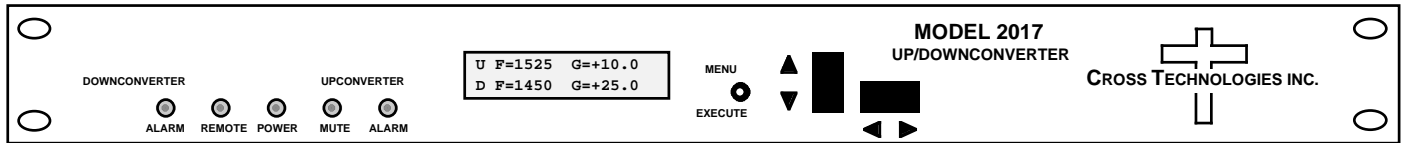


## 2017-03A Up/Downconverter, 950 - 1525 MHz

The 2017-03A L-band Up/Downconverter converts 70 MHz to 950-1525 MHz (Up) and 950-1525 MHz to 70 MHz (Down) in 1 MHz steps with low group delay and flat frequency response. The 2017-03A has lower RF level out of the upconverter and higher RF level into the downconverter than the 2017-03 and is typically used to interface an L-band modem to a 70 MHz IF upconverter and downconverter. 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 adjusted over a -25 to +15 dB range for the upconverter and over a 0 to +50 dB range for the downconverter 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. A high stability ( $\pm 0.01$  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 $\Omega$ /18 dB  
Frequency 70  $\pm$  18 MHz  
Level -40 to -10 dBm

##### Output Characteristics (RF)

Impedance/Return Loss 75 $\Omega$ /12 dB  
Frequency 950 to 1525 MHz  
Level **-35 to -15 dBm**  
1dB compression **-10 dBm**

##### Channel Characteristics

Gain range (adjustable) **-25 to +15 dB**, 1dB steps  
Frequency Sense Non-inverting

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

##### Channel Characteristics

Frequency Response  $\pm 1.5$  dB, in band;  $\pm 0.5$  dB, 36 MHz BW  
Spurious Response  $< -50$  dBC  
Group Delay, max 0.01 ns/MHz<sup>2</sup> parabolic; 0.03 ns/MHz linear; 1 ns ripple

##### Synthesizer Characteristics

Frequency Accuracy  $\pm 1.0$  ppm internal reference ( $\pm 0.01$  ppm, **option H**)  
Frequency Step 1 MHz (125 kHz, **option X**)  
10 MHz In/Out Level 3 dBm  $\pm$  3 dB  
Phase Noise @ Freq | 100Hz 1kHz 10kHz 100kHz 1MHz  
dBc/Hz |  $< -75$   $< -75$   $< -85$   $< -100$   $< -120$

##### 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 $\Omega$ /75 $\Omega$   
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, 25 watts max

#### -----DOWNCONVERTER-----

##### Input Characteristics (RF)

Impedance/Return Loss 75 $\Omega$ /12 dB  
Frequency 950 to 1525 MHz  
Noise Figure, max. 15 dB (max gain)  
Level **-60 to -10 dBm**  
1dB compression **-5 dBm**

##### Output Characteristics (IF)

Impedance/Return Loss 75 $\Omega$ /18 dB  
Frequency 70  $\pm$  18 MHz  
Level **-10 to 0 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  
H - High Stability ( $\pm 0.01$  ppm) internal ref  
Q - RS485 Remote Interface  
T - Temperature Sensor  
X - 125 kHz frequency step  
Connectors/Impedance  
B - 75 $\Omega$  BNC (RF), 75 $\Omega$  BNC (IF)  
C - 50 $\Omega$  BNC (RF), 75 $\Omega$  BNC (IF)  
D - 50 $\Omega$  BNC (RF), 50 $\Omega$  BNC (IF)  
J - 75 $\Omega$  F-type (RF), 50 $\Omega$  BNC (IF)  
N - 50 $\Omega$  N-type (RF), 75 $\Omega$  BNC (IF)  
M - 50 $\Omega$  N-type (RF), 50 $\Omega$  BNC (IF)

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