

sat-nms LBRX19-161 - L-Band Beacon Receiver

The **sat-nms** LBRX19-161 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 unique feature of this unit is its 16:1 signal input switch that provides the possibility to connect up to 16 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** LBRX19-161 receives a satellite beacon signal that is down-converted to L-Band by a PLL stabilized Low Noise Converter (LNB) at its L-Band interface input. The **sat-nms** LBRX19-161 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** LBRX19-161 Beacon Receiver is controlled remotely by a monitoring and control application via the TCP/IP interface. Communication with the beacon receiver is possible 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 16 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
- 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
- 16 LNB Inputs via input switch **including LNB power supply** (switchable on/off per LNB)
- TCP/IP-based Design, Web Browser Interface
- 14/18V 0/22kHz Interface to Switches and Switch Matrixes at single L-Band input port
- 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** LBRX19-161 can operate as a stand-alone solution or fits into the overall **sat-nms** NMS Network Management System provided by SatService



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	16x SMA female 50Ohm (75Ohm F-type on request)
LNC Voltage at input switch J8.1...4 and J9.1...4	16x 15VDC (+/-1V), 16x 400mA max.
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	0, 10, 20, 30dB
Signal Level	
Video Bandwidth selectable by Micro Controller	0.1 Hz, 0.2Hz, 0.5Hz, 1Hz, 5Hz
C/N Measurement Functionality	Measured in Intervals at Reference Frequency

MNC Interface Specification

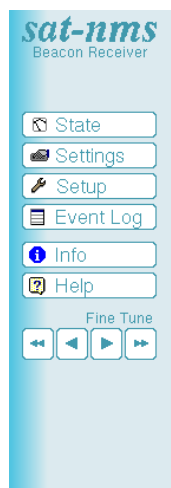
Ethernet Interface for MNC and User Interface	100-Base-T, via HTTP GET Requests
RS232 MNC Interface	D-SUB 9 female
Summary Fault Indication	Relay Contact D-SUB 9 male
Level Alarm Indication	Relay Contact D-SUB 9 male

Electrical and Mechanical Specification, Environmental Conditions

Supply Voltage	90 to 250V AC 50 to 60Hz, 25W typ./ 250W max.
Temperature Range	5° to 50° C
Humidity	Up to 90% non-condensing
Mechanical Size	483x43x460 (515 overall)mm (WxHxD), 1RU 19"
Weight	5,6 kg



sat-nms LBRX19-161 L-Band Beacon Receiver Rear Panel



Operational Settings

RF receive frequency	11701.733 MHz
Polarization	Vert
Attenuation	10 dB
Measurement bandwidth	30 kHz
Post detector filter	0.5 Hz
Spectrum compensation	OFF
Alarm threshold	-90.00 dBm
Signal search enable	OFF [SEARCH NOW]
Signal search delay	15 sec
Frequency tracking	OFF
Frequency tracking interval	1800 sec
Frequency tracking width	150 kHz
C/N measurement mode	OFF
Noise measurement frequency	11450.000 MHz
Noise measurement interval	5 sec

Installation Settings

LO selection mode		16-LO-MODE		Use internal multiswitch		ON	
LNB voltage		AUTO		22kHz Tone		AUTO	
Band	LO	Low lim	Hi lim	RX-Pol	Switch	LNB Volt	22kHz
1	0.000 MHz	950.000 MHz	2500.000 MHz	H	38.1	14V	OFF
2	0.000 MHz	950.000 MHz	2500.000 MHz	H	38.2	18V	OFF
3	0.000 MHz	950.000 MHz	2500.000 MHz	H	38.3	14V	ON
4	0.000 MHz	950.000 MHz	2500.000 MHz	H	38.4	18V	ON
5	0.000 MHz	950.000 MHz	2500.000 MHz	H	39.1	14V	OFF
6	0.000 MHz	950.000 MHz	2500.000 MHz	H	39.2	18V	OFF
7	0.000 MHz	950.000 MHz	2500.000 MHz	H	39.3	14V	ON
8	0.000 MHz	950.000 MHz	2500.000 MHz	H	39.4	18V	ON
9	0.000 MHz	950.000 MHz	2500.000 MHz	H	110.1	14V	OFF
10	0.000 MHz	950.000 MHz	2500.000 MHz	H	110.2	18V	OFF
11	0.000 MHz	950.000 MHz	2500.000 MHz	H	110.3	14V	ON
12	0.000 MHz	950.000 MHz	2500.000 MHz	H	110.4	18V	ON
13	0.000 MHz	950.000 MHz	2500.000 MHz	H	111.1	14V	OFF
14	0.000 MHz	950.000 MHz	2500.000 MHz	H	111.2	18V	OFF
15 *	0.000 MHz	950.000 MHz	2500.000 MHz	H	111.3	14V	ON
16	0.000 MHz	950.000 MHz	2500.000 MHz	H	111.4	18V	ON
Analog output scale				0.2500 V/dB		-80.00 dB	
UDP destination address				none		A	
Novella emulation				OFF		LEVEL	
Note				Reading		1 sec	
User password				*****		*****	
Polarization aliases				H.V			