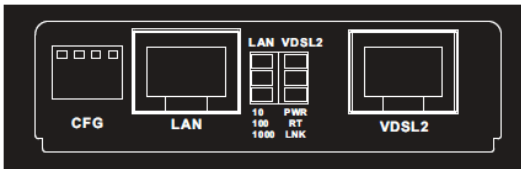


Hardware Introduction

The Industrial Gigabit Ethernet VDSL2 Extender MS657023X allows the transmission of Gigabit Ethernet data over simple twisted-pair lines. Therefore Ethernet signals are converted into VDSL2 signals and vice versa. The extender is used per pair. One device has to be configured as master, the other one as remote unit. The data rate depends on the transmission distance and the quality of the cable.

Bottom Interface



On the bottom side the following interfaces are placed:

- RJ-45 connector for 10/100/1000Base-T Ethernet
- RJ-45 connector for VDSL2
- LEDs for Ethernet, VDSL and power
- DIP switch for easy configuration

Both RJ-45 ports are intended for the use of shielded and unshielded cables.

LAN Port

The device is equipped with a 10/100/1000Base-T Ethernet port with RJ-45 connector which supports auto-negotiation and auto-crossing.

VDSL2 Port

For the VDSL interface a RJ-45 connector is used too. But only pin 4 and 5 are used. Therefore a RJ-11 could be used instead. However the use of high quality RJ-45 connectors is recommended. For 2-wire lines Microsens offers a RJ-45 adapter with screw terminal. This adapter eliminates the need of crimped connector.

LED Interface

An extended LED interface gives detailed information about the device status. Their color is always green.

PWR LED

A static green LED indicates that the device is powered.

VDSL LEDs

RT LED: The RT LED indicates the configured device mode. "ON" means that the device is configured as remote unit.

LNK LED: This LED informs about the VDSL link. The LED is on if a valid link is established. Slow blinking indicates that the device is in learning mode. Fast blinking indicates data transmission. The learning mode should be finished after around 90 seconds. Otherwise the connection should be checked.

LEDs for Ethernet Port

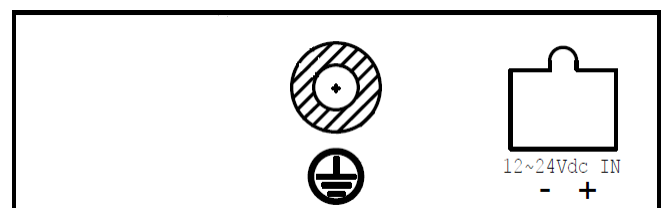
For the Ethernet port 3 LEDs are used. They are indicating link speed and data transmission. Only the LED for the established link speed is on. Blinking indicates data transmission.

DIP Switch

DIP Sw.	Configuration	
D1: Off	Role	Master
D2: Off	Mode	G.INP
D3: Off	Target SNR Margin	8 dB
D4: Off	Max. Data Rate DS/US	160/160 Mbps
D1: Off	Role	Master
D2: On	Mode	G.INP
D3: Off	Target SNR Margin	8 dB
D4: Off	Max. Data Rate DS/US	220/110 Mbps
D1: Off	Role	Master
D2: Off	Mode	Interleaved
D3: On	Target SNR Margin	6 dB
D4: Off	Max. Data Rate DS/US	160/160 Mbps
D1: Off	Role	Master
D2: On	Mode	Interleaved
D3: On	Target SNR Margin	6 dB
D4: Off	Max. Data Rate DS/US	220/110 Mbps
D1: Off	Role	Master
D2: Off	Mode	G.INP
D3: Off	Target SNR Margin	12 dB
D4: On	Max. Data Rate DS/US	150/150 Mbps
D1: Off	Role	Master
D2: On	Mode	G.INP
D3: Off	Target SNR Margin	12 dB
D4: On	Max. Data Rate DS/US	220/110 Mbps
D1: Off	Role	Master
D2: Off	Mode	G.INP
D3: On	Target SNR Margin	24 dB
D4: On	Max. Data Rate DS/US	20/20 Mbps
D1: Off	Role	Master
D2: On	Mode	Interleaved
D3: On	Target SNR Margin	6 dB
D4: On	Max. Data Rate DS/US	150/50 Mbps
D1: On	Remote Unit (RT) will always follow the setting of Master Unit (OT). When the unit operates in	
D2: -	RT Mode, DIP switches 2, 3 and 4 have no functions.	
D3: -		
D4: -		

Power Interface / Earth Terminal

On the top side, the earth terminal (M4 screw) and the power interface with screw terminal plug are placed. Connect the earth terminal to the protective earthing conductor of the buildings installation.



The power interface supports 12 and 24 VDC input voltages. Insert the positive and negative wires into V+ and V- contact on the terminal block and tighten the wire-clamp screws to prevent the wires from being loosened. The total power consumption is approximately 4.5 W.

Please consider the following wiring requirements:

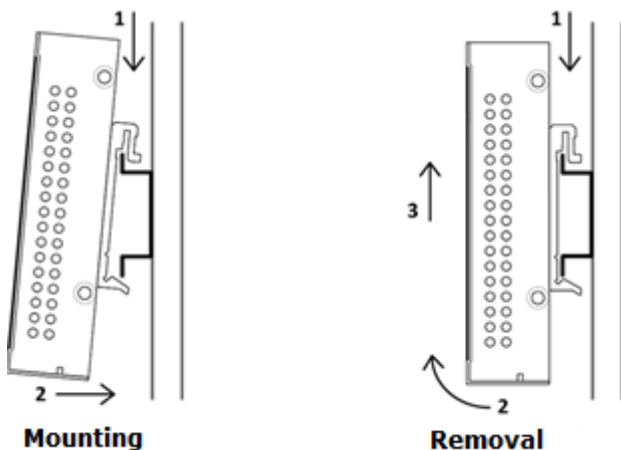
- Wire range: 0.5 mm² to 2.5 mm²
- Solid wire (AWG): 12-24
- Stranded wire (AWG): 12-24
- Torque: 5 lb-In / 0.5 Nm / 0.56 Nm
- Wire Strip length: 7-8 mm
- Max wire length: 3m (9.84 ft)

WARNING: Any exceeded input voltage will not make this unit function and may damage this unit.

WARNING: Always ground the power source to maintain a clean power input.

Installation

DIN-rail Mounting



The device is intended for DIN-rail mounting. The DIN-rail adapter is placed at the rear side.

Mounting Steps

STEP 1: Hook the unit over the DIN rail. If the VDSL interface is used for the connection between two buildings, all necessary protective measures must be ensured externally.

STEP 2: Push the bottom of the unit towards the DIN-rail until it snaps into place.

Removal Steps

STEP 1: Push the unit down to free the bottom of the DIN-rail.

STEP 2: Rotate the bottom of the unit away from the DIN-rail.

STEP 3: Unhook top of unit from DIN-rail.

Wall Mounting

For wall-mounting the DIN-rail adapter must be removed. At the rear side, two mounting holes are placed which can be used for horizontal or vertical wall-mounting.

Installation Procedure

STEP 1: Configure both GBE (Gigabit Ethernet) extenders by using the DIP switch. For point-to-point applications, one unit must be configured as master (OT) and the other one as slave (RT).

STEP 2: Connect the device to earth.

STEP 3: Connect the GBE extender configured as slave with a regular cat. 5 cable to the LAN (Local Area Network).

STEP 4: Power on the GBE extender by connecting the power terminal.

STEP 5: Connect both GBE extenders via the VDSL port.

STEP 6: Connect the LAN port of the second GBE extender (master) with a regular cat. 5 cable.

STEP 7: Power on the second GBE extender



Precautions and Safety Warnings

- Disconnect all power from devices before attempting installation!
- This device is intended for installation only in **restricted access locations** as defined where both these conditions apply:
 - Access is through the use of a lock or tool and key, or other means of security, and is controlled by the authority responsible for the location.
 - Access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- All electric installations must be carried out in accordance with local and national regulations.
- Do not work on the system, connect or disconnect cables during periods of lightning activity.
- The equipment must be connected to earth.
- Shield of RJ-45 cables has to be connected to the same earth potential as the equipment.
- If the VDSL interface is used for the connection between two buildings, all necessary protective measures must be ensured externally.
- This equipment relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 1 A is used.