L-Band Up/Down Converter System



INTRODUCTION

The LBC-4000 L-Band IF to 70 MHz IF (140 MHz optional) indoor converter is a 1 RU 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 and 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 – 2000 MHz). The L-band output can drive the input of the Comtech EF Data BUC-4000 block up converter or other RF equipment with an L-band input.

The LBC-4000 down converter module translates an L-band (950 – 2000 MHz) 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 MHz step size, 1 kHz option
- No spectral inversion
- 50 dB gain adjustment
- 70±18 MHz IF (140±36 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.

MBT-4000 MULTI-BAND RF TRANSCEIVER

A companion to the LBC-4000 is Comtech EF Data's Multi-Band RF Transceiver (MBT-4000), which is designed to perform C, X, or Ku RF to L-Band down conversion and L-Band to C,X, or Ku RF up conversion. The MBT-4000 features:

- RF Band switching in minimal time without requiring tools
- Automatic band identification for the BUC, BDC, and antenna feed (if the feeds provide an identifying connector)
- Easy system status verification via LEDs located behind a removable cover
- Flexible configuration: 2 ups, 2 downs, or an up and a down
- Minimal cost for a complete system including spares
- Easy expansion for providing a redundant system or other frequency bands
- Rugged construction for mobile and transportable applications

Please refer to the MBT-4000 datasheet for additional information.



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L-Band Up/Down Converter System

LBC-4000 L-BAND DOWN CONVERTER IDU

Input Frequency Range $950-2000\ \text{MHz},\ 125\ \text{kHz}$ steps (1 kHz opt)

Output Frequency 70±18 MHz (140±36 MHz opt)

Gain 35 dB nominal at min attenuation
User Attenuation Range 0 to 40 dB, in 0.25 dB steps (0.1 dB opt)

Output Power, P1dB +10 dBm minimum
Third Order Intercept +20 dBm minimum
Carrier Spurious -60 dBc

Non-Carrier Spurious -60 dBm

LBC-4000 L-BAND UP CONVERTER IDU

Input Frequency 70±18 MHz (140±36 MHz opt)

Output Frequency 950 – 2000 MHz, 1 MHz steps (1 kHz opt)

Input/Output Impedance 50Ω

 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 User Attenuation Range 0 to 40 dB, in 0.25 dB steps (0.1 dB opt)

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 External Reference 5 MHz, 10 MHz ±5 dBm

ENVIRONMENTAL

Operating Temperature -0° to +50°C
Operating Altitude 10,000 ft above sea level
Operating Humidity 5 to 95 non-condensing
Non-Operating Temperature -50° to +71°C (58° to 160°F)

PHYSICAL

 Dissipation
 35 Watts total, 2 converters

 Prime Power
 90 to 260 VAC, 47 to 63 Hz

 Size
 1 RU 1.75" X 19"W X 22"D

 Weight
 25 lbs. maximum

EXTERNAL REFERENCE

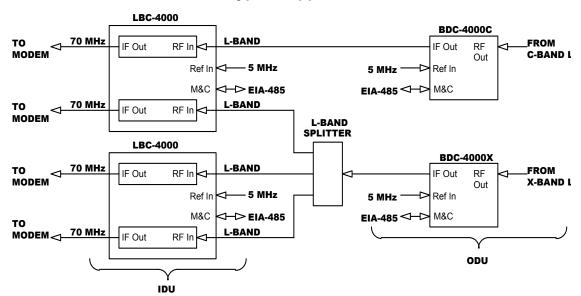
 $\begin{array}{ll} \text{Input Frequency} & 5 \text{ or } 10 \text{ MHz} \\ \text{Input Level} & \pm 5 \text{ dB} \\ \text{Input Impedance} & 50\Omega \end{array}$

MONITOR AND CONTROL

Serial M&C Interface TIA/EIA-232, TIA/EIA-485, 4-wire

Serial Connector 9 pin D, Female Alarm Contacts 3 Form C summary Alarm Connector 9 pin D, Female

Typical Application











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