

## sat-nms LBRX19-81 - L-Band Beacon Receiver

The **sat-nms** LBRX19-81 L-Band Beacon Receiver manufactured by SatService GmbH is a measurement tool that measures the RF input level and provides this information as output signal for control systems. The **sat-nms** LBRX19-81 is the 19" rack-mount version of the **sat-nms** LBRX-81 Beacon Receiver. A compact version of the **sat-nms** LBRX-81 as DIN rail box is also available. The unique feature of this unit is its 8:1 signal input switch that provides the possibility to connect up to 8 different signals that are selected automatically relating to the selected frequency and polarization. The main application of this receiver is in antenna tracking systems, where the receiver provides the tracking signal level to the antenna step-track controller. Other applications can be pilot measurement and control loops like uplink power control.



The **sat-nms** LBRX19-81 receives a satellite beacon signal to be down-converted to L-Band by a Low Noise Converter (LNC) at its L-Band interface input. The **sat-nms** LBRX19-81 does not demodulate any satellite signals because the satellite signals are sometimes CW signals, but even more often modulated in FM or QPSK/8PSK form. Due to this fact, the best implementation is a non-coherent receiver measuring the input level in a user selectable defined bandwidth and provides this as a dB-linear and calibrated analog output voltage and digital information via remote interface. The output level is provided by four different and parallel available interface types: an http web interface via internal web server, distribution of measured level or c/n value as UDP datagram's, a RS232 interface and the analog voltage output with level alarm indication. The **sat-nms** LBRX19-81 Beacon Receiver is controlled remotely by a monitoring and control application via TCP/IP interface. Communication with the beacon receiver is made via http requests or over a serial MNC protocol. The beacon receiver implements the http both, for the user interface and for the MNC interface.

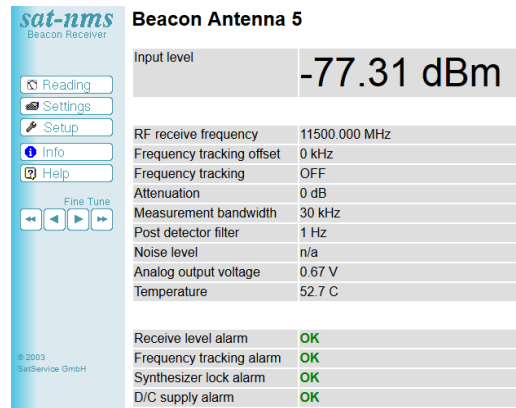
### Key Features

- Full L-Band Tuning Range 950 to 2150MHz with 1KHz Step Size
- Modulation independent Level Measurement
- No unpredictable Lock on PM/PSK Side Carriers
- Compact, 19" rack-mountable Unit with 1RU
- Front Panel Display and Keypad for Local Control
- Front Panel Test Output
- 8 LNB Inputs via input switch **including LNB power supply** (switchable on/off per LNB)
- Redundant Power Supplies
- TCP/IP-based Design, Web Browser Interface
- 14/18V 0/22kHz Interface to Switches and Switch Matrixes
- Full Remote Administration and Support Capability
- Electronically calibrated for Level and Temperature Linearity which provides excellent Level Accuracy even in Outdoor Environments

### Applications

- Antenna Tracking and Control Systems
- Pilot Measurement
- Uplink power control
- The **sat-nms** LBRX19-81 can operate as a stand-alone solution or fits into the overall **sat-nms** NMS Network Management System provided by SatService

The 19" rack-mount version of the beacon receiver is equipped with a LCD display and a front panel keypad for local control and has 8 L-Band inputs including LNC power supply via an integrated input switch.



**Beacon Antenna 5**

Input level **-77.31 dBm**

RF receive frequency	11500.000 MHz
Frequency tracking offset	0 kHz
Frequency tracking	OFF
Attenuation	0 dB
Measurement bandwidth	30 kHz
Post detector filter	1 Hz
Noise level	n/a
Analog output voltage	0.67 V
Temperature	52.7 C

Receive level alarm **OK**  
 Frequency tracking alarm **OK**  
 Synthesizer lock alarm **OK**  
 D/C supply alarm **OK**

### Contact Information

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## Technical Specification

### RF Specification

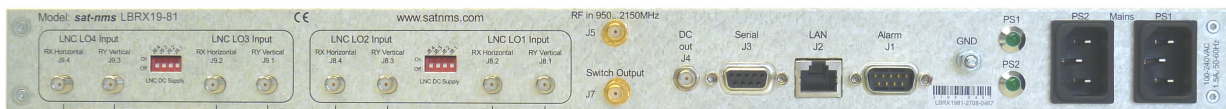
Input Frequency Range	950 to 2150 MHz
Frequency Step Size	1kHz
L-Band Input Connector	SMA female 50Ohm
LNC Voltage at RF input J5	OFF/14/18V + 0/22kHz
L-Band Output Connector	SMA female 50Ohm
Input Noise Figure	< 10dB
L-Band input switch Connectors	8x SMA female 50Ohm (75Ohm F-type on request)
LNC Voltage at input switch J8.1...4 and J9.1...4	8x 15VDC (+/-1V), 8x 400mA max.
Frequency Accuracy	1*E-6
Input Level Measurement Range	-40dBm to -80dBm (@100kHz BW/ 0dB attenuation)
Measurement Bandwidths	6, 12, 30 and 100kHz
Minimum C/N <sub>0</sub> (6kHz BW/ 0dB attenuation)	45dBHz
Analog Output Voltage	0V to 10V
Analog Voltage Slope programmable	-5V/dB to 5V/dB
0V point adjustable by Software	
Output Connector for analog Output Voltage	SMA female
Linearity Failure	+/-1dB in any 10dB
Switchable Input Attenuator to adapt the dynamic Range and Input Signal Level	0, 10, 20, 30dB
Video Bandwidth selectable by Micro Controller	0.1 Hz, 0.2Hz, 0.5Hz, 1Hz, 2Hz, 5Hz
Large Signal Behavior	No Impact at -35dBm Total Input Power
C/N Measurement Functionality	Measured in Intervals at Reference Frequency

### MNC Interface Specification

Ethernet Interface for MNC and User Interface	100-Base-T, via HTTP GET Requests
RS232 MNC Interface	D-SUB 9 female
Summary Fault Indication	Relay Contact D-SUB 9 male
Level Alarm Indication	Relay Contact D-SUB 9 male

### Electrical and Mechanical Specification, Environmental Conditions

Supply Voltage	90 to 250V AC 50 to 60Hz, 15W typ./ 115W max.
Temperature Range	5° to 50° C
Humidity	Up to 90% non-condensing
Mechanical Size	483x43x370mm (WxHxD), 1RU 19"
Weight	4,2 kg



sat-nms LBRX19-81 L-Band Beacon Receiver Rear Panel

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#### Operational Settings

RF receive frequency	11500.000 MHz
Polarization	H
Attenuation	0 dB
Measurement bandwidth	30 kHz
Post detector filter	1 Hz
Spectrum compensation	OFF
Alarm threshold	-999.99 dBm
Signal search enable	OFF [SEARCH NOW]
Signal search delay	15 sec
Frequency tracking	OFF
Frequency tracking interval	5 sec
Frequency tracking width	150 kHz
C/N measurement mode	OFF
Noise measurement frequency	1500.000 MHz
Noise measurement interval	5 sec

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#### Installation Settings

LNB voltage	OFF
22kHz Tone	OFF
LO frequency 4 (highest)	10600.000 MHz
Band edge 3/4	11800.000 MHz
LO frequency 3	9750.000 MHz
Band edge 2/3	6350.000 MHz
LO frequency 2	-7200.000 MHz
Band edge 1/2	4300.000 MHz
LO frequency 1 (lowest)	-5150.000 MHz
Analog output scale	0.2500 V/dB
Analog output offset	-80.00 dB
UDP destination address	192.168.2.73
Communication address	None
Novella emulation	OFF
Relay 2 function	LEVEL
Note	Beacon Antenna 5
Display refresh rate	1 sec
User password	*****
Admin password	*****