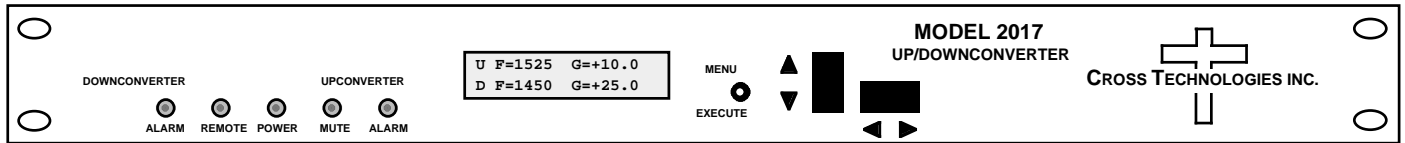


2017-02 Up/Downconverter, 950 - 2150 MHz

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 can be 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 (± 0.01 ppm) option is also available. It is powered by a 100-240 $\pm 10\%$ VAC power supply and housed in a 1.75" X 19" X 16" 1RU chassis.



Front Panel

EQUIPMENT SPECIFICATIONS*

-----UPCONVERTER-----

Input Characteristics (IF)

Impedance/Return Loss 75 Ω /18 dB
 Frequency 70 \pm 18 MHz
 Level -40 to -10 dBm

Output Characteristics (RF)

Impedance/Return Loss 75 Ω /12 dB
 Frequency 950 to 2150 MHz
 Level -20 to 0 dBm
 1dB compression +5 dBm

Channel Characteristics

Gain range (adjustable) -10 to +30 dB, 1dB steps
 Frequency Sense Non-inverting

-----UP and DOWNCONVERTER-----

Channel Characteristics

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

Synthesizer Characteristics

Frequency Accuracy ± 1.0 ppm internal reference (± 0.01 ppm, **option H**)
 Frequency Step 1 MHz (125 kHz, **option X**)
 10 MHz In/Out Level 3 dBm \pm 3 dB

Phase Noise @ F (Hz) >	100Hz	1kHz	10kHz	100kHz	1MHz
dBC/Hz	-70	-70	-80	-90	-100

Controls, Indicators

Freq/Gain Selection Direct readout LCD; pushbutton switches or remote selection
 Power; Alarm; Remote Green LED; Red LED; Yellow LED
 Remote RS232C, 9600 baud

Other

RF Connector Type F (female)
 IF Connector BNC (female)
 10 MHz Connectors BNC (female), 50 Ω /75 Ω
 Alarm/Remote Connector DB9 - NO or NC contact closure on alarm
 Size 19 inch, 1RU standard chassis 1.75" high X 16.0" deep
 Power 100-240 $\pm 10\%$ VAC, 47-63 Hz, 45 watts max

-----DOWNCONVERTER-----

Input Characteristics (RF)

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

Output Characteristics (IF)

Impedance/Return Loss 75 Ω /18 dB
 Frequency 70 \pm 18 MHz
 Level/Max Linear -20 dBm / -10 dBm
 1dB compression -5 dBm

Channel Characteristics

Gain range (adjustable) 0 to +50 dB, 1dB steps
 Image Rejection > 50 dB, min
 Frequency Sense Inverting or Non-inverting (selectable)

Available Options

- E - External 10 MHz ref with RF insertion
- E1 - Ext. 10 MHz ref input & output w/Auto Detect/Switching & Auto Return
- H - High Stability (± 0.01 ppm) internal ref
- L - LNB Voltage, +24VDC, 0.4 amps
- V - SSPB Voltage, +24VDC, 2.5 amps
- Q - RS485 Remote Interface
- T - Temperature Sensor
- W8 - Ethernet M&C Remote Interface
- W18 - Ethernet M&C Remote Interface with SNMP
- X or X1 - 125 or 100 KHz steps

Connectors/Impedance

- B - 75 Ω BNC (RF), 75 Ω BNC (IF)
- C - 50 Ω BNC (RF), 75 Ω BNC (IF)
- D - 50 Ω BNC (RF), 50 Ω BNC (IF)
- J - 75 Ω F-type (RF), 50 Ω BNC (IF)
- N - 50 Ω N-type (RF), 75 Ω BNC (IF)
- M - 50 Ω N-type (RF), 50 Ω BNC (IF)

*10°C to 40°C; Specifications subject to change without notice

