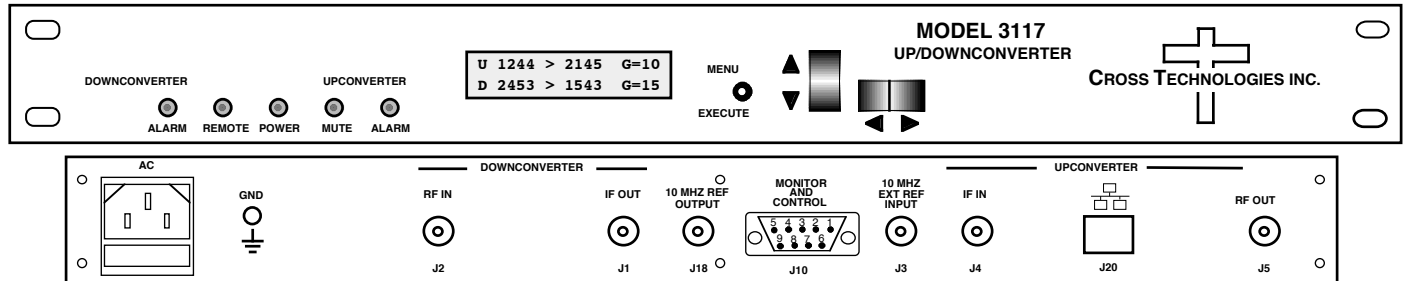


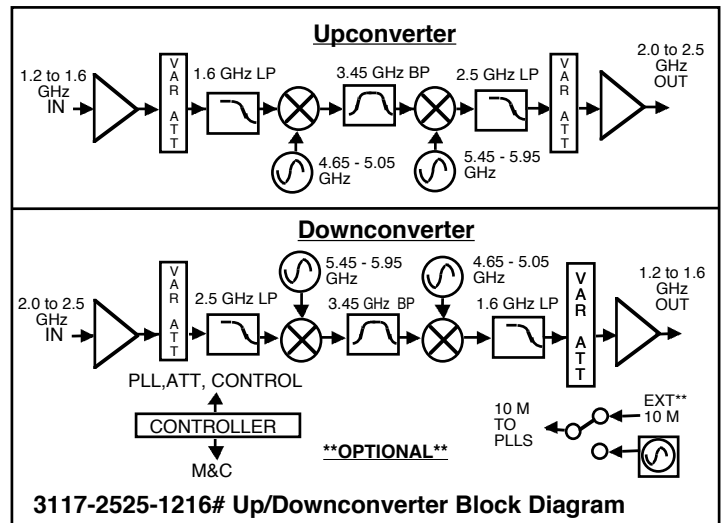
**3117-2525-1216# Up/Downconverter, 1.2 - 1.6 GHz  $\pm$  40 MHz to/from 2.0 - 2.5 GHz  $\pm$  40 MHz**

The 3117-2525-1216# Up/Downconverter converts 1.2 - 1.6 GHz  $\pm$  40 MHz to 2.0 - 2.5 GHz  $\pm$  40 MHz (Up) and 2.0 - 2.5 GHz  $\pm$  40 MHz to 1.2 - 1.6 GHz  $\pm$  40 MHz (Down). Multi-function switches select the gain (upconverter 0 to +20 dB; downconverter 0 to +20 dB), and other parameters. Front panel LEDs provide indication of DC power (green), PLL alarm (red), remote operation (yellow), and upconverter mute (yellow). Remote operation allows selection of frequency, gain and external 10 MHz reference (option E). Connectors are BNC female for the IF, RF (SMA and N optional) and optional external reference input and output (option E). A high stability ( $\pm 0.01$  ppm) option (H) 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 and Rear Panel (Shown with options E, W8)**

EQUIPMENT SPECIFICATIONS*		
Input Characteristics	UP, S	DOWN, L
Impedance/Return Loss	50 $\Omega$ /14 dB	50 $\Omega$ /14 dB
Frequency	1.2 - 1.6 GHz	2.0-2.5GHz
Noise Figure, Max.	20 dB @ max gain	15 dB @ max gain
Input Level range	-40 to -10 dBm	-40 to -10 dBm
Output Characteristics		
Impedance/Return Loss	50 $\Omega$ /14 dB	50 $\Omega$ /14 dB
Frequency (GHz)	2.0-2.5 GHz	1.2 - 1.6 GHz
Output Level Range	-20 to 0 dBm	-20 to 0 dBm
1 dB comp, max gain	+5 dBm	+5 dBm
Mute @ 0 dBm out	>60 dB	N/A
Channel Characteristics		
Gain, max. at Fc	+20 $\pm$ 3 dB	+20 $\pm$ 3 dB
Gain, range, 1 $\pm$ 1 dB steps	+20 to 0 dB	+20 to 0 dB
Image Rejection	N/A	> 50 dB, min
Spurious, Inband, sig. rel.	<-40 dBc, 0dBm	<-40 dBc, 0dBm
Spurious, Inband, sig. ind.	<-40 dBc, Gmax	<-40 dBc, Gmax
Spurious, Out of band	<-40 dBc, Gmax	<-40 dBc, Gmax
Intermod - 2 carriers 4MHz	<-40 dBc, Gmax	<-40 dBc, Gmax
Frequency Resp. band	$\pm 1.5$ dB	$\pm 1.5$ dB
Frequency Resp. 80 MHz	$\pm 1.0$ dB	$\pm 1.0$ dB
Frequency Sense	Non-inverting	Non-inverting



**Synthesizer Characteristics**

Frequency Accuracy  $\pm 1.0$  ppm internal reference ( $\pm 0.01$  ppm, option H)  
 Frequency Step 1 MHz steps

Phase Noise @ Freq	100 Hz	1kHz	10kHz	100kHz	1 MHz
dBc/Hz	-70	-70	-80	-95	-110
With Option -H dBc/Hz	-70	-75	-85	-95	-115

10 MHz In/Out Level 3 dBm  $\pm$  3 dB, 75 ohms (option E)

**Controls, Indicators**

Gain Selection direct readout LCD; pushbutton switches or remote selection  
 Power; Alarm; Remote Green LED; Red LED; Yellow LED  
 Remote RS232C, 9600 baud ; (RS485, option Q, Ethernet, optional)

**Other**

RF, IF Connector **BNC (female), 50 $\Omega$  RF**  
 10 MHz Connectors BNC (female), **50 $\Omega$  connector, works with 50 or 75 ohms**  
 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

**Available Options**

E - External 10 MHz ref in & out;  
 H - High Stability ( $\pm 0.01$  ppm) int. ref.

**Remote M&C Interfaces:**

Q - RS485/422  
 W8 - Ethernet; w/Web Browser (WB)  
 W18 - Ethernet; w/WB & SNMP  
 W28 - Ethernet; w/TCP/IP, Telnet  
 W828 - W8 +W18 + W28

**Connectors/Impedance**

Std. - 50 $\Omega$  BNC (RF), 50 $\Omega$  BNC (IF)  
 N N- 50 $\Omega$  N-type (RF), 50 $\Omega$  N-type (IF)  
 M - 50 $\Omega$  N-type (RF), 50 $\Omega$  BNC (IF)  
 S- 50 $\Omega$ , SMA (RF), 50 $\Omega$  BNC (IF)  
 SS- 50 $\Omega$ , SMA (RF), 50 $\Omega$  SMA (IF)  
**Contact Cross for other options**

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