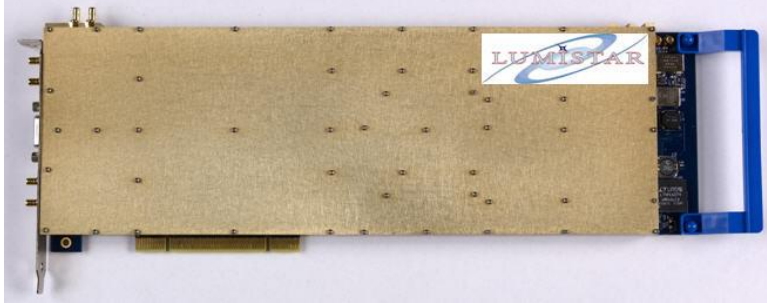


# LUMISTAR

## LS-27-D3 Two-Channel Quad-Band PCI Down-Converter Board Data Sheet

### Description:



**LS-27-D3 Series Downconverter**

The Lumistar LS-27-D3 Two-Channel Quad Band PCI Down Converter product is a 3<sup>rd</sup> generation high-density, high performance down converter designed using the same advanced technology as in the industry leading LS-25 PCI Receiver. The down-converter

converts one or two independent channels of up to four RF frequency bands down to a 70 MHz IF output. The LS-27-D3 is typically used in conjunction with the Lumistar LS-35 Series Digital IF Receiver/Combiner to provide one or two independent telemetry receivers, or a dual diversity combining receiver, with up to two multi-mode demodulators and bit synchronizers in a two-slot PCI interface. The number of channels and frequency band designations can be specified at the time of order. Please see the data sheet for the LS-35-R Digital IF Receiver/Combiner for more information.

### Key Features:

- One or two channels of up to four band down conversion on a single PCI board
- Compatible with LS-35 series IF Receiver/Combiner
  - Provides for a high performance two-card multi-mode Receiver/Combiner
- Supports data rates up to 33 Mbps for FM; 40 Mbps for QPSK and SOQPSK
- Each channel down converts from RF to a 70 MHz second IF
- Linear Programmable Digital AGC and AM Outputs
  - Programmable AGC output slope (Positive or Negative, with AGC Freeze)
- Thirty-two AM Continuous Time Low Pass Filters, with “Bypass mode”
- Excellent Sensitivity, Intermodulation and Spurious, Noise Figure = 5dB (typical)
- Compliant to ARTM Tier 0, I & II Phase Noise Specification
- Eight SAW “Anti-alias” filters per channel (.25, .5, 1, 2, 5, 10, 20, 40MHz)
- 70MHz pass-through mode allows AM/AGC control of block down converters
- Allows for Internal (In-Chassis) or External Cabling of RF/IF In/Out
- External clock input, software selectable (5, 10, or 20MHz)
- Self protection circuit prevents possible damage on Startup (> 28 dBm)
- Support for external LNA power via Bias “T” coupling with RF input

## Tuner Specs:

Input Bands	Specify up to four bands on each channel at time of order: 2185 – 2485 MHz (E-Band) 2200 – 2400 MHz (S-Band) 1710 – 1850 MHz (U-Band) 1435 – 1540 MHz (L-Band) 830-1130 MHz (N-Band) 680 - 760 MHz (K-Band) 215-320 MHz (P-Band) 70 MHz pass-through (STD) <b>Custom Bands are Available</b>
2 <sup>nd</sup> IF Bandwidth	Eight SAW filters (anti-alias when used with the LS-35) 0.25, 0.50, .0, 2.0, 5.0, 10, 20 and 40 MHz (3 dB BW).
Tuner Resolution	50 KHz
Frequency Accuracy	0.001% (typ), 0.002% (max)
Phase Noise:	-110 dBm typ at 100 kHz
AGC Time Constants	Selectable .1, 1, 10, 100, 1000 ms plus user programmable (.1ms - 6.5 sec)
AGC Slope and Range:	Programmable (-4 to +4V)
Noise Figure	5 dB (Typical at Threshold)
Input Level Range	+10 dBm to threshold
RF Input AGC Range:	+10 dBm to -100 dBm
1dB Compression:	+10 dBm, Input (typ)
IIP3:	+15 dBm, Output (typ)
Maximum Input Level	+28 dBm without damage
Bias "T" Supply Power	25VDC, 500ma Max

## AM Demodulation:

AM Freq Response	DC to 50 KHz
Am Lowpass Filtering:	32 selectable lowpass filters, plus "Bypass mode"
AM Filter Values	See User Manual

## Physical, Power and I/O:

Board Form Factor	Full Length PCI 12.4" L x 4.0" W x 0.6" H
Rear Panel Connectors: (for external chassis I/O)	SMB for RF in (CH 1-2) SMB for IF out (CH 1-2) HD15 for AM/AGC outputs
Board Edge Connectors: (for internal chassis I/O)	SMB for RF in (CH 1-2) SMB for IF out (CH 1-2) SMB for Ref I/O SMB for Ref Out
D-Series to BNC cable: (provided with card)	BNC for AM Out 1/2 BNC for AGC Out 1/2
Reference Connector	MMCX on top for Ref I/O
Power:	20.6 Watts Typical 90 mA at +3.3V 3990 mA at +5V 30 mA at +12V
Weight	24 oz (0.68 kg)

## Environmental:

Operating Temperature	0° to +70° C
Non-Operating Temperature	-20° to +70° C
Operating Humidity	0 to 90% (Non-condensing)
Non-Operating Humidity	Protect from moisture and contamination

## Part Number Examples:

### *Single Channel Part Number Examples*

LS-27-DLS	1 Channel, Lower L & S-Band
LS-27-DPU	1 Channel, P & Upper L-Band
LS-27-DPLS	1 Channel, P, L & S-Band
LS-27-DLU	1 Channel, Lower & Upper L-Band

### *Dual Channel Part Number Examples*

LS-27-DDLSLS	Both Lower L & S-Band
LS-27-DDSPSP	Both Lower L & P-band
LS-27-DDSPUL	Ch 1: S and P; Ch 2 Upper and Lower L-bands