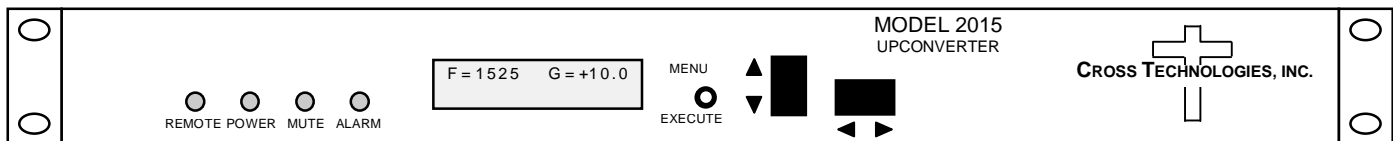


## 2015-04 L-Band Upconverter

The 2015-04 L-band Upconverter converts  $140 \pm 36$  MHz to 950 to 2150 MHz 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 (red), remote operation (yellow) or the TX carrier is muted (yellow). Variable attenuators for the IF input and output provide a gain range of -10 to +30 dB 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 the RF output. SSPB +24 VDC, 2.5 Amps and 10 MHz reference can be inserted on the RF line as added options. The 10 MHz option includes a 10 MHz output connector that contains either the internal or external 10 MHz reference signal. A high stability ( $\pm 0.01$  ppm) option is also available. The unit is powered by a 90-260 VAC power supply, and housed in a 3/4" X 19" X 16" rack mount chassis.



**2015-04 Upconverter Front Panel**

### EQUIPMENT SPECIFICATIONS\*

#### Input Characteristics (IF)

Impedance/Return Loss 75  $\Omega$  /18 dB  
Frequency 140  $\pm$  36 MHz  
Input Level -40 to -10 dBm

#### Output Characteristics (RF)

Impedance/Return Loss 75  $\Omega$  /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 Response  $\pm 1.5$  dB, 950 - 2150 MHz ;  $\pm 0.5$  dB, 72 MHz BW  
Spurious Response < -50 dBc, in band  
Group Delay, max 0.0035 ns/MHz<sup>2</sup> parabolic; 0.025 ns/MHz linear; 1 ns ripple  
Frequency Sense Non-inverting

#### Synthesizer Characteristics

Frequency Accuracy  $\pm 1.0$  ppm max over temp ( $\pm 0.01$  ppm, option H)  
Frequency Step 1.0 MHz (as low as 1 kHz steps available)

Phase Noise @ Freq	1kHz	10kHz	100kHz	1 MHz
dBc/Hz	-70	-80	-95	-110

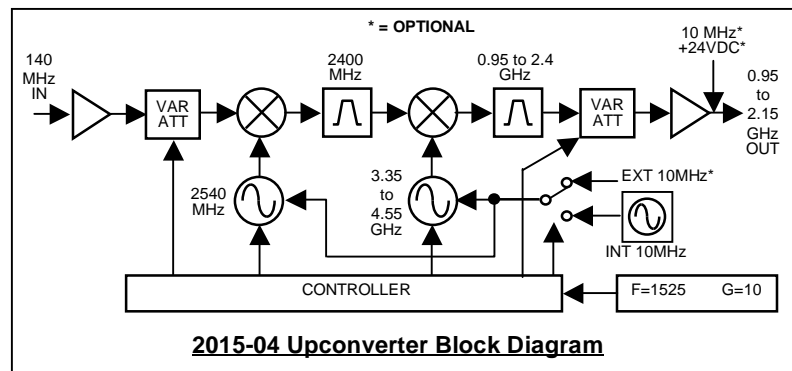
10 MHz Level (In or Out) 3 dBm,  $\pm 3$  dB, 75 ohms (option E)

#### Controls, Indicators

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

#### Other

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



**2015-04 Upconverter Block Diagram**

#### Available Options

E – External 10 MHz ref input & output w/ RF insertion  
H – High Stability ( $\pm 0.01$  ppm) internal reference  
V – SSPB Voltage, +24VDC, 2.5 amps  
Q – RS485 Remote Interface  
T – Temperature Sensor  
W8 – Ethernet M&C Remote Interface  
Z – Attenuator 0.1 dB on Upconverter  
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)  
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.