

## sat-nms LBRX-1MT - L-Band Beacon Receiver

The **sat-nms** LBRX-1MT 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 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** LBRX-1MT receives a satellite beacon signal that is down-converted to L-Band via a PLL stabilized Low Noise Converter (LNC) at its L-Band interface input. The **sat-nms** LBRX-1MT 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 that 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.

This special version of a beacon receiver **sat-nms** LBRX-1MT has been optimized for a very quick measurement cycle so that an external computer can receive any 1msec the update of the beacon level information.

The **sat-nms** LBRX-1MT provides the output level information via two different and parallel available interface types: a serial interface and the analog voltage output with level alarm indication. This special version does not include a web server and the http interface to the benefit of a much quicker measurement cycle time. The level information is still provided via RS232 and via analog voltage output and in addition to that via a RS422 TX only output interface that continuously provides the level information via a 2 byte packet per measurement with a minimum protocol with parity control. The **sat-nms** LBRX-1MT Beacon Receiver is controlled remotely by a monitoring and control application via RS232 interface.

### 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, small DIN Rail compatible Box also allows Integration into Antenna Controller
- Measurement Cycle Time is 1msec
- 14/18V 0/22kHz Interface to Switches and Switch Matrixes
- 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
- Wide Temperature Range
- Serial RS232 Interface for Remote Control
- Serial RS422 TX-only Output Interface provides measured Level Information

### Applications

- Application requiring a very quick Measurement Cycle
- Antenna-Tracking and Control Systems
- Pilot Measurement
- Uplink Power Control

### Contact Information

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## Technical Specification

### RF Specification

Input Frequency Range	950 to 2050 MHz
Frequency Step Size	1KHz
L-Band Input Connector	SMA female 50Ohm
LNC Voltage	OFF/14/18V 0,5A max.
L-Band Test Output Connector	SMA female 50Ohm
Frequency Accuracy	1*E-6
Input Level Measurement Range	-30dBm to -80dBm
Damage level at input port	10dBm
Large Signal Behavior	No Impact at -25dBm total input power
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, 0.2HZ, 0.5Hz, 1Hz, 5Hz
Measurement Update Rate	1msec

### MNC Interface Specification

RS232 MNC Interface	D-SUB 9 female J3
RS422 Level Information TX-only	D-SUB 9 female J3
Summary Fault Indication	Relay Contact D-SUB 9 male J1
Level Alarm Indication	Relay Contact D-SUB 9 male J1 J2 (Network) not used

### Electrical and Mechanical Specification, Environmental Conditions

Supply Voltage	22V-28V unregulated DC (25V for 2050 MHz) / 0.35A without LNB
Temperature Range	-25 to +55 Degrees operational
Humidity	-40° a +70° Storage Temperature
DIN Rail Module	Up to 90% non-condensing 270x105x50mm



sat-nms LBRX-1MT Rear Panel



sat-nms LBRX-1MT Front Panel