sat-nms LF20 L-Band 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 standalone modules, integrated in 2RU or 3RU 19" rack-mount chassis or integrated in outdoor cabinets for outdoor use. Depending on the chassis type, 1:1 or n:1 redundancy switching is possible.

SatService offers **LFTX** (transmitter-) and **LFRX** (receiver-) modules for different frequency bands:

sat-nms **LFTXL** and **LFRXL**	950 to 2150MHz
sat-nms **LFTXB** and **LFRXB**	50 to 2150MHz
sat-nms **LFTXO10** and **LFRXO10**	10MHz

The *sat-nms* **LF20** chassis provides space for up to 20 **LFTX** or **LFRX** cards. It comes with redundant hot-plug power supplies as standard configuration. As special feature a L-Band switch card "*sat-nms* **LF-SW**" is available for setting-up 1:1 redundancy systems (up to 6 times 1:1 redundant links per LF20 chassis).

All active components like M&C controller card, optical transmitter and receiver modules, 1:1 redundancy switch and redundant power supplies are hot swappable.

Different options like 1:4 Splitter, combiner, couplers and impedance converter are available.

Key Features

- Up to 20 optical links per chassis
- 19" 3RU rack mount design
- Redundant hot-plug power supplies
- 1:1 redundancy switching as option
- All active components hot-swappable
  (M&C card, optical cards, redundancy switch, power supplies)
- Optional 1:4 splitter/combiner, coupler module

Technical Specification

RF specification

Frequency Range	950 to 2150MHz or 50 to 2150MHz or 10MHz
L-Band Input Connectors (Transmitter)	SMA female 50Ohm or F female 75Ohm
L-Band Output Connector (Receiver)	SMA female 50Ohm or F female 75Ohm
Input and Output Return Loss	> 17dB
L-Band Input and Output Test Connector	SMA female 50 Ohm
Optical Connectors	E2000/APC or FC/APC single mode (8°)
Input Noise Figure Total Optical Link	< 30dB with 0dB Attenuator Setting
Gain Flatness Total Link	+/-1.5 dB, +/-0.25dB in any 40MHz
Gain of Complete Link with Attenuator Setting of +/-2dB*	0dB
Attenuation TX Card (adjustable via local and remote interface)*	+15dB to -16dB in 1dB Steps
Attenuation RX Card (adjustable via local and remote interface)*	+15dB to -16dB in 1dB Steps
Input Signal max. (Total Level)*	-5 dBm (+10dBm damage level)
Output Level max. (Total Power)*	+5dBm
Intermodulation at -13dBm Input Level	<-40 dBc
DC-output at L-Band input connector (*sat-nms* LFTX only)	15+/-1V 450mA max per card, 4300mA total per chassis @30°C ambient (derating to 3000mA total @50°C ambient)

additional attenuation for optional modules:

redundant card *sat-nms* LF-SW	typ. 3dB per frame
50/75Ohm converter	typ. 0.7dB per frame
1:4 splitter *sat-nms* LFRxV4	typ. 12.5dB per frame
dual coupler *sat-nms* LFC10TX or LFC10RX	typ. 1.5dB per frame

* different values depending on configuration with 50 or 75Ohm, redundancy or 1:4 distributor

MNC Interface specification

Ethernet Interface for MNC and User Interface	RJ45, 10/100-Base-T, Via http GET Requests, SNMP, Web-GUI
RS232 MNC Interface	D-SUB 9 female
Summary Fault Indication	Relay Contact D-SUB 9 male

Electrical and Mechanical Specification

Supply Voltage	90 to 230V AC 50 to 60Hz, 2.5A
Connector for the two Mains Voltage AC Inputs	IEC
Redundant Power Supplies	Hot-swap Capability available as an Option
Temperature Range operating (storage)	-20°C to + 50°C (-30°C to +70°C)
Humidity	Up to 90% non-condensing
Mechanical Size of Mainframe	483 x 133 x 419/462 mm (WxHxD), 19" 3RU
Weight (depending on installed modules and options)	from 6.5kg to 11.7kg

available options

sat-nms LF-SW 1:1 redundancy switching module	up to 6 modules per chassis, hot swappable
sat-nms LFRXv4 1:4 splitter/combiner module (passive)	up to 20 modules per chassis, fix installed, needs to be specified at time of order
sat-nms LFC10RX or *sat-nms* LFC10TX double coupler module (passive, provides main signal and additionally 2 times coupled signal with approx. -10dB)	up to 20 modules per chassis, fix installed, needs to be specified at time of order

SatService, Gesellschaft für Kommunikationssysteme mbH

Phone: +49 7738 997 91 10
E-Mail: sales@satservicegmbh.de

www.satnms.com
www.satservicegmbh.de

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sat-nms Optical Link

State: TxUnit

| Power Supply | 1: Flt | 2: Ok |
| Temperature | 19 °C |

Slot	01	02	03	04	05	06	07	08	09	10	11	12	13
Faults					Ok	Ok	Ok						
Note	x1	-	-	-	CH-1 A	SW CH1	CH-1-B	-	SW CH1	-	-	-	-
Card Type	non	non	non	non	TX	SW	TX	non	non	non	non	non	non
Opt. Pwr. / uW					1449	-	2184						
RF Pwr. / dBm					-90	-	-90						
Diode RF Pwr. / dBm					-90	-	-90						
RF Thresh. / dBm					-95	-	-95						
LNB curr. / mA					Off	-	Off						
Remote					On	On	On						
Gain / dB					0 ⊟◄►		0 ⊟◄►						
Protection					-	OFF	-						
Switch Pos.					-	A	-						
No. Card Pos A					-	NON	-						
No. Card Pos B					-	NON	-						
Protection State					-		-						

sat-nms Optical Link

- State
- Config
- Setup
- Event Log
- Info
- Help

Setup Parameters

General

Note	TxUnit	Date / time	2021-01-27 16:24:48
Refresh Rate (secs)	1	RS232 Baudrate	19200
		RS232 Address	A

SNMP

SNMP System Contact	Contact	SNMP Read Community	public
SNMP System Name	Mibname	SNMP Write Community	private
SNMP System Location	Home	SNMP Trap Community	trap
SNMP Traps	DISABLED	Download MIB File	lftxrx2.mib
SNMP Trap IP 1	0.0.0.0	SNMP Trap IP 2	0.0.0.0
SNMP Trap IP 3	0.0.0.0	SNMP Trap IP 4	0.0.0.0

Access Control

User password	******	Admin password	******
		NON	
		NON	
		(-)	

Webinterface Exemple

Front view

Rear view

SatService, Gesellschaft für Kommunikationssysteme mbH

Phone: +49 7738 997 91 10
E-Mail: sales@satservicegmbh.de

www.satnms.com
www.satservicegmbh.de

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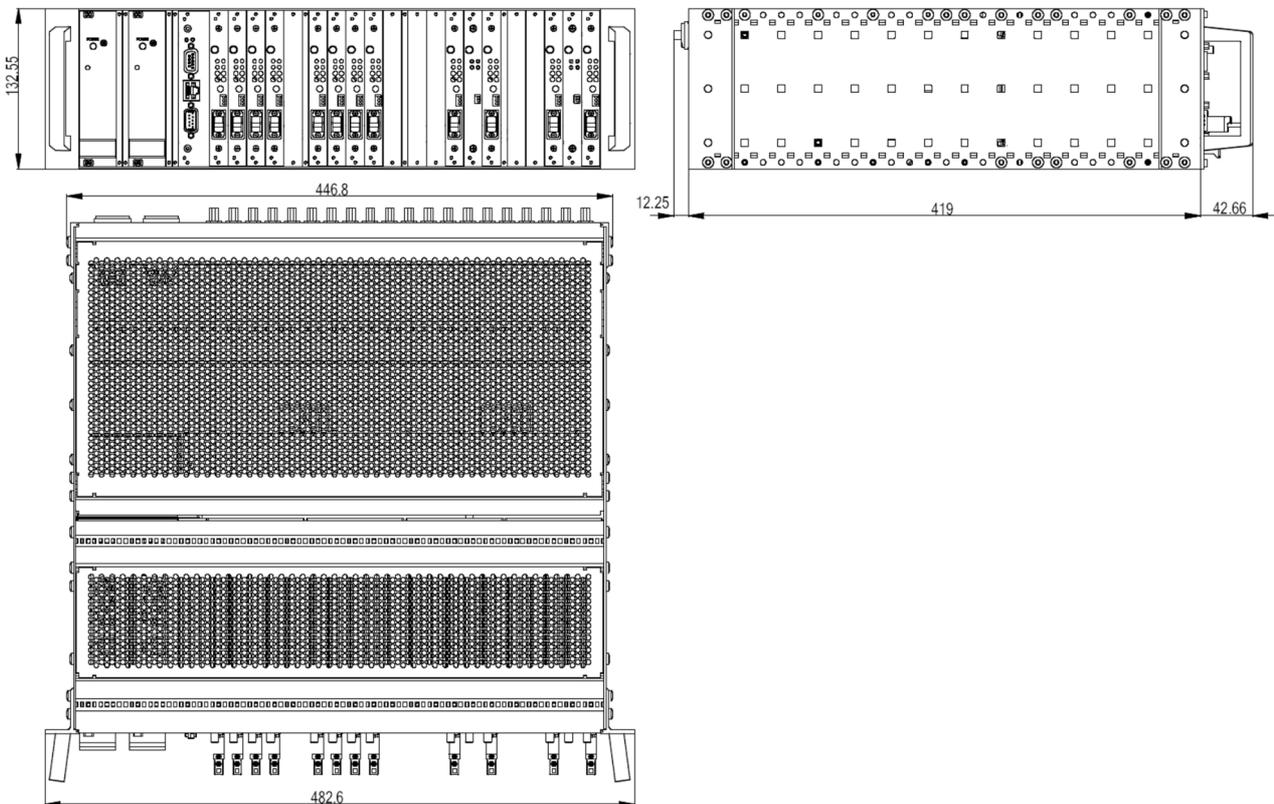
Block diagram showing 2 times 1:1 redundant Link (Link 1+2 and Link 3+4), 2 times non-redundant link (Link 5 and Link 6) as exemple. Assingment of Optical- and Switch-Modules possible in any combination

Mechanical dimensions