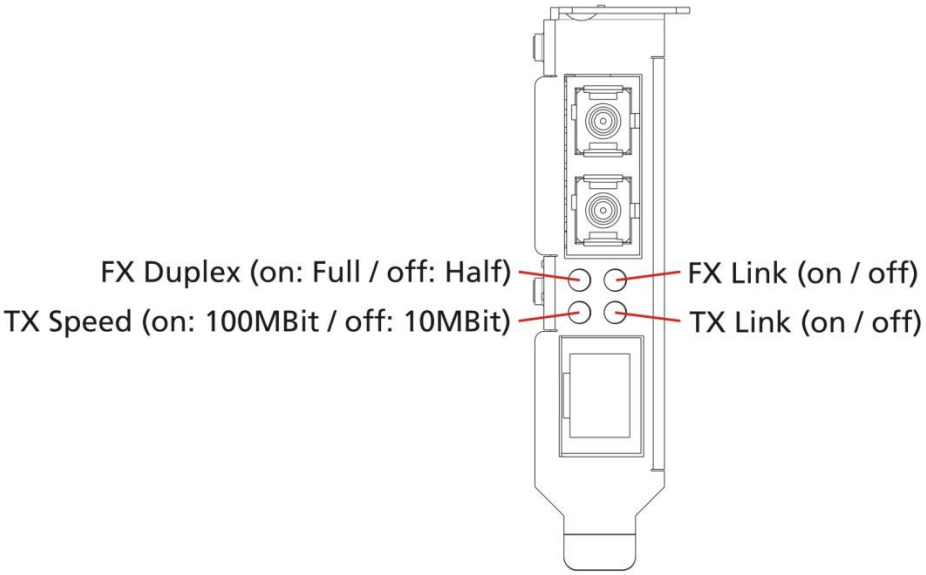
The operating modes of the Fast Ethernet Bridge can be configured via 5 DIP switches. By deactivating the autonegotiation function, the operating modes for the twisted pair connection 10/100 Mbit/s or half/full duplex are configured manually.

The fiber optic connection always operates at 100 Mbps, the half/full duplex operating mode is generally set manually. The Link Fault Pass Through function can be activated/deactivated with a further DIP switch.



Attention! DIP-Switch Configuration to be carried out when the power is off only!

LED-Displays



Order Information

Art.-No.	Description	Connection
MS484160USB-V2	Fast Ethernet Bridge PC Card 1x100Base-FX Multimode 1310nm SC-Plug, 1x10/100Base-TX, USB powering, small form board	2 x SC 1 x RJ-45
MS484161USB-V2	Fast Ethernet Bridge PC Card 1x100Base-FX Multimode 1310nm ST-Plug, 1x10/100Base-TX, USB powering, small form board	2 x ST 1 x RJ-45
MS484162USB-V2	Fast Ethernet Bridge PC Card 1x100Base-FX Singlemode 1310nm SC-Plug, 1x10/100Base-TX, USB powering, small form board	2 x SC 1 x RJ-45
MS484160USB-LP	Fast Ethernet Bridge PC Card, Low Profile 1x100Base-FX Multimode 1310nm SC-Plug, 1x10/100Base-TX, USB powering	2 x SC 1 x RJ-45
MS484161USB-LP	Fast Ethernet Bridge PC Card, Low Profile 1x100Base-FX Multimode 1310nm ST-Plug, 1x10/100Base-TX, USB powering	2 x ST 1 x RJ-45
MS484162USB-LP	Fast Ethernet Bridge PC Card, Low Profile 1x100Base-FX Singlemode 1310nm SC-Plug, 1x10/100Base-TX, USB powering	2 x SC 1 x RJ-45