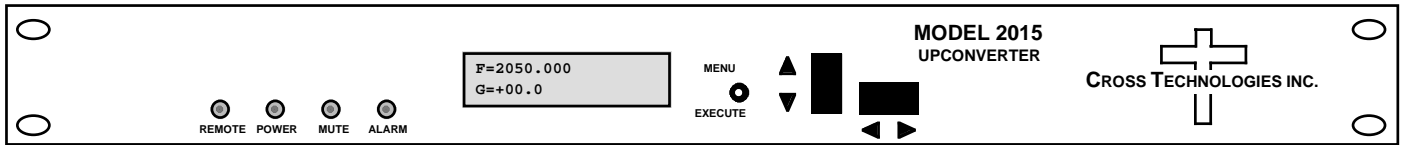


**2015-225 Upconverter, 70 MHz to 2.0 - 2.5 GHz**

The 2015-225 Upconverter converts  $70 \pm 18$  MHz to 2000 to 2500 MHz in 1kHz, 10kHz, 100kHz, or 125kHz steps (user selectable) with low group delay and flat frequency response. Synthesized local oscillators (LO) provide very low phase noise and  $\pm 0.01$  ppm stability 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 Input, RF output and the optional external reference input and output. The External 10 MHz option includes a 10 MHz input and output connector. The unit is powered by a  $100-240 \pm 10\%$  VAC power supply, and housed in a 1 3/4" X 19" X 16" rack mount chassis.



**Front Panel**

**EQUIPMENT SPECIFICATIONS\***

**Input Characteristics (IF)**

Impedance / Return Loss 50 $\Omega$  / 18dB  
 Frequency 70  $\pm$  18 MHz  
 Input Level -40 to -10 dBm

**Output Characteristics (RF)**

Impedance / Return Loss 50 $\Omega$  / 12dB  
 Frequency 2.0 to 2.5 GHz  
 Output level -20 to 0 dBm  
 Output 1 dB comp. +5 dBm

**Channel Characteristics**

Gain range (adjustable) -10 to +30 dB  
 Frequency Response  $\pm 1.5$  dB, 2.0-2.5 GHz ;  $\pm 0.5$  dB, 36 MHz BW  
 Spurious Response < -50 dBc, in band  
 Group Delay, max 0.015 ns/MHz<sup>2</sup> parabolic; 0.05 ns/MHz linear; 1 ns ripple  
 Frequency Sense Non-inverting

**Synthesizer Characteristics**

Frequency Accuracy  $\pm .01$  ppm internal ref.  
 Frequency Step 1kHz, 10kHz, 100kHz, or 125kHz (user selectable)  
 10 MHz In/Out Level 3 dBm  $\pm$  3 dB (option E)

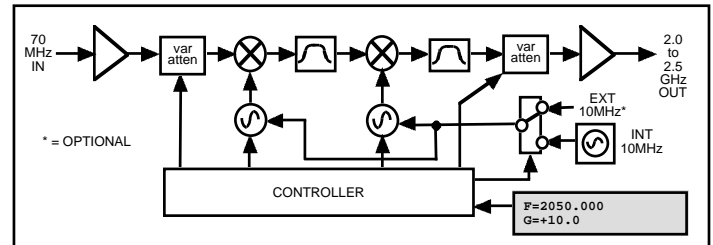
Phase Noise @ Freq	100Hz	1kHz	10kHz	100kHz	1MHz
dBc/Hz	-72	-85	-88	-110	-120

**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**

IF, RF Connectors BNC (female)  
 10 MHz Connector BNC (female), 50 $\Omega$ /75 $\Omega$  (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 100-240  $\pm$  10% VAC, 47-63 Hz, 45 W max



**Block Diagram**

**Available Options**

- E - External 10 MHz ref input & output
  - Q - RS485 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)
  - 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