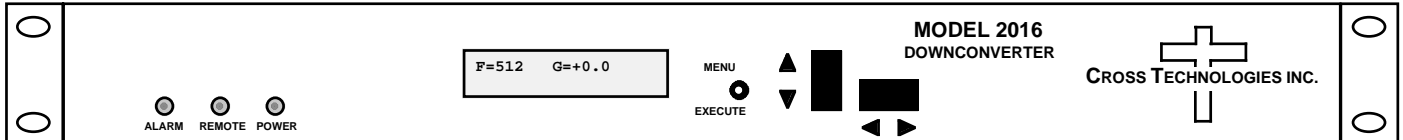


**2016-1351 Downconverter, 130 - 512 MHz, 70 MHz IF**

The 2016-1351 Downconverter converts **130 to 512 MHz** to  $70 \pm 10$  MHz in 1 MHz steps with low group delay and flat frequency response. Synthesized local oscillators (LO) provide frequency selection. Multi-function push button switches select the input frequency, gain, and other parameters. Front panel LEDs provide indication of DC power, PLL alarm or Remote operation. Gain is adjustable manually (MGC) over a 0 to 10 dB range. The frequency and gain are remotely selectable. Parameter selection and frequency and gain settings appear on the LCD display. Connectors are BNC female for the RF, IF and optional external 10 MHz reference input and output (option E). Other connector options are available. The 2016-1351 is powered by a 100-240  $\pm 10\%$  VAC power supply, and is contained in a 1 3/4" X 19" X 16" rack mount chassis.



**Front Panel**

**EQUIPMENT SPECIFICATIONS\***

**Input Characteristics (RF)**

Impedance/Return Loss **50Ω /12 dB**  
 Frequency **130 to 512 MHz**  
 Noise Figure, max. **15 dB (max gain)**  
 Input Level Range **-30 to -20 dBm**  
 Input 1dB compression **-10 dBm**

**Output Characteristics (IF)**

Impedance/Return Loss **50Ω/18 dB**  
 Frequency **70  $\pm$  10 MHz**  
 Output level Range **-30 to -20dBm**  
 Output 1 dB compression **-10 dBm**

**Channel Characteristics**

Gain range (adjustable) **0.0 to +10.0 dB, 1dB steps**  
 Image Rejection **> 50 dB, min.**  
 Frequency Response  **$\pm 1.5$  dB, 130 to 512 MHz ;  $\pm 1.0$  dB, 20 MHz BW**  
 Spurious Response **< -50 dBc, in band**  
 Group Delay, max **0.1 ns/MHz<sup>2</sup> parabolic; 0.15 ns/MHz linear; 1 ns ripple**  
 Frequency Sense **Non-inverting**

**Synthesizer Characteristics**

Frequency Accuracy  **$\pm 1.0$  ppm internal reference ( $\pm 0.1$  ppm, option H)**  
 Frequency Step **1.0 MHz minimum**  
 External 10 MHz level **+3 dBm  $\pm$  3 dB, 50/75 Ω (opt-E)**

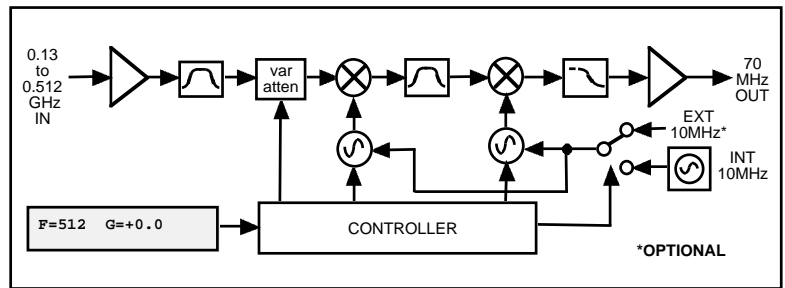
Phase Noise @ F (Hz) >	100	1K	10K	100K	1M
dBC/Hz	-70	-70	-80	-90	-105

**Controls, Indicators**

Freq/Gain Selection **direct readout LCD; manual or remote selection**  
 Power; Alarm; Remote **Green LED; Red LED; Yellow LED**  
 Remote **RS232C, 9600 baud (RS422/485/opt.-Q, Ethernet/opt-W8; W18)**

**Other**

RF, IF Connectors **BNC, 50Ω (female), BNC, 50Ω (female)**  
 10MHz Connectors **BNC (female), 50Ω/75Ω (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 watts max.**



**Block Diagram**

**Available Options**

- E - External 10 MHz ref input & output
- H - High Stability ( $\pm 0.01$  ppm) Int. Ref
- Q - RS485 Remote Interface
- W8 - Ethernet; w/Web Browser (WB)
- W18 - Ethernet; w/WB & SNMP
- X - 125 kHz step size

**Connectors/Impedance**

- B - 75Ω BNC (RF), 75Ω BNC (IF)
- C - 50Ω BNC (RF), 75Ω BNC (IF)
- K - 75Ω BNC (RF), 50Ω BNC (IF)
- M - 50Ω N-type (RF), 50Ω BNC (IF)
- N - 50Ω N-type (RF), 75Ω BNC (IF)
- S - 50Ω SMA (RF), 50Ω BNC (IF)
- SS - 50Ω SMA (RF), 50Ω SMA (IF)**

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