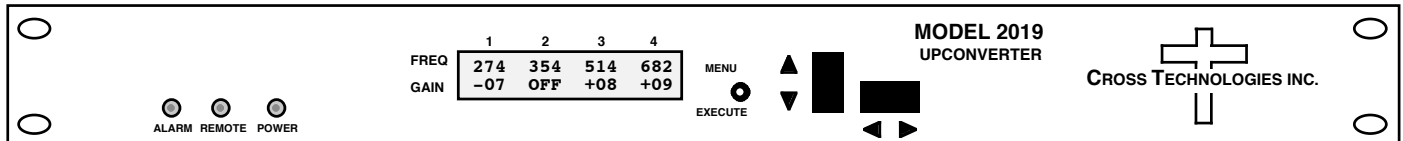


## 2019-41 Upconverter, Four Frequencies, 0.25-0.75 GHz

The 2019-41 Upconverter converts **one**  $70 \pm 18$  MHz input signal to **four individual frequencies (combined to one output)** in the 0.25 to 0.75 GHz range and tunable in 1 MHz steps. Synthesized local oscillators (LO) provide frequency selection. Multi-function switches select the RF frequencies, gain, and other parameters. Front panel LEDs provide indication of DC power (green), Unit alarm (red), and remote operation (yellow). Variable attenuators for each channel provide a gain range of -10 to +10 dB as adjusted by the front panel multi-function switches. Remote operation allows selection of frequency, mute, and gain of each signal. The LCD will display parameter selection during setup and frequency **and gain/mute** settings during operation. Connectors are 75 ohm BNC female for IF and the optional external reference input and **SMA** for the combined four-frequency output. 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 75 $\Omega$ /18 dB  
Frequency 70  $\pm$  18 MHz  
Input Level -25 to -15 dBm

#### Output Characteristics (RF)

Impedance/Return Loss 50 $\Omega$ /12 dB  
Frequency 0.25 to 0.75 GHz  
Output level/carrier -30 to -10 dBm  
Output 1 dB compression +5 dBm  
Carrier Intermods < -40 dBC, 3 ON, 1 OFF  
Carrier level variation  $\pm 1.5$  dB, 0.25 to 0.75 GHz  
Mute level -40 dBC min, -45 dBC typical

#### Channel Characteristics

Gain range (adjustable) -10 to +10 dB, 1 dB steps  
Spurious Response < -40 dBC, 0.25 to 0.75 GHz (non-intermod related)  
Frequency Response  $\pm 0.7$  dB, 36 MHz BW  
Group Delay, max 0.015 ns/MHz<sup>2</sup> parabolic; 0.03 ns/MHz linear, 1 ns ripple  
Frequency Sense All four frequencies non-inverting

#### Synthesizer Characteristics

Frequency Accuracy  $\pm 1.0$  ppm internal reference; external reference optional  
Frequency Step 1.0 MHz minimum  
10 MHz In Level 3 dBm  $\pm 3$  dB (for option -E)

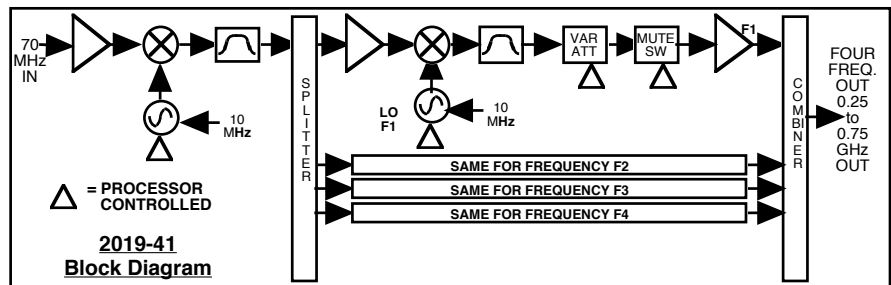
Phase Noise @ Freq	100 Hz	1kHz	10kHz	100kHz	1 MHz
dBc/Hz	-70	-70	-80	-95	-110

#### Controls, Indicators

Pwr; Alarm; Rem; Mute Green LED; Red LED; Yellow LED; "OFF" on LCD  
Remote RS232C, 9600 baud  
Freq/Gain Selection direct readout LCD; multi-function switches or remote selection

#### Other

IF&10 MHz/ RF Connector 75 ohm BNC (female)/ **SMA**  
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 100-240  $\pm 10\%$  VAC, 47-63 Hz, 45 watts max



**2019-41 Block Diagram**

#### Available Options

E - External 10 MHz Ref in  
Q - RS485 Remote Interface  
W8- Ethernet M&C Remote Interface  
Connectors/Impedance  
C - 75 $\Omega$  BNC (IF), 50 $\Omega$  BNC (RF)  
D - 50 $\Omega$  BNC (IF), 50 $\Omega$  BNC (RF)  
**F7 - 75 $\Omega$  BNC (IF), 75 $\Omega$  Type F (RF)**  
S - 50 $\Omega$  BNC (IF), 50 $\Omega$  SMA (RF)

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