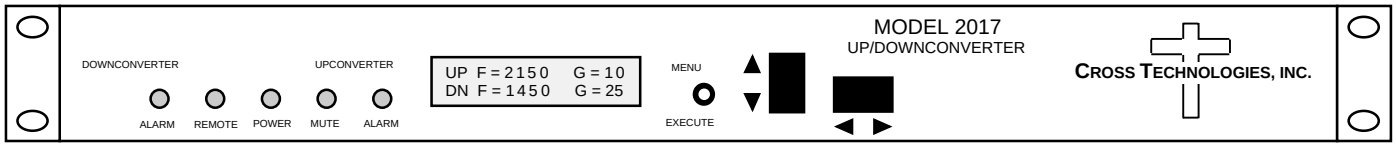
**CROSS TECHNOLOGIES, INC.**

**DATA SHEET**
05/13/2005

# 2017-02 L-Band Up/Downconverter

The 2017-02 L-band Up/Downconverter converts 70 MHz to 950-2150 MHz (Up) and 950-2150 MHz to 70 MHz (Down) in 1 MHz steps with low group delay and flat frequency response. Synthesized local oscillators (LO) provide frequency selection. Multi-function push button switches select the RF frequency, gain, and other parameters. Front panel LEDs provide indication of DC power (green), PLL alarm for up and downconverters (red), remote operation (yellow), and Upconverter mute (yellow). Gain is manually controlled over a –10 to +30 dB range for the upconverter and over a 0 to +50 dB range for the downconverter as adjusted by the front panel multi-function push-button switches. Remote operation allows selection of frequency and gain. Parameter selection and frequency and gain settings appear on the LCD display. Connectors are BNC female for IF and the optional external reference input and output, and Type F female for RF. LNB or SSPB +24 VDC and 10 MHz reference can be inserted on the RF lines as added options. A high stability (±0.01ppm) option is also available. It is powered by a 90-260 VAC power supply and housed in a 1.75" X 19" X 16" 1RU chassis.




**2017-02 Up/Downconverter Front Panel**

## EQUIPMENT SPECIFICATIONS*

**---------UPCONVERTER---------**

**Input Characteristics (IF)**

| | |
|---|---|
| Impedance/Return Loss | 75 Ω /18 dB |
| Frequency | 70 ± 18 MHZ |
| Input Level | -40 to -10 dBm |

**Output Characteristics (RF)**

| | |
|---|---|
| Impedance/Return Loss | 75 Ω/12 dB |
| Frequency | 950 to 2150 MHz |
| Output level | 0 to -20 dBm |
| Output 1 dB comp. | +5 dBm |

**Channel Characteristics**

| | |
|---|---|
| Gain range (adjustable) | -10.0 to +30.0 dB |
| Frequency Sense | Non-inverting |

**---------DOWNCONVERTER---------**

**Input Characteristics (RF)**

| | |
|---|---|
| Impedance/Return Loss | 75 Ω /12 dB |
| Frequency | 950 to 2150 MHz |
| Noise Figure, max. | 15 dB (max gain) |
| Input Level Range | -20 to -70 dBm |
| Input 1dB compression | -15 dBm |

**Output Characteristics (IF)**

| | |
|---|---|
| Impedance/Return Loss | 75 Ω/18 dB |
| Frequency | 70 ± 18 MHz |
| Output level/max linear | -20dBm / -10dBm |
| Output 1 dB comp. | -5 dBm |

**Channel Characteristics**

| | |
|---|---|
| Gain range (adjustable) | 0.0 to +50.0 dB |
| Image Rejection | > 50 dB, min. |
| Freq Sense (selectable) | Inverting or Non-inverting |

**---------UP AND DOWNCONVERTER--------**

**Channel Characteristics**

| | |
|---|---|
| Frequency Response | ±1.5 dB, 950 - 2150 MHz; ± 0.5 dB, 36 MHz BW |
| Spurious Response | < -50 dBc in band |
| Group Delay, max | 0.01 ns/MHz2 parabolic; 0.03 ns/MHz linear; 1 ns ripple |

**Synthesizer Characteristics**

| | |
|---|---|
| Frequency Accuracy | ± 1.0 ppm max over temp (±0.01 ppm, option H) |
| Frequency Step | 1.0 MHz (as low as 1 kHz steps available) |
| Phase Noise (dBc/Hz) | < -70 @ 100Hz, 1kHz; < -80 @ 10kHz; < -95 @ 100kHz; < -110 @ 1 MHz |
| 10 MHz Level (In or Out) | 3 dBm, ± 3 dB, 75 ohms (option E) |

**Controls, Indicators**

| | |
|---|---|
| Frequency Selection | direct readout LCD; manual or remote selection |
| Gain Selection | direct readout LCD; manual or remote selection |
| Power; Alarm; Remote | Green LED; Red LED; Yellow LED |
| Remote | RS232C, 9600 baud (RS485, option Q) |

**Other**

| | |
|---|---|
| RF Connectors | Type F (female) |
| IF Connectors | BNC (female) |
| 10 MHz Connectors | BNC (female) (option E) |
| Alarm/Remote Connector | DB9 (female) - NO or NC contact closure on Alarm |
| Size | 19 inch, 1RU standard chassis 1.75"H X 16.0"D |
| Power | 90-260 VAC, 47-63 Hz, 45 watts max |

**Available Options**

E – External 10 MHz ref input & output w/ RF insertion
H – High Stability (±0.01ppm) internal reference
L – LNB Voltage, +24VDC, 0.4 amps
V – SSPB Voltage, +24VDC, 2.5 amps
Q – RS485 Remote Interface
T – Temperature Sensor

Connectors/Impedance
B – 75Ω BNC (RF), 75Ω BNC (IF)
C – 50Ω BNC (RF), 75Ω BNC (IF)
D – 50Ω BNC (RF), 50Ω BNC (IF)
N – 50Ω N-type (RF), 75Ω BNC (IF)
M – 50Ω N-type (RF), 50Ω BNC (IF)

*+10˚C to +40˚C; Specifications subject to change without notice.