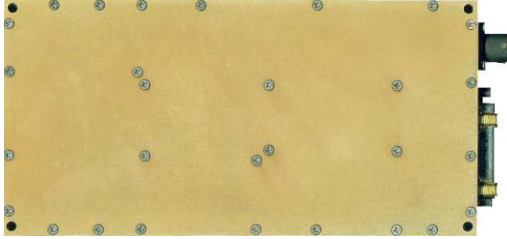


# LUMISTAR

## LS-26 Series Airborne FM Receiver/Bit Synchronizer Data Sheet

### Description:



The Lumistar LS-26 Series Airborne FM Receiver/Bit Synchronizer is based on the popular LS-25-P2 PCI Receiver and LS-40-DB20 Bit Synchronizer Daughterboard designs with packaging to survive the most severe airborne environments. The LS-26 provides ground station performance in an airborne package. The LS-26 is

available in several configurations: 1) Airborne receiver (without bit synchronizer), 2) Airborne receiver with bit synchronizer, or 3) Airborne bit synchronizer.

This modular design consists of an RF to IF down-converter, 70 MHz IF receiver with FM demodulation, bit synchronizer, and airborne power supply. The appropriate modules are selected for the desired application on manufacturing and installed in a rugged machined aluminum enclosure.

### Key Features:

- **Modular design in a machined aluminum airborne housing with modules:**
  - RF Down-Converter to 70 MHz IF (available in L-Band or S-Band)
  - 70 MHz IF Receiver with FM demodulator
  - Bit Synchronizer Daughterboard inside (LS-40-DB20)
  - Power Supply (available in +12VDC or +28 VDC versions)
  - Airborne enclosure
- Supports data rates 20 Mbps (NRZ codes); 10 Mbps (other codes)
- 4 Selectable IF Bandwidths and 4 Selectable Video Filters
- Maximum RF Input Signal without damage is +14 dBm
- RF Input Dynamic Range of 80 dB
- AGC Range -10 to -90 dBm
- AC coupled for high quality links at low data rates
- 10 dB Noise Figure (maximum); 7.5 dB (typical)
- Bit Synchronizer tape output with programmable PCM Code
- Bit Synchronizer signal present and data quality outputs
- RS-232 Programming Interface with Software
- Programmed settings are stored in EEPROM

### Applicable Models:

LS-26-S	Airborne S-Band Receiver
LS-26-L	Airborne L-Band Receiver
LS-26-SB	Airborne S-Band Receiver with Bit Synchronizer
LS-26-LB	Airborne L-Band Receiver with Bit Synchronizer
LS-26-B	Airborne Bit Synchronizer
LS-26-D	Airborne Down Converter with 70 MHz Output

## SPECIFICATIONS:

### Receiver Section:

Input RF Frequency	2200 – 2400 MHz for S-Band Receiver 1435 – 1540 MHz for L-Band Receiver Other bands are available
Tuner Resolution	500 KHz (standard) 50 KHz (optional)
Frequency Accuracy	0.002 ppm
Max RF Input	+14 dBm without damage
RF Input Dynamic Range	80 dB
Receiver AGC Range	-10 to +90 dBm
Input Impedance	50 Ohm
VSWR	2:1 Max; 1.5:1 Typical
Noise Figure	10 dB (Maximum); 7.5 dB (Typical)
IF Frequency	70 MHz

### Demodulator Section:

Demodulation Type	FM & AM
IF Bandwidth	4 Selectable (specify on order)
Video Filters	4 Selectable (specify on order)
Demodulator Bandwidth	20 Mbps NRZ-L data
Data Output Level	4 V p-p unloaded
Output Impedance	75 Ohm

### Bit Synchronizer Section:

Data Rates	50 bps to 20 Mbps NRZ Codes 50 bps to 10 Mbps Other Codes
PCM Input Codes	NRZ-L/M/S, BIΦ-L/M/S, DM-M/S, M <sup>2</sup> -M/S, Inv BIΦ-L, Inv NRZ-L, RZ, Inv RZ, RNRZ-L 11/15
PCM Tape Output Codes	Same codes are available as the PCM Input Codes
PCM Data & Clock Out	+/- TTL
PCM Tape Out	+/- TTL
Discrete Outputs	Open Collector, ground when active

## Environmental:

The LS-26 Series products are designed to the following environmental specifications.

Operating Temperature	-20° to +70° C (standard) Extended Temperature versions are available
Non-Op Temperature	-40° to +85° C
Operating Humidity	0 to 95% (Non- condensing)
Non-Operating Humidity	Protect from moisture and contamination
Vibration	20 G, 5 Hz to 2 KHz (all axes)
Acceleration	100 G (all axes)
Shock	100 G pk, half-sine, 11msec (all axes)
Altitude	Unlimited

## Physical:

Size	
Receiver with Bit Sync	3.7" x 7.4" x 1.75"
Receiver Only	3.7" x 7.4" x 1.25"
Bit Sync Only	3.7" x 7.4" x 1.00"
Connectors	
J1 (PT02A-8-4P)	Power
J2 (SMA Female)	RF Input
J3 (M24308/2-3F)	Data Out
	Clock Out
	BS Tape Out
	Signal Present
	Signal Quality
J4 (13W3 Hybrid D-Sub F)	Programming I/F,
	TLM Out 1 & 2,
	AM Out,
	RSSI Out,
	70 MHz Out
	20 MHz Ref I/O
J-5 (SMA Female)	RF Loop Out
Mating Connectors	Supplied on request
Power	+28 ±4 VDC (with reverse polarity protection) +12 VDC (Optional)
Power Consumption	500 ma (typ); 700 ma (max) For +28 V version