

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.

An optional LBC-4000-ST version is available that eliminates the drop front panel and support for a second converter module. Instead, it supports a single converter module and provides front panel mounted, 20 dBc nominal, sample ports (SMA for L-Band, BNC for IF). The LBC-4000-ST offers the same RF functionality and performance as the LBC-4000.

The 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 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 unit 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 & LBC-4000-ST 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 & LBC-4000-ST 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

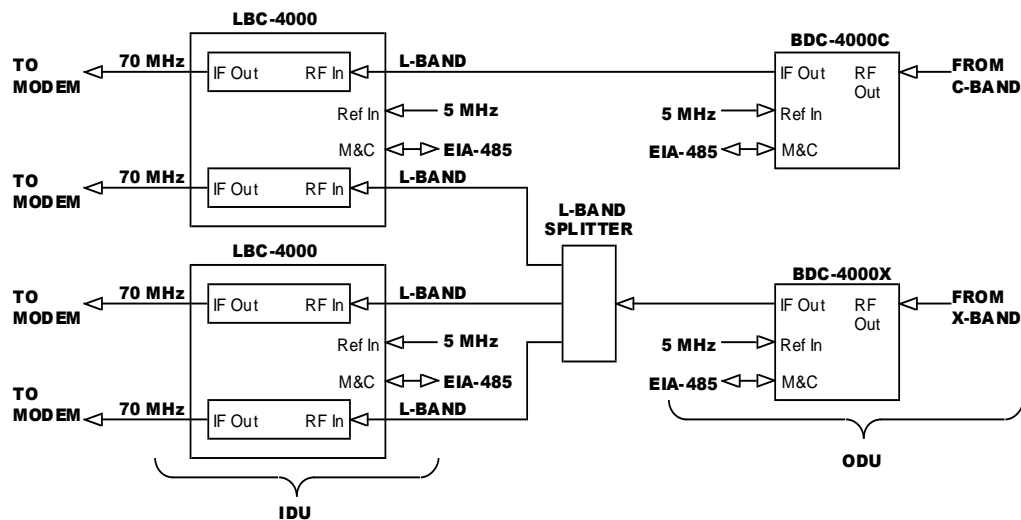
Operating Temperature	-0° to +50°C (32° to 122°F)
Operating Altitude	10,000 ft above sea level
Operating Humidity	5 to 95 non-condensing
Non-Operating Temperature	58° to 160°F (-50° to +71°C)
Dissipation	60 W typical
Prime Power	90 to 260 VAC, 47 to 63 Hz
Dimensions (1RU) (height x width x depth)	1.75"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



2114 West 7th Street
 Tempe, AZ 85281 USA
 Phone +1.480.333.2200
 Email sales@comtechefdata.com
 www.comtechefdata.com

See Comtech EF Data's Patents and Patents Pending at <http://patents.comtechefdata.com>

Comtech EF Data reserves the right to change specifications of products described in this document at any time without notice and without obligation to notify any person of such changes. Information in this document may differ from that published in other Comtech EF Data documents. Refer to the website or contact Customer Service for the latest released product information.