

sat-nms LBRX19 - L-Band Beacon Receiver

The **sat-nms** LBRX19 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 is the 19" rack-mount version of the **sat-nms** LBRX Beacon Receiver. A compact version of the **sat-nms** 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 **sat-nms** LBRX19 receives a satellite beacon signal that is down-converted to L-Band by a PLL stabilized Low Noise Converter (LNC) at its L-Band interface input. The **sat-nms** LBRX19 does not demodulate any satellite signals because the satellite signals are not always CW signals but even more often modulated in FM or QPSK. Due to this fact, the best implementation is a non-coherent receiver that measures the input level in a user selectable defined bandwidth and provides this digitized level information via local and remote interfaces. The signal level information is provided via four different interface types: an http web interface via internal web server, UDP datagram's, RS232 interface and the dB linear analog output voltage. The **sat-nms** LBRX19 Beacon Receiver is controlled remotely by a monitoring and control application via the TCP/IP interface. Communication with the beacon receiver is made with http requests or over a serial Monitoring and Control protocol.

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 including LNC power supply via an integrated input switch.

Key Features

- Full L-Band Tuning Range 950 to 2150MHz with 1KHz Step Size, optional up to 2450MHz
- 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 Port
- 4 LNB inputs via input switch including LNB power supply
- TCP/IP-based Design, Web Browser Interface
- 14/18 0/22kHz Interface to Switches and Switch Matrixes at single L-Band input
- 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 **sat-nms** LBRX19 can operate as a stand-alone solution or fits into the overall **sat-nms** NMS Network Management System provided by SatService



Beacon Antenna 1A

Input level	-90.20 dBm
RF receive frequency	1500.000 MHz
Frequency tracking offset	0 kHz
Frequency tracking	OFF
Attenuation	0 dB
Measurement bandwidth	100 kHz
Post detector filter	5 Hz
Noise level	n/a
Analog output voltage	0.00 V
Temperature	48.1 °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 (up to 2450MHz as option '2G5')
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
L-Band input switch Connectors	4x SMA female 50Ohm (750hm F-type on request)
LNC Voltage at input switch J8.1...4	4x17.5VDC (+/-1V), 4x 400mA max. (switchable 13/17V as option)
Frequency Accuracy	1*E-6
Input Level Measurement Range	-30dBm to -80dBm
Large Signal Behavior	no impact at -25dBm total input power
Damage Level	+10dBm
Measurement Bandwidths	6, 12, 30 and 100kHz
Minimum C/N ₀ (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	10-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./ 60W max.
Temperature Range	5° to 50° C
Humidity	Up to 90% non-condensing
Mechanical Size	483x43x370mm (WxHxD), 1RU 19"
Weight	4 kg



sat-nms LBRX19 L-Band Beacon Receiver Rear Panel



Operational Settings

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



Installation Settings

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