



Overview

The LBC-4000 Up/Down Converter System is an L-Band IF to 70 MHz IF (140 MHz optional) indoor converter. It is packaged in a 1RU 19-inch chassis with two front panel accessible up converter or down converter modules. It contains two diode “OR-ed” internal power supplies for increased reliability and microprocessor-based Monitor & Control (M&C) functions.

The LBC-4000 up converter module translates a 70 MHz IF input signal (140 MHz optional) up to a user-selected frequency at L-Band (950 to 2000 MHz, 950 to 2150 MHz optional). The L-Band output can drive the input of our MBT-4000 block up converter or other RF equipment with an L-Band input.

The LBC-4000 down converter module translates an L-Band (950 to 2000 MHz, 950 to 2150 MHz optional) IF input signal down to a user selected frequency in the 70 MHz (140 MHz optional) IF band. The LBC-4000 can be locked to an internal reference or an external 5 or 10 MHz reference signal. The LBC-4000 is an excellent choice for interfacing legacy 70 or 140 MHz equipment to quad-band or tri-band block converters.

Features

- Meets or exceeds MIL-STD-188-164A
- Low phase noise
- 1 kHz step size
- Field selectable spectral inversion
- 50 dB gain adjustment
- 70 \pm 18 MHz IF (140 \pm 36 MHz optional)
- 950 to 2000 MHz (950 to 2150 MHz optional)
- Flexible configuration
- Auto band sensing capability
- Redundant option available

Installation

The LBC-4000 is rack mounted in a standard 19-inch equipment rack. External equipment, such as a modem, is connected to each internal converter module by a low-cost coaxial cable. A coaxial cable is also used to connect the output of each module to RF equipment either in the same location or at the antenna location.

Specifications

LBC-4000 L-Band Down Converter IDU

Input Frequency Range	950 to 2000 MHz (950 to 2150 MHz optional, 1 kHz steps)
Output Frequency	70 ± 18 MHz (140 ± 36 MHz optional)
Input/Output Impedance	50 Ω
Input Return Loss	15 dB minimum
Output Return Loss	20 dB minimum
Input Connector	Type N, Female
Output Connector	BNC, Female
Gain	35 dB nominal at min. attenuation
Ripple	± .5 dB over any ± 18 MHz for 70 MHz IF units ± .5 dB over any ± 36 MHz for 140 MHz IF units
Slope	.05 dB/MHz
User Attenuation Range	0 to 40 dB, in 0.10 dB steps
Output Power, P1dB	+13 dBm minimum
Third Order Intercept	+23 dBm minimum
Carrier Spurious	-60 dBc
Non-Carrier Spurious	-60 dBm
Stability Over Time	± 1 x 10 ⁻⁹ /Day
Stability Over Temp	± 1 x 10 ⁻⁸ 32° to 122°F (0° to 50°C)

LBC-4000 L-Band Up Converter IDU

Input Frequency	70 ± 18 MHz (140 ± 36 MHz optional)
Output Frequency	950 to 2000 MHz (950 to 2150 MHz optional), 1 kHz steps
Input/Output Impedance	50 Ω
Input Return Loss	18 dB minimum
Output Return Loss	15 dB minimum
Input Connector	BNC, Female
Output Connector	N Female
Gain	25 ± 1 dB nominal at minimum attenuation
Ripple	± .5 dB over any ± 18 MHz for 70 MHz IF units ± .5 dB over any ± 36 MHz for 140 MHz IF units
Slope	.05 dB/MHz
User Attenuation Range	0 to 50 dB, in 0.10 dB steps
Input Power Level	To +10 dBm, maximum
Output Power, P1dB	+10 dBm minimum

Third Order Intercept	+20 dBm minimum
Carrier Spurious	-60 dBc
Non-Carrier Spurious	-75 dBm
Transmit Phase Noise	Exceeds MIL-STD-188-164A
Stability Over Time	± 1 x 10 ⁻⁹ /Day
Stability Over Temp	± 1 x 10 ⁻⁸ 32 to 122°F (0° to 50°C)

Phase Noise

Frequency Offset	Up Converter (Guaranteed / Typical)	Down Converter (Guaranteed / Typical)
100 Hz	-76/-79 dBc/Hz	-75/-78 dBc/Hz
1000 Hz	-79/-82 dBc/Hz	-76/-79 dBc/Hz
10000 Hz	-86/-89 dBc/Hz	-87/-90 dBc/Hz
100000 Hz	-107/-110 dBc/Hz	-110/-113 dBc/Hz
1 MHz	-122/-125 dBc/Hz	-126/-129 dBc/Hz

Physical & Environmental

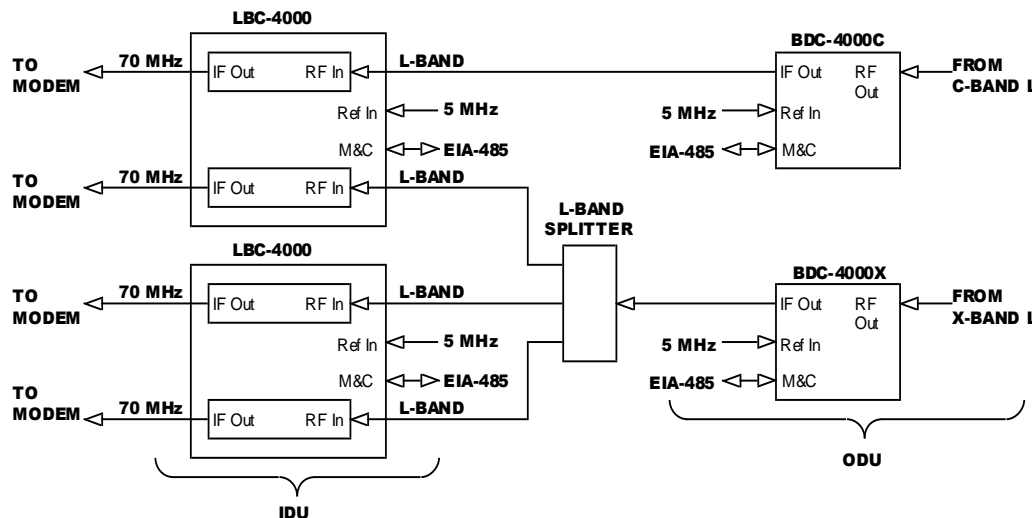
Operating Temperature	-0° to +50°C (32° to 122°F)
Operating Altitude	10,000 ft above sea level
Operating Humidity	5 to 95 non-condensing
Non-Operating Temperature	58° to 160°F (-50° to +71°C)
Dissipation	60 W typical
Prime Power	90 to 260 VAC, 47 to 63 Hz
Dimensions (1RU) (height x width x depth)	1.75" x 19" x 22" (4.45 x 48.30 x 55.90 cm)
Weight	25 lbs (11.34 kg) maximum

External Reference

Input Frequency	5 or 10 MHz, Auto detect
Input Level	± 5 dBm
Input Impedance	50 Ω

Monitor & Control

Ethernet M&C/Connector	Ethernet, Telnet, SNMP/RJ-45
Serial M&C/Connector	TIA/EIA-232, TIA/EIA-485, 4-wire, 9-pin D, Female
Alarm Contacts	3 Form C summary
Alarm Connector	9-pin D, Female



Typical Application



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