

### 1. General features

The MICROSENS Fast Ethernet mini bridge permits the connection of two Fast Ethernet segments according to IEEE802.3u. The bridge offers the conversion from full to half duplex, as well as the coupling of Ethernet to Fast Ethernet segments. Thanks to the conversion into full duplex the limit of 412 m for a Fast Ethernet segment does no longer exist. With single mode fiber, it is possible to cover distances up to 125 km. The 10/100Base-TX port with autonegotiation permits the connection of 10Base-T and 100Base-TX devices and the self-learning filter function reduces the data traffic between the coupled segments. Multiple LEDs show the status of the bridge and can be used for network diagnostics.

### 2. Getting started

Before you start installing the converter, check that the package contains the following items:

- The TP-Fiber bridge
- AC power supply or optional self powering cable (USB)
- This Installation manual

### 3. Power connection

#### TP-Fiber bridge with AC power supply

Please ensure that the selection switch for the power supply is on the left side (facing to the 5 V DC input, see fig. 2).

Verify that the AC power supply conforms to your country AC power requirement and then insert the power connector. Afterwards connect the network cables.

#### TP-Fiber converter with self powering cable (USB, optional)

Please ensure that the switch for the power supply is on the right side (facing to the USB port, see fig.2).

Install the USB cable first, connector type A must be connected to the PC and connector type B to the bridge. Afterwards connect the network cables.

Warning: Please make sure that the power of PC/USB hub is turned on, otherwise the bridge will not work.

### 4. Configuration

Please configure the bridge with the DIP switches located at the side of the chassis (see fig. 4).

The following features can be configured:

**Autonegotiation:** With the switch 1 you can activate (AUTO) or deactivate (FORCE) the autonegotiation protocol on the copper port. When the autonegotiation is deactivated switches 2 and 3 port select the speed 10 or 100 Mbit/s and full or half duplex.

**Link Through:** Link Through can be selected with switch 4. Position LT means that Link Through is activated at position LT DIS means this feature is disabled (refer to chapter Link Through).

**Duplex mode fiber port:** Switch 5 selects the duplex mode of the fiber (100Base-FX) port. Position FDX is for full duplex and HDX for half duplex transmission.

Warning:

- When TP NWay port is connected to TP 100FDX (force mode) instead of NWay partner, it will result in 100HDX mode with invalid collision signal.
- Ensure that all network nodes are configured in an identical mode. Improper operation and flow control mode between TP and fiber port connections will render the LAN to work poorly.

Fig. 1 Main view

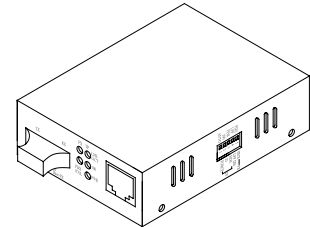


Fig. 2 Power selector

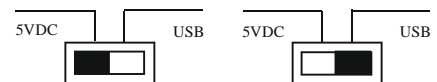


Fig. 3 Basic application

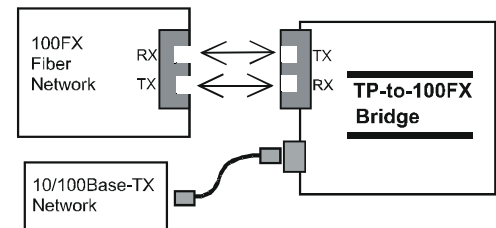
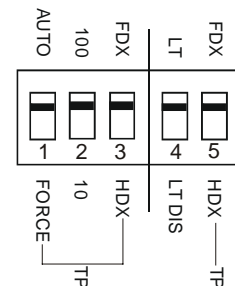


Fig. 4 Configuration switches



## 5. Link Through

Note: Link Through function only takes effect when switch 4 is set to activated.

This bridge supports Link Through (LT) function in TX/FX converter application. The link status on one port is propagated to the other port to notice the remote nodes. If TP port is unplugged, this converter stops transmission on fiber port. This causes the remote fiber node link to fail. The LEDs show a failure on both, TP and fiber ports. If fiber link fails, this converter restarts autonegotiation on TP port but always stays in the link failure state. This causes the remote TP node link to fail. The LEDs also show the link failure on both, TP and fiber port (see fig. 5 and fig. 6).

**Warning:** The Link Through function works only when these bridges are used in a pair and both have the link through activated. Furthermore both link through bridges should be supplied by the same manufacturer. Connections coming from old link through bridges or bridges without link through will cease the link through function.

## 6. LED displays

The bridge has 5 integrated LEDs giving status information which can be used for error diagnostics. Please refer to fig. 8 for a description of these LEDs.

## 7. Power supply

The bridge is supplied with an external AC power supply. The bridge requires 5 V DC input. Because of warranty reasons it is only allowed to use the original power supply.

The DC jack's central post is 2.5 mm wide (see fig.7).

Optional the bridge can be powered by an USB port. When selected the USB power mode a special USB cable is included at delivery. With this cable the bridge can be connected to a PC with USB port or a USB hub.

## 8. Safety notes

**DANGER! - Optical components may radiate laser light.**

WARNING: Infrared radiation as used for data transmission within the fiber optic area which, although invisible to the human eye, can nevertheless cause damage.

To avoid damage to the eyes:

- Never look straight into the output of fiber optic components – danger of blinding!
- Cover all unused optical connections with caps.
- Commission the transmission link only after completing all connections.

The active laser components used with this product comply with the provisions of Laser Class 1.

**DANGER! – Conductive parts from Power- and Telecommunication networks can transport dangerous voltage.**

To avoid electrical shocks, all installations must be confirm to the required safety standards if the region where they are used.

Fig. 5 Link Through function normal operation

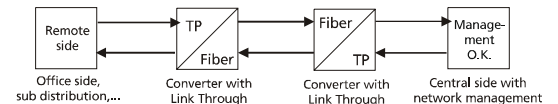


Fig. 6 Link Through function interruption status

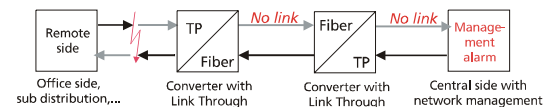


Fig. 7: Power connector



DC Jack : 2.5 mm  
DC Input : + 5V DC

Fig. 8 LEDs

LED	Status	Description
PWR	On	Power supply O.K., ready for operation
	Off	No power supply
FX LNK/ACT	On	Fiber connection correct
	Flashing	Data traffic on fiber port
FX FDX/COL	On	Full duplex mode active
	Off	Half duplex mode active
	Flashing	Collision on fiber port
TP LNK/ACT	On	TP connection correct
	Flashing	Data traffic on TP port
TP100	On	TP port working with 100 Mbit/s
	Off	TP port working with 10 Mbit/s

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