

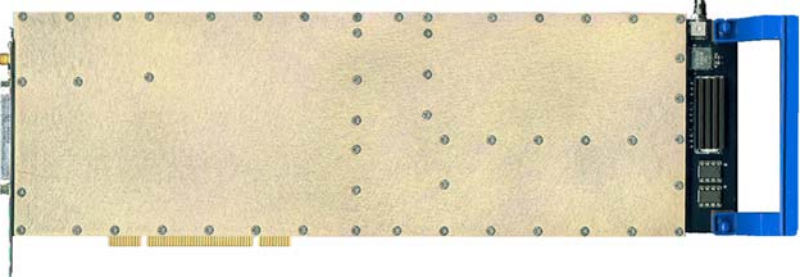
LUMISTAR

LS-25-D6 PCI Tri-Band Down-Converter Board

Use with Lumistar BEAST Products or LS-58-Q ARTM Demodulator Data Sheet

Description:

The Lumistar LS-25-D6 PCI Tri-Band Down Converter is specifically designed to be used with the Lumistar 70 MHz BEAST products or the LS-58-Q 70 MHz IF Receiver with MSFM, SOQPSK, and Multi-h CPM Demodulator. The down-converter is manufactured with one, two, or three frequency bands and transforms the RF signal to a 70 MHz IF frequency which can be applied to an IF Receiver or Pre-Detection Diversity Combiner. Typical applications are indicated below:



- **LS-25-D6 Down Converter with LS-32-R IF Receiver/Demodulator/Bit Sync/Decom** - This *two-board* set allows three frequency bands, demodulation of FM, PM, BPSK, QPSK, OQPSK, AQPSK, and SOQPSK (depending on the license), Bit Synchronization and Multi-function Decom.
- **LS-25-D6 Down Converter with LS-58-Q IF Receiver/ARTM Demodulator/Bit Sync/Decom** - This *two-board* set allows three frequency bands, demodulation of MSFM, SOQPSK, or Multi-h CPM
- **Two LS-25-D6 Down Converters with LS-33-DD Diversity Combiner/Bit Sync/Decom** - is a *three board solution* for Tri-Band Receiver with Pre or Post-Detection Diversity Combining, FM Demodulation, Bit Synchronization, and Multi-function Decom.
- **See the LS-27-D Dual Band, Dual Channel Down Converter with LS-33-DD Diversity Combiner/Bit Sync/Decom** for a *two board solution* for a Dual Band Receiver with Pre or Post-Detection Diversity Combining, FM Demodulation, Bit Synchronization, and Multi-function Decom.

This wideband designs supports PCM data rates up to 40 Mbps for QPSK (20 Mbps for FM). The down converter incorporates 6 SAW filters which are followed by the digital filtering in the BEAST products resulting in 21 IF Bandwidths: 200K, 300K, 500K, 750K, 1M, 1.3M, 1.5M, 2M, 2.4M, 3M, 3.3M, 4M, 4.7M, 6M, 8M, 10M, 13M, 15M, 20M, 27 M, and 30 MHz.

The 20 MHz Reference I/O allows the local oscillators of two receivers to be locked together to achieve the high performance required in Pre-Detection Diversity Combining.

Key Features:

- **Single, Dual, or Tri-Band PCI Down Converter to 70 MHz**
- **Use with Lumistar BEAST 70 MHz products for FM, MSFM, PM, BPSK, QPSK, OQPSK, AQPSK, SOQPSK Demodulation**
- **Use with LS-58-Q ARTM Demodulator for MSFM, SOQPSK, or Multi-h CPM**
- **Supports data rates up to 40 Mbps (QPSK) and 20 Mbps (FM)**
- **Linear AGC Outputs**
- **8 dB Noise Figure (maximum); 6 dB (typical)**
- **20 MHz Reference I/O for use with LS-33-DD Diversity Combiners**
- **Spectral and Eye Pattern Display on BEAST products**

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Specifications are subject to change. Please verify the latest specifications at time of order.

10-1-06

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LS-25-D6 PCI Tri-Band Down-Converter Board

Use with Lumistar BEAST Products or LS-58-Q ARTM Demodulator Data Sheet

Tuner:

Input Bands	Specify up to 3: 2185 – 2480 MHz (E-Band) 2200 – 2400 MHz (S-Band) 1710 – 1850 MHz (U-Band) 1435 – 1540 MHz (L-Band) 215-320 MHz (P-Band)
IF Bandwidths	21 IF Bandwidths are available as a result of the SAW filter on the LS-25-D6 and the digital filter on the LS-32. Please refer to the LS-32 Data Sheet for the IF Bandwidths.
Tuner Resolution	50 KHz
Frequency Accuracy	0.002%
Noise Figure	8 dB (Maximum); 6 dB (Typical)
Operating Input Level	-10 dBm to threshold
Maximum Input Level	+18 dBm without damage

Demodulator Outputs:

Demodulation Type	FM, PM, BPSK, QPSK, OQPSK, AQPSK, SOQPSK are available on the LS-32 with the appropriate software license. Please refer to the LS-32 data sheet for details.
Post-Detection BW	14 Software Selectable Video Filters are available on the LS-32. Please refer to the LS-32 Data Sheet for details.
AGC Time Constant	4 selectable time constants 1, 10, 100, 1000 ms
AM Freq Response	Selectable AM Low Pass Filter for 50, 500, 5K, and 50KHz

Additional Inputs/Outputs:

70 MHz IF Output from Down-Converter (2)
2nd LO Lock interface for Diversity Combiner
AM Output with programmable level

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
Input Connections	SMA for RF in
Reference Connector	SMB for Ref I/O
Input/Output Connector	D-Series 13W3
D-Series to BNC/SMA cable	provided with SMA for 70 MHz IF Out1 SMA for 70 MHz IF Out2 BNC for AM 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-D6(X)	Single Band
LS-25-D6(XX)	Dual Band
LS-25-D6(XXX)	Tri Band

Part Number Examples:

LS-25-D6S	S-Band Down Converter
LS-25-D6LUS	Lower L-Band, Upper L-Band, and S-Band Down Converter