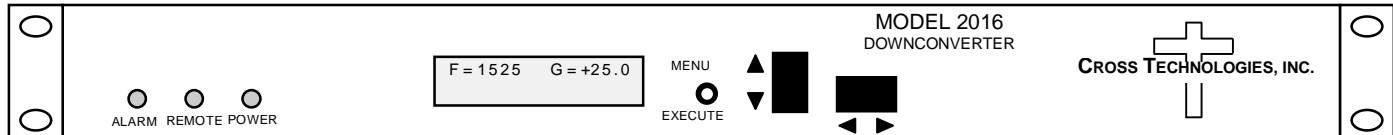


**2016-02 L-Band Downconverter**

The 2016-02 (CE) Downconverter converts 950 to 2150 MHz to 70 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 50 dB range. The frequency and gain are remotely selectable. Parameter selection and frequency and gain settings appear on the LCD display. Connectors are Type F female for the RF, and BNC female for the IF and optional external 10 MHz reference input and output (option -E). Table 2.2 shows other connector options. LNB +24 VDC (option -L) and 10 MHz reference (option -E) can be inserted on the RF lines. The 2016-02 (CE) is powered by a 100-240  $\pm 10\%$  VAC, 47-63 Hz power supply, and is contained in a 1 3/4" X 19" X 16" rack mount chassis.



**2016-02 Downconverter Front Panel**

**EQUIPMENT SPECIFICATIONS\***

**Input Characteristics (RF)**

Impedance/Return Loss	75 $\Omega$ /12 dB
Frequency	950 to 2150 MHz
Noise Figure, max.	15 dB (max gain)
Input Level Range	-70 to -20 dBm
Input 1dB compression	-15 dBm

**Output Characteristics (IF)**

Impedance/Return Loss	75 $\Omega$ /18 dB
Frequency	70 $\pm$ 18 MHz
Output level/max linear	-20dBm / -10dBm
Output 1 dB comp.	-5 dBm

**Channel Characteristics**

Gain range (adjustable)	0.0 to +50.0 dB
Image Rejection	> 50 dB, min.
Frequency Response	$\pm 1.5$ dB, 950 to 2150 MHz ; $\pm 0.5$ dB, 36 MHz BW
Spurious Response	< -40 dBc, in band
Group Delay, max	0.01 ns/MHz <sup>2</sup> parabolic; 0.03 ns/MHz linear; 1 ns ripple
Frequency Sense	Inverting or Non-inverting, selectable

**Synthesizer Characteristics**

Frequency Accuracy	$\pm 1.0$ ppm max over temp ( $\pm 0.01$ ppm, option H)
Frequency Step	1.0 MHz (as low as 1 kHz steps available)
Phase Noise	@ Freq   100Hz 1kHz 10kHz 100kHz 1 MHz
	dBC/Hz   <-70 <-70 <-80 <-90 <-100

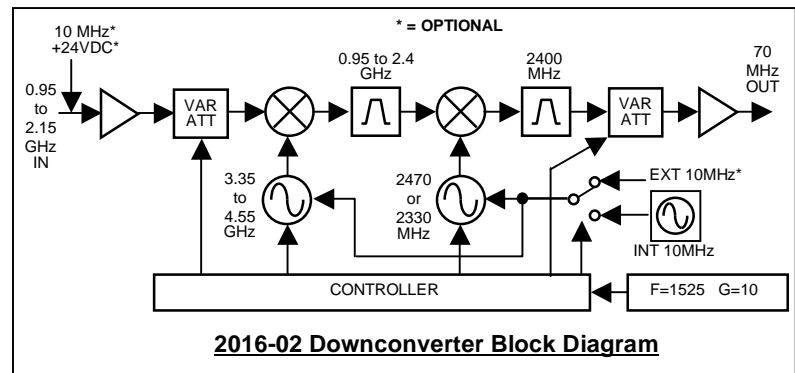
10 MHz Level (In or Out) 3 dBm,  $\pm 3$  dB, 75 ohms (option E)

**Controls, Indicators**

Frequency Selection	direct readout LCD; manual or remote selection
Gain Selection	direct readout LCD; manual or remote selection
Power; Alarm; Remote	Green LED; Red LED; Yellow LED
Remote	RS232C, 9600 baud (RS485, option Q)

**Other**

RF Connector	Type F (female)
IF, 10 MHz Connectors	BNC (female) 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



**2016-02 Downconverter Block Diagram**

**Available Options**

- E – External 10 MHz ref input & output w/RF insertion
- H – High Stability ( $\pm 0.01$ ppm) internal reference
- L – LNB Voltage, +24VDC, 0.4 amps
- Q – RS485 Remote Interface
- T – Temperature Sensor
- X – 125 kHz Frequency step size
- SW1 – Switch-system specific option

**Connectors/Impedance**

- STD – 75 $\Omega$  Type F (RF), 75 $\Omega$  BNC (IF)
- B – 75 $\Omega$  BNC (RF), 75 $\Omega$  BNC (IF)
- C – 50 $\Omega$  BNC (RF), 75 $\Omega$  BNC (IF)
- D – 50 $\Omega$  BNC (RF), 50 $\Omega$  BNC (IF)
- F – 75 $\Omega$  Type F (RF), 75 $\Omega$  Type F (IF)
- FN – 75 $\Omega$  Type N (RF), 75 $\Omega$  Type N (IF)
- J – 75 $\Omega$  Type F (RF), 50 $\Omega$  BNC (IF)
- K – 75 $\Omega$  BNC (RF), 50 $\Omega$  BNC (IF)
- M – 50 $\Omega$  Type-N (RF), 50 $\Omega$  BNC (IF)
- N – 50 $\Omega$  Type-N (RF), 75 $\Omega$  BNC (IF)
- S – 50 $\Omega$  SMA (RF), 50 $\Omega$  BNC (IF)

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