

# LUMISTAR

## LS-25-P2 Multi-Band FM PCI Receiver Data Sheet

### Description:

The Lumistar LS-25-P2 Multi-Band FM Receiver is the next generation tri-band, single-slot, full-length PCI FM Receiver. The receiver is manufactured with one, two, or three frequency bands. This wideband design supports PCM data rates up to 20 Mbps and includes an FM demodulated output for PCM data, two 70 MHz IF outputs, AM and linear AGC outputs. The design offers up to twelve 12 IF Bandwidths and twelve Video Filters. AC coupling with a low frequency filter is



employed to ensure a high quality data link with long strings of NRZ-L ones or zeroes. Down-converter versions of this design are available (LS-27-D Dual-Band Two Channel, the LS-27-D2 Multi-Band Downconverter or the LS-27-Q

Quad-Band Single Channel) and can be used with the LS-32-R or LS-58-M for a single stream multi-mode solution or LS-33-P for a diversity combining solution (see separate data sheets). The 20 MHz Reference I/O allows the local oscillators of two down-converters to be locked together to achieve the high performance required in pre-detection diversity combining.

### Key Features:

- **Single, Dual, or Tri-Band Single Slot PCI Receiver with FM Demodulation**
- **AM, Controlled AGC, and Linear AGC Outputs**
- **Supports Data Rates up to 20 Mbps**
- **8 dB Noise Figure (maximum); 6dB (typical)**
- **70 MHz IF Outputs from Down-converter and 70MHz IF input to IF Receiver**
- **20 MHz Reference I/O for use with the LS-33-P Pre-D Diversity Combiner**
- **Spectral and Eye Pattern Display Option using LS-22-SE PCI Board**
- **Compatible with LDPS Software**

**Frequency Band Options:** Specify up to 3 bands from the table below

**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**  
**K Custom**

## Tuner:

Input Bands	Specify up to 3: 2185 – 2480 MHz (E-Band) 2200 – 2400 MHz (S-Band) 1710 – 1850 MHz (UL-Band) 1435 – 1540 MHz (L-Band) 215-320 MHz (P-Band) 70 MHz IF Input (no tuner)
IF Bandwidths	4 or 12 depending on model 0.5, 1, 1.5, 2.5, 3.5, 4, 6, 8, 10, 12, 16, 20 MHz
Tuner Resolution	50 KHz
Frequency Accuracy	0.002%
Noise Figure	8 dB (Maximum); 6 dB (Typical)
Operating Input Level	-10 to threshold
Maximum Input Level	+18 dBm without damage

## Demodulator Outputs:

Demodulation Type	FM and AM
Post-Detection BW	4 or 12 Software Selectable Video Filters. Unless otherwise specified, they will be set for 50% of the IF Bandwidths
Data Output Level	Bi-Polar (with software controlled output level to +/-3.5 Vp-p) with 75 Ohm output impedance
AGC Output	0-4 V into 1K $\Omega$ , 0 V is -100 dBm, +4V is 0 dBm
AGC Time Constant	4 selectable time constants 1, 10, 100, 1000 ms
AGC Linearity	+/- 2 dB into best fit straight Line -15 dBm to threshold +5 dB
AM Output	4 Vp-p into 10 K $\Omega$ 2.5 Vp-p into 75 $\Omega$
AM Freq Response	Selectable AM Low Pass Filters: 50, 500, 5K, and 50 KHz

## Additional Inputs/Outputs:

AGC Controlled	-15 +/- 5 dBm signal
70 MHz IF	into 50 Ohms
Linear 70 MHz IF	35 dB Gain (typ) into 50 Ohms. Max output of +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	Full Size PCI Board
IF Loop-back	Software controlled
Input Connections	SMA for RF in
Reference Connector	SMB for Ref I/O
Input/Output Connector	D-Series 13W3 provided with
D-Series to BNC/SMA cable	BNC for Baseband 1 Out BNC for Baseband 2 Out BNC for AM Out BNC for AGC Out SMA for 70 MHz IF Out1 SMA for 70 MHz IF Out2 SMA for Linear IF Out
Current Required	11 Watts Maximum 325 mA at +5V 530 mA at +12V 215 mA at -12V

## Part Numbering: where X = Band

LS-25-PA(X)	Single Band 4IF/4Video
LS-25-PB(X)	Single Band 12IF/12Video
LS-25-PA(XX)	Dual Band 4IF/4Video
LS-25-PB(XX)	Dual Band 12IF/12Video
LS-25-PA(XXX)	Tri Band 4IF/4Video
LS-25-PB(XXX)	Tri Band 12IF/12Video