

## sat-nms LFTX/RX - L-Band Fiber Optical Transmitter/Receiver

The *sat-nms* LFTX Fiber Optical Transmitter and *sat-nms* LFRX Fiber Optical Receiver form together a high performance optical link for analog multi-carrier RF transportation on fiber optical media. They are available as stand alone modules, integrated in 2RU 19" rack-mount chassis, but are also designed to allow N:1 redundant L-Band optical links. Two types of optical converters are available:

<b>sat-nms LFTX</b>	Optical Transmitter converting from RF input spectrum to optical output at 1310nm
<b>sat-nms LFRX</b>	Optical Receiver regenerating the optical signal back to an RF spectrum

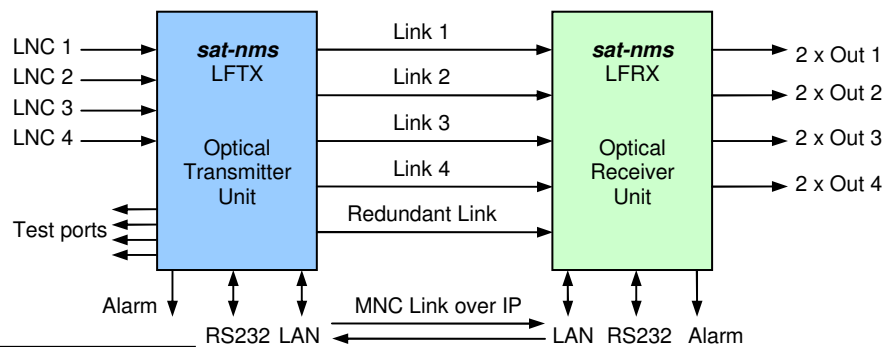
SatService offers the LFTX/RX modules for different frequency bands:

<b>sat-nms LFTXL and LFRXL</b>	950 to 2150MHz
<b>sat-nms LFTXB and LFRXB</b>	50 to 2150MHz
<b>sat-nms LFTX10 and LFRX10</b>	950 to 2150MHz and 10MHz reference frequency for BUC on same fiber

A common configuration is a 4:1 sub-system for an antenna with 4 LNCs including an additional redundant chain. But the modules can also be delivered in other configurations, even a 2 times 4:1 redundant configuration is possible. All modules include RF gain adjustment and extensive monitoring. The optical receiver 19" rack-mount chassis also provides an LCD Display and keyboard for local MNC. The remote MNC interface is via web-browser, SNMP, HTTP GET functions and RS232 interface as in all other *sat-nms* products. If you order a redundant configuration, the optical transmitter and receiver chassis communicate via LAN with each other.



column 1	column 2
1:1	1:1
1:2	1:2
1:3	1:3
1:4	1:4
up to 10 non-redundant optical links	



### Key Features

- 10MHz and L-Band Transfer via one Fiber
- 19" 2RU Unit Compact Design
- Redundancy Switching Option
- Redundant Power Supplies
- All Modules are available with hot-swap
- 1:4 L-Band Distributor Option

### Applications

- Satellite Ground Stations and Teleports
- Cable Head-end Stations

### Contact Information

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## Technical Specification

### RF Specification

Frequency Range	950 to 2150MHz or 50 to 2150MHz
L-Band Input Connectors (Transmitter)	SMA female 50Ohm or F female 750hm
L-Band Output Connector (Receiver)	SMA female 50Ohm or F female 750hm
Input and Output Return Loss	> 17dB
L-Band Input and Output Test Connector	SMA female 50 Ohm
Optical Connectors	E2000 or FC/APC
Input Noise Figure Total Optical Link	< 30dB with 13dB Attenuator Setting
Gain Flatness Total Link	+/-1.5 dB, +/-0.25dB in any 40MHz
Gain of Complete Link with Attenuator Setting of 12 to 17dB*	0dB
Attenuation TX Card (adjustable via local and remote interface)*	0 to 31dB in 1dB Steps
Attenuation RX Card (adjustable via local and remote interface)*	0 to 31dB in 1dB Steps
Input Signal max. (Total Level)*	-5 dBm
Output Level max. (Total Power)*	-5dBm
Intermodulation at -13dBm Input Level	<-40 dBc
DC-output at L-Band input connector	15+/-1V (for LFTXL Model only)

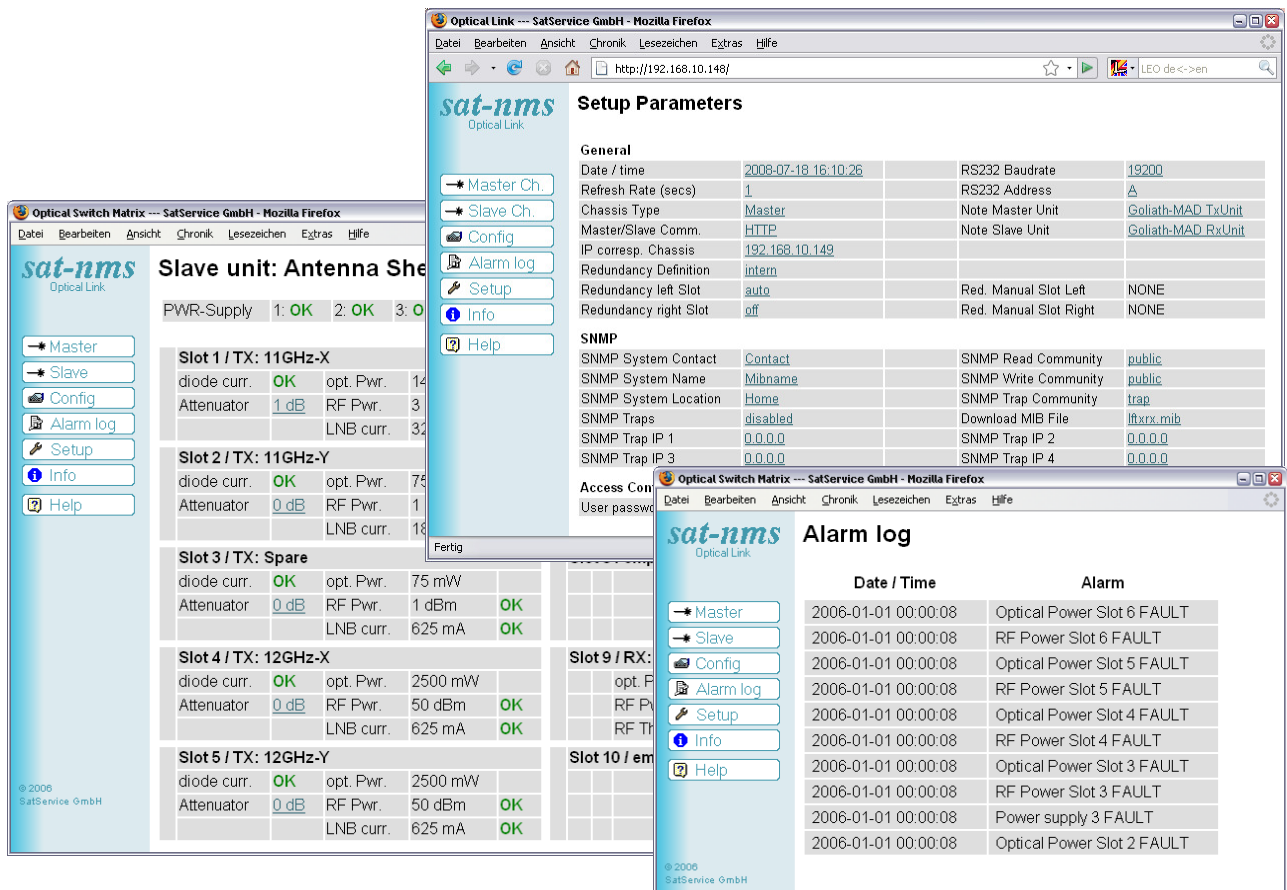
\* different values for configuration with 750hm, redundancy or 1:4 distributor possible

### MNC Interface Specification

Ethernet Interface for MNC and User Interface	10/100-Base-T, Via http GET Requests and SNMP
Front Panel Display	LCD 16x2
RS232 MNC Interface	D-SUB 9 female
Summary Fault Indication	Relay Contact D-SUB 9 male
I/O Output for external WG-Switching (Transmitter)	SUB-D 9 Socket

### Electrical and Mechanical Specification, Environmental Conditions

Supply Voltage	90 to 230V AC 50 to 60Hz
Connector for the two Mains Voltage AC Inputs	IEC
Redundant Power Supplies	Hot-swap Capability available as an Option
Temperature Range	-20 to + 50°C
Humidity	Up to 90% non-condensing
Mechanical Size of Mainframe	436 x 89 x 350 mm (WxHxD), 19" 2RU



The image displays two screenshots of the sat-nms web interface. The top screenshot shows the 'Setup Parameters' page, which is divided into several sections:

- General:** Includes fields for Date / time (2008-07-18 16:10:26), Refresh Rate (secs) (1), Chassis Type (Master), Master/Slave Comm. (HTTP), IP corresp. Chassis (192.168.10.149), Redundancy Definition (intern), Redundancy left Slot (auto), and Redundancy right Slot (off).
- SNMP:** Includes fields for SNMP System Contact (Contact), SNMP System Name (Mibname), SNMP System Location (Home), SNMP Traps (disabled), and four SNMP Trap IP addresses (all 0.0.0.0).
- Access Control:** Includes a field for User password.

The bottom screenshot shows the 'Alarm log' page, which displays a table of alarm events:

Date / Time	Alarm
2006-01-01 00:00:08	Optical Power Slot 6 FAULT
2006-01-01 00:00:08	RF Power Slot 6 FAULT
2006-01-01 00:00:08	Optical Power Slot 5 FAULT
2006-01-01 00:00:08	RF Power Slot 5 FAULT
2006-01-01 00:00:08	Optical Power Slot 4 FAULT
2006-01-01 00:00:08	RF Power Slot 4 FAULT
2006-01-01 00:00:08	Optical Power Slot 3 FAULT
2006-01-01 00:00:08	RF Power Slot 3 FAULT
2006-01-01 00:00:08	Power supply 3 FAULT
2006-01-01 00:00:08	Optical Power Slot 2 FAULT