

MS416460MR

Wide Range Retimer with modular GBIC/SFP-Ports

MICROSENS

General

Wide Range Retimer to connect ATM, SONET/SDH or Gigabit Ethernet segments with complete signal regeneration. Due to the complete signal regeneration (3R) of the converter, the signal distortion caused by the transmission over long distances is compensated.

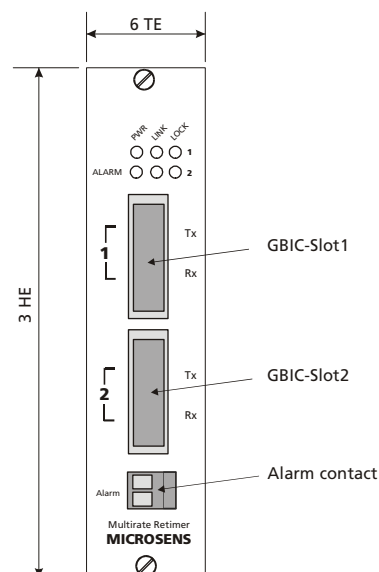
The process of complete signal regeneration is usually called '3R' (reamplification, reshaping, retiming) and regenerates the amplitude, the curvature and the timing of the transmitted signal. The deployment of converters with retiming functionality enables the implementation of far longer transmission distances, and allows cascading several long-distance converters with sub-segment lengths of up to 120 kilometers (75 miles) each.

Wide Range Retimer has got installed modular GBIC or SFP (optional) ports instead of permanent optical modules. The use of pluggable optical transceivers (GBICs/SFPs) offers the highest flexibility for the implementation of different transmission distances.

The converter is laid out in form of a plug-in module card, which is installed into MICROSENS modular converter system. Beside the standalone chassis in single and double version, there is a special 19"-Chassis for mounting up to 12 modules. In combination with the MICROSENS SNMP management module (MS416020) the converter can be supervised by SNMP/Web-based management. A further feature places an alarm contact (non-potential), which can be used for the connection to external alarm system.

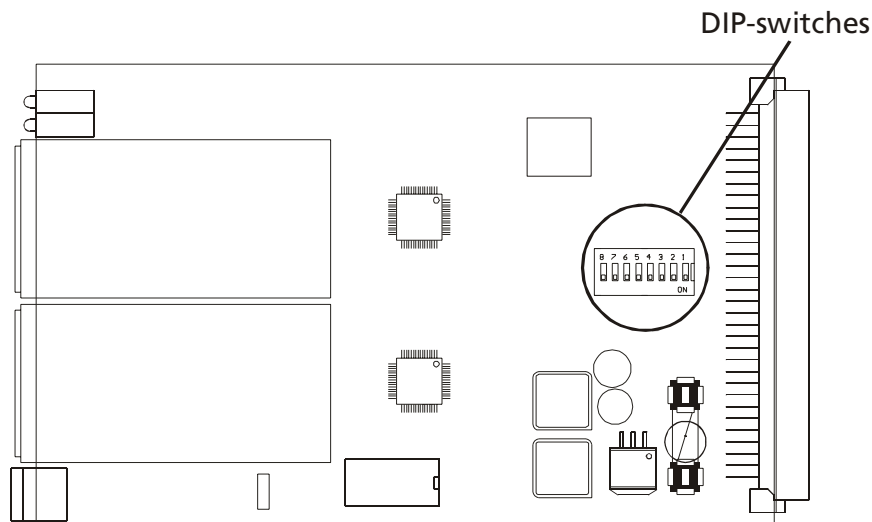
Connectors

There are the following connections on the front side of the module:



Configuration

The converter does the signal regeneration for ATM OC-3, SONET/SDH STM-1 (155 MBit/s), ATM OC-12/ SONET/SDH STM-4 (622 MBit/s) and Gigabit Ethernet (1.25 GBit/s). The signal amplitude (1R), the signal form (2R) and the signal timing (3R) are regenerated. The selection of transmission rate is made by a DIP-switches on the module:



The following table describes the individual DIP-switch functions:

No.	Function	Description
1	DRS 1	Data rate settings
2	DRS 2	Data rate settings
3	DRS 3	Data rate settings
4	Factory settings	on
5	Factory settings	on
6	Link through Port 1 -> Port 2	on/off
7	Link through Port 2 -> Port 1	on/off
8	No function	-

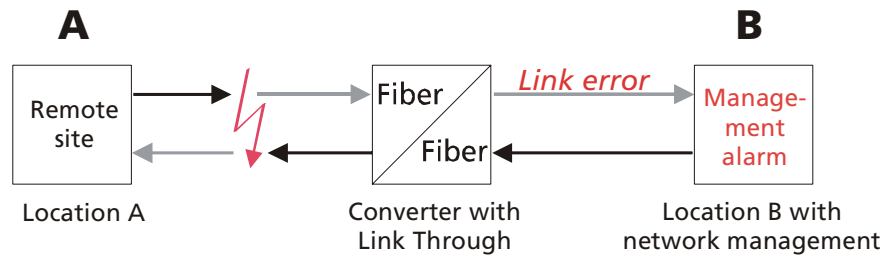
The possible data rate settings configurations are shown below:

Data Rate Selector				
Service	Input Data Rate	DRS 1	DRS 2	DRS 3
OC-48	2.488Gbps	on	on	on
GBE	1.250Gbps	off	on	off
OC-24	1.244Gbps	off	on	on
OC-12	622Mbps	on	off	on
OC-3	155Mbps	off	off	on

Link Through

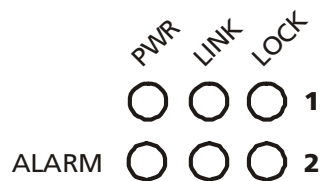
With DIP-switches 6 and 7 it is possible to activate or deactivate Link Through function. (see the table).

Wide Range Retimer supports Link Through (LT) function in FX/FX converter application. The link status on one port is propagated to the other port to notice the remote nodes. If one of fiber ports is unplugged, this converter stops transmission on the other fiber port.



LED displays

The status of the converter is indicated over 6 LEDs on the front side.



LED	Name	Description
PWR	Power	Module is ready.
ALARM	Alarm	Alarm is on.
Link1	Link Port1	Link on fiber optic port no. 1
Link2	Link Port2	Link on fiber optic port no. 2
Lock	Retimer Lock	Data rate settings are locked.

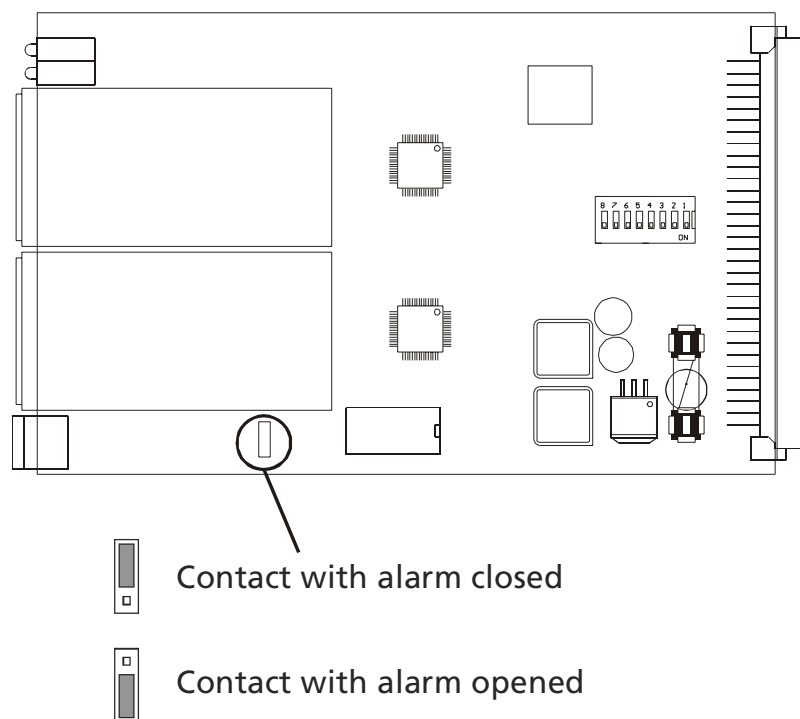
Alarm contact

The alarm contact enables the monitoring of the converter condition over an attached external signal generator. The contact switches, as soon as a link signal is lost. The following table shows circuit logic:

Fiber optic port 1	Fiber optic port 2	Alarm contact
No link	No link	Alarm
Link	No link	Alarm
No link	Link	Alarm
Link	Link	No alarm

In case of a failure of the power supply of the module the alarm contact switches into the alarm condition.

The polarity of the alarm contacts (open or closed) can be configured by means of a jumper on the module:



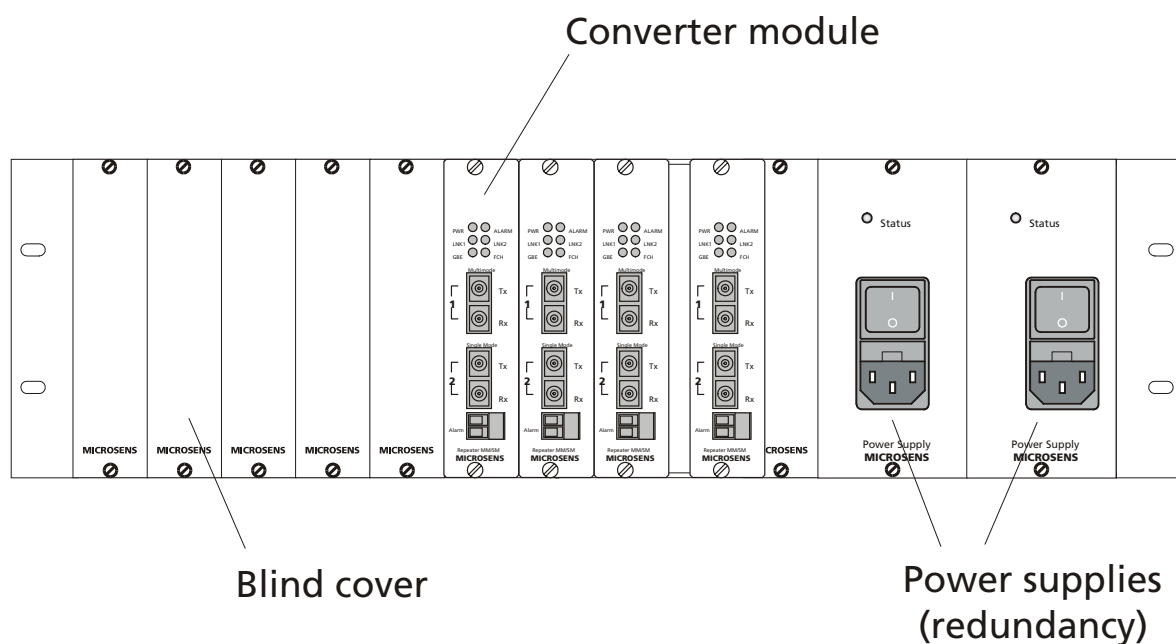
When connecting external devices the maximum contact stress of the connection must be considered.

NOTE: Devices with 230 V supply can not be connected directly in any case.

Installation options

The converter module is intended for the installation into a MICROSENS modular system. It can be combined with all other converter modules of the same series freely. The current supply is made from a central power supply via backplane. Together with the power supplies (MS416004 and/or MS416004M - manageable version) maximally 12 modules can be installed into 3HE chassis (MS416001M).

Optionally a second power supply (MS416004) for redundancy can be installed. In this case 10 modules can be used. During a partial assembly the unused slots are covered with blind covers (MS416100). The blind covers do not belong to the scope of supply the modular chassis.



Beside the 3HE-Chassis a 1HE chassis for 3 modules (inserted crosswise) is available. This chassis has an integrated power supply (MS416006), which also can be laid out redundantly (MS416007).

Beside the 19" chassis also a standalone chassis are available for the admission of one module (MS417001) and for the admission of two modules (MS417041).

The SNMP/Web-based management ability of a system is manufactured by the management master module (MS416020). In order to be able to access over SNMP the data of the modules, the integration of the data structure of the MIB is necessary into the existing network management. The structure of the MICROSENS MIB can be downloaded by HTTP from the management master. The MIB file is present in the ASCII format.

Technical data

Type	Wide Range Retimer module to connect ATM OC-3/OC-12 or Gigabit Ethernet segments	
Connectors	2x GBIC ports, optional 2x SFP ports (MS416461MR)	
Data rate	155 MBit/s (ATM OC-3, SONET/SDH STM-1) 622 MBit/s (ATM OC-12, SONET/SDH STM-4) 1,250 GBit/s (Gigabit Ethernet)	
LED displays	<i>PWR</i>	Standby
	<i>ALARM</i>	Fiber link error
	<i>LNK1</i>	Fiber link on port 1
	<i>LNK2</i>	Fiber link on port 2
	<i>Lock</i>	Data rate settings are locked.
Alarm contact (option)	non-potencial, max. 60 V DC, max. 0,5 A	
Power supply	12 V DC / max. 400 mA via Backplane	
Operating temperature	0°C to 55°C	
Storage temperature	-20°C to 80°C	
Relative humidity	5% to 80% non condensing	
Dimensions	3 HE x 6 TE (128 x 31 mm)	

Order information

Article no.	Description	Connectors
MS416460MR	Wide Range Retimer OC-3/OC-12/Gigabit Ethernet 2x GBIC Ports, Relay Contact, Manageable	2x GBIC Ports Alarm contact
MS416461MR	Wide Range Retimer OC-3/OC-12/Gigabit Ethernet 2x SFP Ports, Relay Contact, Manageable	2x SFP Ports Alarm contact
MS100100	GBIC Interface Gigabit Ethernet / Fibre Channel 850 nm Multimode Transceiver	2x SC
MS100110	GBIC Interface Gigabit Ethernet / Fibre Channel 1300 nm Single mode Transceiver, min. 10 km	2x SC
MS100121	GBIC Interface Gigabit Ethernet / Fibre Channel 1550 nm Single mode Transceiver, min. 80 km	2x SC
MS100130	GBIC Interface Gigabit Ethernet / Fibre Channel 1550 nm Single mode Transceiver, min. 120 km	2x SC

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