

# Fiber Converter Module RS-232

# MICROSENS

## General

For the connection of devices, control units and machine controls with standard serial interfaces MICROSENS is offering special fiber converters for the 19" chassis system.

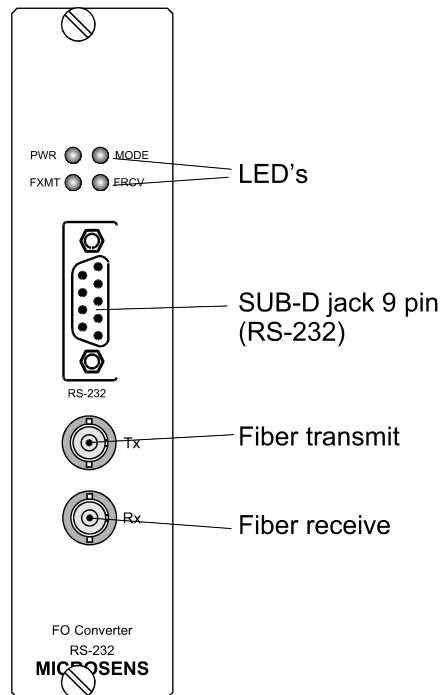
With multimode fiber it is possible to cover distances up to 2 km, independent from the data rate. Special single mode versions enable the transmission up to 120 km.

The conversion of the interface is done transparent, including the hardware handshake signals. It is possible to convert signal from DC up to the maximum data rate.

## Technical Specifications

<b>Type</b>	RS-232 fiber converter	
<b>Fiber type</b>	Multimode 62.5/125 or 50/125µm, Single mode 9/125µm, duplex	
<b>Cable type</b>	RS-232 with SUB-D9 connector	
<b>Data rate</b>	DC... 120 kbps	
<b>LED displays</b>	<i>Power</i>	Ready for operation
	<i>FO-Xmt</i>	Transmit data on fiber port
	<i>FO-Rcv</i>	Receive data on fiber port
	<i>TXD</i>	Transmit data on copper port
	<i>RXD</i>	Receive data on copper port
	<i>Alarm</i>	Relay Contact switched, lost FO-Link
<b>Power supply</b>	12 V DC / via backplane	
<b>Dimensions</b>	3 HU x 6 DU (128 x 31 mm)	
<b>Operating temp.</b>	0°C to 55°C	
<b>Storage temp.</b>	-20°C to 80°C	
<b>Rel. humidity</b>	5% to 90% non condensing	

## Connectors



## Optical Parameter

### Multimode version

<i>min. distance:</i>	<b>2 km</b>
<i>min. power:</i>	-19 dBm
<i>min. sensitivity:</i>	-31 dBm
<i>Wavelength:</i>	1310 nm
<i>Connector:</i>	SC-duplex (optional ST)

### Single Mode versions (1310 nm)

<i>min. distance:</i>	<b>15 km</b>	<b>40 km</b>
<i>min. power:</i>	-15 dBm	-5 dBm
<i>min. sensitivity:</i>	-31 dBm	-34 dBm
<i>Wavelength:</i>	1310 nm	1310 nm
<i>Connector:</i>	SC-duplex (optional ST)	SC-duplex

### Single Mode versions (1550 nm)

<i>min. distance:</i>	<b>80 km</b>	<b>125 km</b>
<i>min. power:</i>	-5 dBm	0 dBm
<i>min. sensitivity:</i>	-34 dBm	-37 dBm
<i>Wavelength:</i>	1550 nm	1550 nm
<i>Connector:</i>	SC-duplex	SC-duplex

## Function

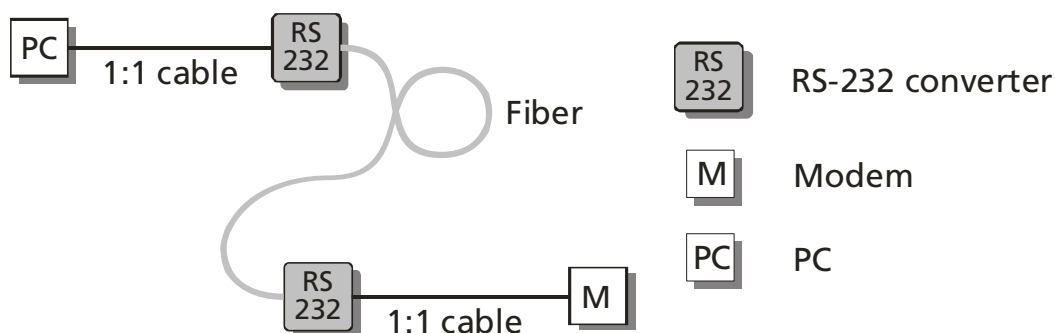
This RS-232 converter transmits beside the data signals TXD and RXD also the handshake signals CTS and RTS.

The pinout of the SUB-D9 connector is designed that the connection to a PC or a modem can be done with an uncrossed cable. The connection of two converter is done similar to a null modem cable (crossed).

Furthermore there are some DIP switches beside the fiber port at the bottom of the device to configure the different test modes.

**Remote-Loop**, is for testing of the fiber connection. If this switch is activated the data received on the fiber port is also transmitted on the fiber port. In this mode the relay contact switches because there is no connection between the fiber and the copper port.

**Local-Loop**, is for testing of the copper port. If this switch is activated the data received on the copper port is also transmitted on the copper port. In this mode the relay contact switches because there is no connection between the fiber and the copper port.



## Configuration

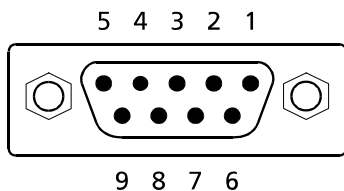
The switches DIP1 to DIP 4 are for the configuration of the test modes..

Switch	Function
Dip1	Remote Loop
Dip2	Local Loop
Dip3	Term – no funktion
Dip4	Term – no funktion

**Attention!** The Loop-function is only for test purposes. When this function is activated there is no normal operation possible. The communication between the two end devices via RS-232 is not working! The relay contact is in alarm status.

## Pinout

Die SUB-D9 port has the following pinout:



Pin	Signal	Description
1		unused
2	TXD	Transmit data
3	RXD	Receive data
4		unused
5	GND	Ground
6		unused
7	CTS	Handshake
8	RTS	Handshake
9		unused

**Importantly:** The status of the fiberglass connection can be verified with the help of the Alarm-LED. For link tests it is possible to switch an easy loop (connection of the transmitter with own receiver).

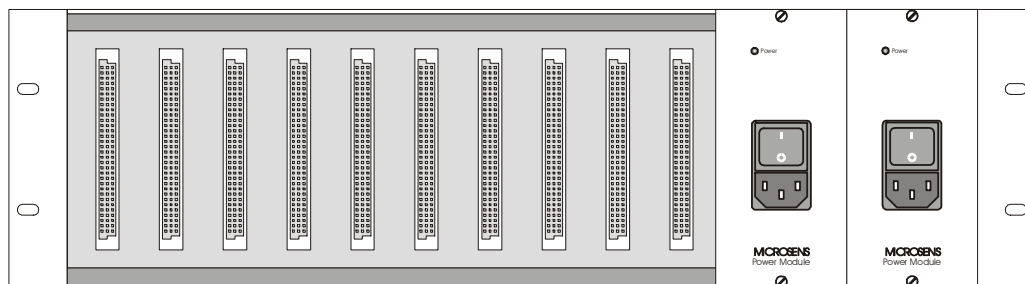
## Mounting Options

The converter module is planned for the installation in a MICROSENS chassis. With multiport insertion modules it can be combined with all other converter modules of the same series freely.

The electric power supply occurs through a central power supply unit via the backplane of the chassis. Together with the power supply unit (MS416004 or MS416004M - manageable version) e. g. in the 3 HU case (MS416001 or MS416001M - manageable version) can mounted maximum 12 modules in a chassis.

Optionally a second power supply unit (MS416004) can be inserted for redundant power supply. In this case 10 converter modules can be used. With a part assembly the unequipped modules are covered with blind covers (MS416100). The blind covers do not belong to the shipment of the chassis.

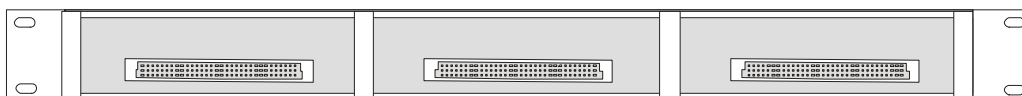
3HU chassis (MS416001M) with two power supplies for redundancy (MS416004M):



Beside a 3HU chassis a 1HU chassis is available for 3 modules (crosswise built-in). This disposes of an integrated power supply (MS416006), which also redundant (MS416007) can be laid out.

Furthermore are available beside 19" variations also desktop enclosures for the admission of one module (MS417001) and for the admission of two modules (MS417041).

1HU chassis (MS416006M / MS416007M) with integrated power supplies:



## Safety Notes

**WARNING:** Infrared radiation as used for data transmission within the fiber optic, 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 components of power and telecommunications networks can carry dangerously high voltage.

To avoid electric shock:

- Do not carry out installation or maintenance work during lightning storms.
- All electric installations must be carried out in accordance with local regulations.

## Order Information

Art.-No.	Description	Connectors
MS415012	RS-232 Fiber Converter, Multimode 1310 nm, ST	2x ST, 1x Sub-D9,
MS415013	RS-232 Fiber Converter, Multimode 1310 nm, SC	2x SC, 1x Sub-D9,
MS415015	RS-232 Fiber Converter, Single Mode 1310 nm, ST Laser 15 km	2x ST, 1x Sub-D9,
MS415016	RS-232 Fiber Converter Single Mode 1310 nm, SC Laser 40 km	2x SC, 1x Sub-D9,
MS415017	RS-232 Fiber Converter, Single Mode 1310 nm, SC Laser 15 km	2x SC, 1x Sub-D9,

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