

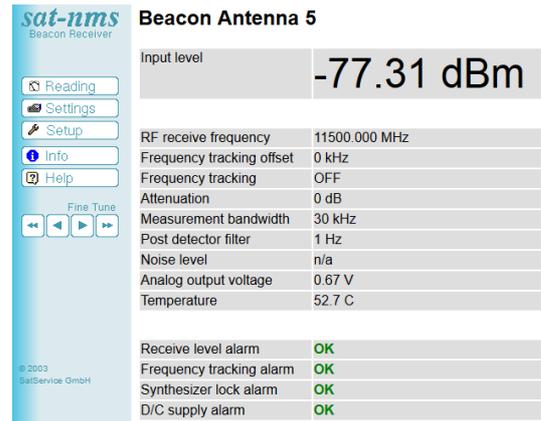
sat-nms LBRX-81 - L-Band Beacon Receiver

The **sat-nms** LBRX-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** LBRX-81 is the DIN rail box version, a 19" rack-mount version, called LBRX19-81, 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 are pilot measurement or control loops like uplink power control.



The **sat-nms** LBRX-81 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** LBRX-81 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: a http web interface via internal web server, UDP datagrams, RS232 interface and the dB linear analog output voltage. The **sat-nms** LBRX-81 Beacon Receiver is controlled remotely by a monitoring and control application via its TCP/IP interface. Communication with the beacon receiver is made with http requests or over a serial Monitoring and Control protocol.



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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Applications

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

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, small DIN rail compatible box also allows integration into antenna controller
- TCP/IP-based design
- HTTP web browser interface
- 8 LNB inputs via input switch including possibility for **LNB power supply** (switchable on/off per LNB)
- Full remote administration & support capability
- Relay contact output for level alarm
- Each beacon receiver is electronically calibrated for level and temperature linearity and therefore provides excellent level accuracy even in outdoor environments

Technical Specification

RF Specification

Input Frequency Range	950 to 2150 MHz
Frequency Step Size	1kHz
L-Band Input Connector	SMA female 50Ohm
LNB Voltage	OFF/14/18V
L-Band Test Output Connector	SMA female 50Ohm
L-Band input switch Connectors	8x SMA female 50Ohm (75Ohm F-type on request)
LNB Voltage output at input switch J8.1...4 and J9.1...4	8x 15VDC (+/-1V), 8x 400mA max. (depending on external 24VDC Power supply for LNB Voltage)
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 100 kHz
Minimum C/N ₀ (6kHz BW/ 0dB attenuation)	45dBHz
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, 0.2Hz, 0.5Hz, 1Hz, 2Hz, 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 Beacon Receiver	22V-28V unregulated DC (min 24V for f>2050 MHz) / 0.35A without LNB
Supply Voltage LNB	24VDC/3.5A max (@400mA per LNB)
Temperature Range	5° to 50° C
Humidity	Up to 90% non-condensing
DIN Rail Module	270x105x90mm
Weight	1,4kg



sat-nms LBRX-81
Rear Panel



sat-nms LBRX-81
Front Panel



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



Installation Settings

LNB voltage	AUTO
22kHz Tone	AUTO
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	-90.00 dB
UDP destination address	172.16.100.40
Communication address	A
Nonstop emulation	OFF