

LUMISTAR

LS-27-B Modular Dual Channel Tri-Band Tracking and Data Receiver Data Sheet

Description: The Lumistar LS-27-B Modular Dual Channel Tri-Band Tracking and Data Receiver is Lumistar's third generation of modular high performance FM Receivers. This wideband design supports one or two independent channels of PCM with data rates up to 20 Mbps. The unit includes both an FM demodulated output for PCM data, and programmable



AM/linear AGC outputs for auto-tracking receivers. The design offers 8 IF Bandwidths and 8 Video Filters per channel for each receiver. AC coupling with a low pass filter is employed to ensure a high quality data link with long strings of NRZ-L ones or zeroes. The unit provides a software selectable 10 MHz reference I/O port for locking local oscillators to a high precision external source or to arrange multiple units in a master/slave arrangement. The receiver's

control and status is achieved via Ethernet, USB or auto-switched RS-232 (or "4-wire" RS-485 in place of 232). When utilizing the RS-422 interface, multi-drop configurations can be accommodated.

Key Features:

- Single/Dual-Channel --- Single/Dual/Tri-Band Modular FM Receiver
- Supports two independent data streams
- Programmable AM and AGC, with Linear AGC Freeze Outputs
- Supports data rates up to 20 Mbps
- 8 dB Noise Figure (maximum); 6dB (typical)
- Automatic G/T Test and Calculations for Tracking Systems
- 70 MHz IF Output from Down-converter and 70MHz IF input to IF Receiver
- Compatible with LDPS and LRRS Software

Frequency Band Examples: Specify up to 3 bands below (300 MHz to 7 GHz available):

- P 215-320 MHz
- L 1435-1540 MHz
- U 1710-1850 MHz
- S 2200-2400 MHz
- E 2185-2485 MHz
- I 70 MHz IF Input

LUMISTAR

LS-27-B Modular Dual Channel Tri-Band Tracking and Data Receiver Data Sheet

Tuner:

| | |
|-----------------------|---|
| Input Bands | Specify upon order 2185 – 2480 MHz (E-Band) 2200 – 2400 MHz (S-Band) 4400-5150 (C-band) 1710 – 1850 MHz (UL-Band) 1435 – 1540 MHz (L-Band) 215-320 MHz (P-Band) |
| IF Bandwidths | 70 MHz IF Input (no tuner) 8 selectable IF Bandwidths 0.25, 0.5, 1, 2, 5, 10, 20, 40 MHz (Standard), Custom sets available |
| Tuner Resolution | 50 KHz |
| Frequency Accuracy | 0.002 ppm |
| Noise Figure | 8 dB (Maximum); 6 dB (Typical) |
| Operating Input Level | +10 to threshold |
| Maximum Input Level | +30 dBm without damage |

Demodulator Outputs:

| | |
|-------------------|--|
| Demodulation Type | FM and AM |
| Post-Detection BW | 8 Software Selectable. Unless otherwise specified, they will be set for 50% of the IF Bandwidths (standard) |
| Data Output Level | Bi-Polar (with software controlled output level to +/-3.5 Vp-p) with 75 Ohm output impedance |
| AGC Output | Fully Programmable, SW selectable,,: any slope and any endpoints, -4 to +4 V into 1K Ω . |
| AGC Time Constant | 5 selectable time constants 0.1, 1, 10, 100, 1000 ms |
| AGC Linearity | +/- 1 dB into best fit straight Line -15 dBm to threshold |
| AM Output | 4 Vp-p into 10 K Ω 2.5 Vp-p into 75 Ω SW selectable Invert command |
| AM Freq Response | Selectable AM Low Pass Filters: thirty-two from 50 Hz to 50 KHz |

Additional Inputs/Outputs:

| | |
|------------------|--|
| AGC Controlled | -15 +/- 5 dBm signal into 50 Ohms |
| 70 MHz IF | |
| Linear 70 MHz IF | 50-55 dB Gain (typ) into 50 Ohms. User adjustable. Max output @ +5 dBm |

Bus Outputs:

| |
|------------------------------------|
| Signal Strength and Peak Deviation |
| AM Modulation Depth |
| AM Frequency |

Environmental:

| | |
|---------------------------|--|
| Operating Temperature | 0° to +50° C |
| Non-Operating Temperature | -25° to +70° C |
| Operating Humidity | 0 to 90% (Non- condensing) |
| Non-Operating Humidity | Protect from moisture and contamination |

Physical:

| | |
|-------------------------|--|
| Form Factor | 7.00" L x 5.75" W x 1.625" H |
| Input Connections | SMA for RF in 1/2 |
| Reference Connector | SMA for 10 MHz Ref I/O |
| Output Connections | SMA for 70 MHz IF output 1/2 |
| Input/Output Connectors | Tyco/Molex multi-pin connectors for power, control, status and data interfaces, RJ-45 and USB |
| Power Required | 22 Watts Typical +11 to +36 VDC |

Part Numbering: where X = Band

| | |
|---------------|-----------------------------|
| LS-27-B(X) | Single Channel/ Single Band |
| LS-27-B(XX) | Single Channel/Dual Band |
| LS-27-B(XXX) | Single Channel/Tri-Band |
| LS-27-BB(X) | Dual Channel/Single Band |
| LS-27-BB(XX) | Dual Channel/Dual Band |
| LS-27-BB(XXX) | Dual Channel/Tri Band |

Consult Factory for Other Options and Examples

*Refer to Document "USM-27B-03-001-04" for more
information*