

## 2017-T03 Up/Downconverter, 950 - 1525 MHz

The 2017-T03 L-band Up/Downconverter for loop-back applications, converts 70 MHz to/from 950-1525 MHz in 1 MHz steps without local display or control. The Remote RS 232 input selects RF frequency, gain, and other parameters. The 2017-T03 is used in applications such as connecting L-band modems to IF Up/downconverters. In this application, when converting an IF signal (70 or 140 MHz) to L-band, the modem itself contains internal filtering making it unnecessary for the 2017-T03 to filter out all the other products (LO and other sideband). In the 2017-T03 down conversion, because the L-band modem's transmit output is a clean signal with no image frequency, the signal can be converted to IF (70 or 140 MHz) without filtering. Front panel LEDs indicate DC power, PLL alarm, and remote operation. Parameter selection and frequency and gain settings can be changed via the Remote RS 232 input. Connectors are BNC female for IF and Type F female for RF. 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 or 140  $\pm$  36 MHz  
 Level -45 to -25 dBm

##### Output Characteristics (RF)

Impedance/Return Loss 75 $\Omega$ /12 dB  
 Frequency 950 to 1525 MHz  
 Level -45 to -25 dBm  
 1dB compression **-15 dBm**

##### Channel Characteristics

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

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

##### Channel Characteristics

**Frequency Response  $\pm$ 1.5 dB, over band;  $\pm$ 0.5 dB, 36 MHz BW;  $\pm$ 0.75 dB, 72 MHz BW**  
 Spurious Response <-50 dBC, Fo  $\pm$  18 MHz/70 MHz IF;  $\pm$  36 MHz/140 MHz IF; LO and other sideband present for upconverter  
**Group Delay, max 0.01 ns/MHz<sup>2</sup> parabolic; 0.03 ns/MHz linear; 1 ns ripple any 36 MHz band**  
**Synthesizer Characteristics**  
 Frequency Accuracy  $\pm$  1.0 ppm internal reference ( $\pm$ 0.01 ppm, option H)  
 Frequency Step 1 MHz  
 10 MHz In/Out Level 3 dBm  $\pm$  3 dB (option E)

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 75 $\Omega$  BNC (female)  
 10 MHz Connectors BNC (female), 50 $\Omega$ /75 $\Omega$  (option E)  
 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 $\Omega$  /12 dB  
 Frequency 950 to 1525 MHz  
 Noise Figure, max. 15 dB (max gain)  
 Level -35 to -5 dBm

##### Output Characteristics (IF)

Impedance/Return Loss 75 $\Omega$ /18 dB  
 Frequency 70  $\pm$  18 MHz or 140  $\pm$  36 MHz  
 Level -25 to -5 dBm  
 1dB compression **+5 dBm**

##### Channel Characteristics

Gain range (adjustable) 0 to +20 dB, 1dB steps  
 Image Rejection None; no filtering  
 Frequency Sense Inverting or Non-inverting (selectable)

##### Available Options

E - External 10 MHz ref with RF insertion  
 H - High Stability ( $\pm$ 0.01ppm) internal ref  
 Q - RS485 Remote Interface

##### Connectors/Impedance

B - 75 $\Omega$  BNC (RF), 75 $\Omega$  BNC (IF)  
 C - 50 $\Omega$  BNC (RF), 75 $\Omega$  BNC (IF)

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