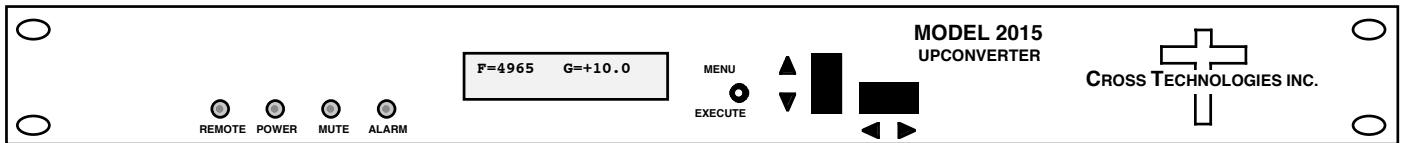


## 2015-49 Upconverter, 4.94-4.99 GHz, 70 MHz IF

The 2015-49 Upconverter converts 70 ± 18 MHz to 4940 to 4990 MHz in 2.5 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 Type N, female for RF and BNC female for IF and the optional external reference input and output. The 10 MHz option includes a 10 MHz output connector which contains either the internal or external 10 MHz reference signal. A high stability (±0.01ppm) option is also available. A direct TTL control option allows direct control of the PLL of the agile LO and the TX Mute control. The unit is powered by a 100-240 ±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 Ω /18 dB  
 Frequency 70 ± 18 MHz  
 Input Level -40 to -10 dBm

#### Output Characteristics (RF)

Impedance/Return Loss 50 Ω/12 dB  
 Frequency 4940 to 4990 MHz  
 Output level 0 to -20 dBm  
 Output 1 dB comp. +5 dBm

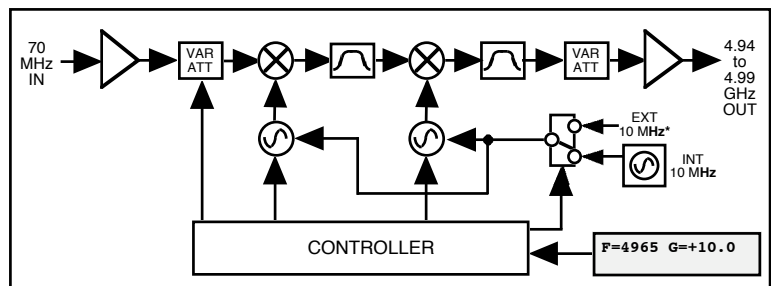
#### Channel Characteristics

Gain range (adjustable) -10.0 to +30.0 dB  
 Frequency Response ±1.0 dB, 4940-4990 MHz ; ± 0.5 dB, 36 MHz BW  
 Spurious Response < -50 dBc, in band  
 Group Delay, max 0.01 ns/MHz<sup>2</sup> parabolic; 0.03 ns/MHz linear; 1 ns ripple  
 Frequency Sense Non-inverting

#### Synthesizer Characteristics

Frequency Accuracy ±0.01 ppm max over temp  
 Frequency Step 2.5 MHz  
 10 MHz Level (In or Out) 3 dBm, ± 3 dB (option E)

Phase Noise @ F (Hz) >	100	1K	10K	100K	1M
dBc/Hz	-70	-70	-80	-95	-105



**Block Diagram**

#### 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 N (female) 50 Ω  
 IF Connectors BNC (female) 50 Ω  
 10 MHz Conn. (In & Out) BNC (female) (**option E**) 50Ω/75Ω  
 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 ±10% VAC, 47-63 Hz, 45 watts max

#### Available Options

E - External 10 MHz Ref in/out w/ RF insertion  
 Q - RS485 Remote Interface  
 W3 - Direct TTL control of Mute and Agile LO  
 Z - Attenuator 0.1 dB on Upconverter  
**Connectors/Impedance**  
 N - 50Ω N-type (RF), 75Ω BNC (IF)

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