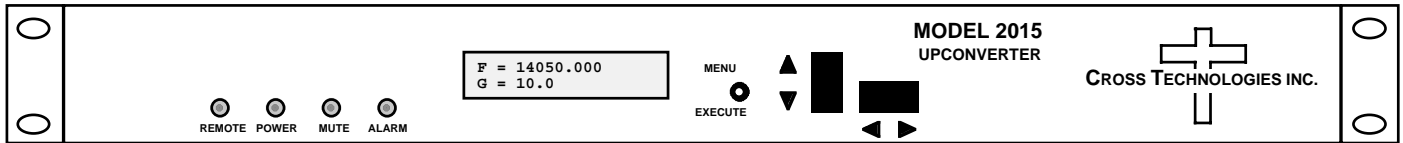


**2015-146 Upconverter, 14.0 - 14.5 GHz, 140 MHz IF**

The Model 2015-146 Upconverter converts  $140 \pm 36$  MHz to 14.0 to 14.5 GHz in 125 kHz steps with low group delay and flat frequency response. Synthesized local oscillators (LO) provide very low phase noise,  $\pm 0.01$  ppm stability frequency selection. Push button switches select the RF frequency, gain, and other parameters. Front panel LEDs provide indication of PLL alarm (red), remote operation (yellow) or the TX carrier is Muted (red). Variable attenuators for the IF input and RF output provide a gain range of 0 to +20 dB as adjusted by the front panel pushbutton 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, external reference input and 10MHz reference output, and SMA (female) for the RF output. The unit is powered by a 90-260 VAC power supply, and housed in a 1.75" X 19" X 16" 1RU chassis.



**Front Panel**

**EQUIPMENT SPECIFICATIONS\***

**Input Characteristics**

Impedance/Return Loss 75Ω/18 dB  
 Frequency 140 ± 36 MHz  
 Input Level -30 to -10 dBm

**Output Characteristics**

Impedance/Return Loss 50Ω/15 dB  
 Frequency (See Models) 14.0 to 14.5 GHz  
 Output level -30 to -10 dBm  
 Output 1 dB compression +5 dBm

**Channel Characteristics**

Gain range (adjustable) 0 to +20 dB  
 Spurious Response <-50 dBC  
 Frequency Response ±1.5 dB, 14.0-14.5 GHz ; ± 0.5 dB, 72 MHz BW  
 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 ± 0.01 ppm internal reference; external reference input  
 Frequency Step 125 kHz minimum  
 10 MHz In/Out Level 3 dBm, ± 3 dB  
 Phase Noise

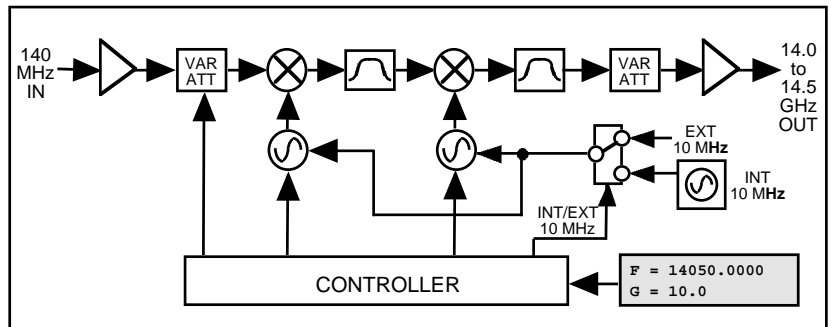
@ Freq	100Hz	1kHz	10kHz	100kHz	1MHz
dBc/Hz	< -60	< -70	< -80	< -90	< -100

**Controls, Indicators**

Freq/Gain Selection direct readout LCD; pushbutton switches or remote selection  
 Pwr; Alarm; Rem; Mute Green LED; Red LED; Yellow LED; Yellow LED  
 Remote RS232C, 9600 baud

**Other**

RF Connector SMA (female)  
 IF Connector BNC (female)  
 10 MHz Connectors BNC (female), 50Ω/75Ω  
 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 90-260 VAC, 47-63 Hz, 45 watts max



**Block Diagram**

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