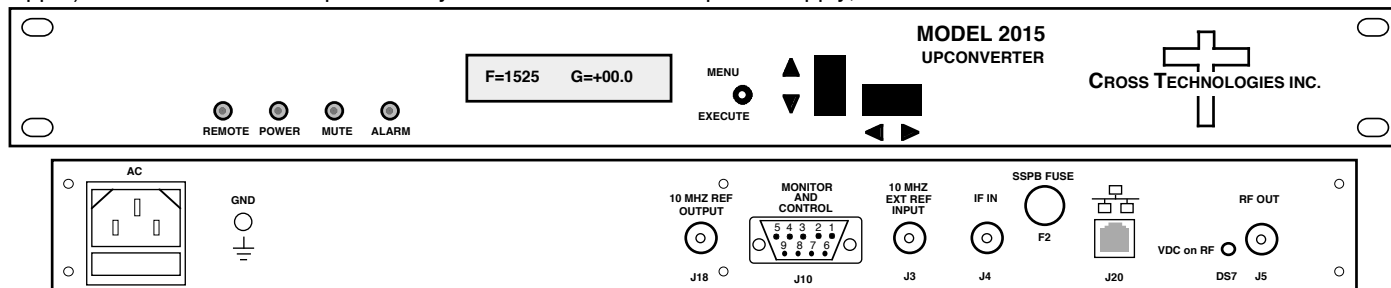


## 2015-02 Upconverter, 70 MHz to 0.95 - 2.15 GHz

The 2015-02 L-band Upconverter converts 70 ± 18 MHz to 950 to 2150 MHz in 1 MHz steps (**125 kHz to 1 kHz step options available**). Synthesized local oscillators (LO) provide frequency selection. 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) and TX carrier MUTE (yellow). Variable attenuators for the IF input and output provide a gain range of -10 to +30 dB as adjusted by the front panel 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 or +48 VDC** and 10 MHz reference can be inserted on the RF line as added options. **The external 10 MHz option E** includes a 10 MHz output connector which contains either the internal or external 10 MHz reference signal. A high stability internal reference (**option H**, ±0.01ppm) is also available. It is powered by a 100-240 ± 10% VAC power supply, and housed in a 1 3/4" X 19" X 16" rack mount chassis.



### EQUIPMENT SPECIFICATIONS\* 2015-02 Front and Rear Panels (Optional Ethernet and SSPB insertion shown)

#### Input Characteristics (IF)

Impedance/Return Loss 75 Ω /18 dB  
 Frequency 70 ± 18 MHz  
 Input Level -40 to -10 dBm

#### Output Characteristics (RF)

Impedance/Return Loss 75 Ω/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, **1 ±1 dB steps**  
 Frequency Response ±1.5 dB, 950 - 2150 MHz; ± 0.5 dB, 36 MHz BW; **±1.0 dB, 40 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 ± 1.0 ppm max over temp (±0.01 ppm, option H)  
 Frequency Step 1.0 MHz (**125 kHz to 1 kHz step options available**)

Phase Noise @ F (Hz) >	10	100	1K	10K	100K	1M
dBC/Hz	-55	-70	-70	-80	-90	-110

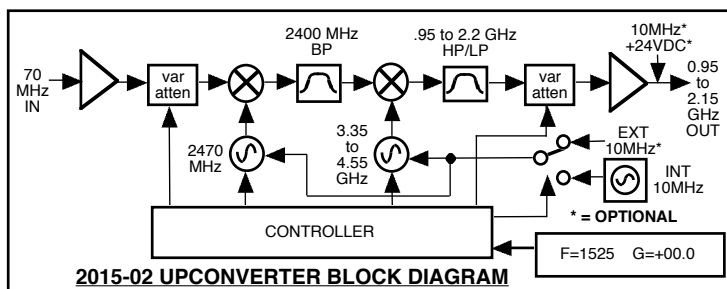
10 MHz Level (In or Out) 3 dBm, ± 3 dB, 75 ohms (option E)

#### Controls, Indicators

Freq/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, Ethernet Optional**)

#### Other

RF, IF Connectors Type F (female), BNC (female)  
 10 MHz Connectors BNC (female), **75Ω, works with 50 or 75 ohms** (option E)  
 Alarm/Remote Connector DB9 (female) - NO or NC contact closure on Alarm  
 Size 19 inch, 1RU standard chassis 1.75" H X 16.0" D  
 Power 100-240 ±10% VAC, 47-63 Hz, **25 W max.**  
**(24 , 48 VDC Optional)**



#### Available Options

E - External 10 MHz ref in & out; RF Ins.  
 H - High Stability (±0.01ppm) Internal Ref  
 V - SSPB Voltage, +24VDC, 2.5 amps  
**V48 - SSPB Voltage, +48VDC, 1.25 A**  
**V41 - SSPB Voltage, +48VDC, 2.10 A**  
 X or X1- 125 kHz or 100 kHz step size  
**X1002 - 1 kHz step, includes option -H**  
 Z - Attenuator 0.1 dB steps, Upconverter  
**Z 5 - Attenuator 0.5 ± 0.5dB steps, Upconv**  
**Comm. Interface/Standard RS232**  
 Q - RS485 Remote Interface  
 W8 - Ethernet; w/Web Browser (WB)  
 W18 - Ethernet; w/WB & SNMP  
 W28 - Ethernet; w/TCP/IP, Telnet

#### Connectors/Impedance

B - 75Ω BNC (RF), 75Ω BNC (IF)  
 C - 50Ω BNC (RF), 75Ω BNC (IF)  
 D - 50Ω BNC (RF), 50Ω BNC (IF)  
 N - 50Ω N-type (RF), 75Ω BNC (IF)  
 M - 50Ω N-type (RF), 50Ω BNC (IF)

**Contact Cross for other options**

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