

## sat-nms L-Band Beacon Receiver LBRX19

The **sat-nms** L-band Beacon Receiver manufactured by SatService GmbH is a measurement tool which measures the RF input level and provides this information as output signal for control systems. The LBRX19 is the 19" rack mount version of the **sat-nms** Beacon Receiver. A compact version of the LBRX as DIN rail box is also available. 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 beacon RX receives a satellite beacon signal which is down-converted to L-band by a Low Noise Converter (LNC) at its L-band interface input. The beacon RX 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 which measures 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: a 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** Beacon Receiver is controlled remotely by a monitoring and control application through the TCP/IP interface. Communication with the beacon receiver is made with http requests or over a serial M&C protocol. The beacon receiver implements the http both, for the user interface and for the M&C interface.

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 4 L-band inputs via an integrated multi switch.

### Key Features

- Full L-band tuning range 950 to 2050MHz 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
- 4 LNB inputs via small multi switch
- TCP/IP based design, web browser interface
- Unlimited number of clients possible
- 14/18 0/22kHz Interface to switches and switch matrixes
- Full remote administration and support capability
- Relay contact output for level alarm
- 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 LBRX can operate as a stand-alone solution or fits into the overall **sat-nms** Network Management System provided by SatService

### Contact Information

SatService  
Gesellschaft für Kommunikationssysteme mbH

Hardstrasse 9, D-78256 Steisslingen, Germany

phone +49 7738 97003, fax +49 7738 97005  
e-mail [info@satservicegmbh.de](mailto:info@satservicegmbh.de)

[www.satnms.com](http://www.satnms.com)  
[www.satservicegmbh.de](http://www.satservicegmbh.de)

## Technical Specification

### RF Specification

Input frequency range	950 to 2050 MHz
Frequency step size	1KHz
L-Band Input Connector	SMA female 50 Ohm
LNC voltage	OFF/14/18V
L-Band Output Connector	SMA female 50 Ohm
Input Noise Figure	< 10dB
L-Band multi switch Input Connectors	4x F female 75 Ohm
Frequency accuracy	1*E-6
Input Level measurement range	-40 dBm to -80 dBm
Measurement bandwidths	6, 12, 30 and 100 KHz
Minimum C/N <sub>0</sub> (6KHz)	45 dBHz
Analog output voltage	0V to 10V
Analog voltage slope programmable	-5 V/dB to 5 V/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, 0,5Hz, 1Hz, 5Hz
Large signal behavior	no impact at -35dBm total input power
C/N measurement functionality	measured in intervals at reference frequency

### M&C Interface Specification

Ethernet interface for M&C and user interface	10-Base-T, Via http GET requests
RS232 M&C 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 240V AC 50 to 60Hz
Temperature range	5° to 50° C
Humidity	up to 90% non condensing
Mechanical size	483x43x370mm (WxHxD), 1RU 19"
Weight	4 kg



L-band Beacon Receiver Rear Panel

The image displays two screenshots of the Beacon Receiver web interface in a Mozilla Firefox browser. The left screenshot shows the 'Operational Settings' page with the following values:

- RF receive frequency: 1500.000 MHz
- Polarization: H
- Attenuation: 0 dB
- Measurement bandwidth: 100 kHz
- Post detector filter: 5 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: 30 sec
- Frequency tracking width: 150 kHz
- C/N measurement mode: OFF
- Noise measurement frequency: 1500.000 MHz
- Noise measurement interval: 5 sec

The right screenshot shows the 'Installation Settings' page with the following values:

- LNB voltage: 18V
- 22kHz Tone: ON
- High band LO frequency: 0.000 MHz
- Low band LO frequency: 0.000 MHz
- Band edge: 0.000 MHz
- Analog output scale: 0.5000 V/dB
- Analog output offset: -75.00 dB
- UDP destination address: 192.168.2.33
- Communication address: A
- Relay 2 function: LEVEL
- Note: Beacon Antenna 1A