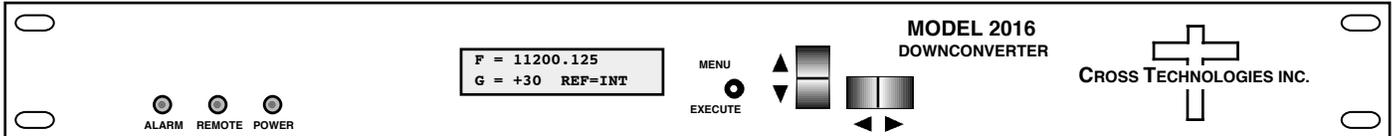


## 2016-109 Downconverter, 10.95 - 11.7 GHz

The 2016-109 Downconverter converts 10.95 to 11.7 GHz in 125 kHz steps to  $70 \pm 18$  MHz with low group delay and flat frequency response. Synthesized local oscillators (LO) provide low phase noise and  $\pm 0.01$  ppm stability 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), and remote operation (yellow). Gain is adjustable manually over a +30 to +50 dB range 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 BNC female for IF output and the external reference input and output, and SMA female for the RF input. External 10 MHz is standard. A 10 MHz output connector contains either the internal or external 10 MHz reference signal. 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 (RF)

Impedance/Return Loss 50 $\Omega$ /14 dB  
Frequency 10.95 to 11.7 GHz  
Level -70 to -40 dBm  
1dB Compression -30 dBm @ +30 dB gain

#### Output Characteristics (IF)

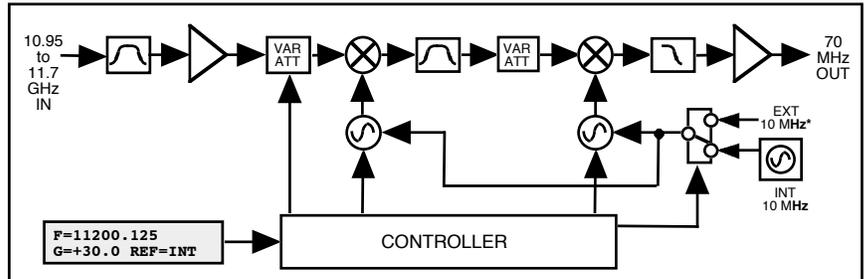
Impedance/Return Loss 75 $\Omega$ /18 dB  
Frequency 70  $\pm$  18 MHz  
Level -25 to -5 dBm  
1dB Compression +5 dBm

#### Channel Characteristics

Gain range (adjustable) +30 to +50 dB, 1dB steps  
Spurious Response <-50 dBC, in band  
Image Rejection > 50 dB, min.  
Frequency Response  $\pm 1.5$  dB, 10.95-11.7 GHz ;  $\pm 0.6$  dB, 36 MHz BW  
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  $\pm 0.01$  ppm internal reference; external reference input  
Frequency Step 125 kHz minimum  
10 MHz In/Out Level 3 dBm  $\pm$  3 dB



2016-109 Block Diagram

Phase Noise @ Frequency	100 MHz	1kHz	10kHz	100kHz	1MHz
dBc/Hz	-60	-70	-80	-90	-100

#### Controls, Indicators

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

#### Other

RF Connector SMA (female)  
IF Connector BNC (female)  
10 MHz Connectors BNC (female), 50 $\Omega$ /75 $\Omega$   
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

#### Available Options

Q - RS485 Remote Interface  
W8 - Ethernet with Web Browser  
W18 - Ethernet with Web & SNMP  
W28 - Ethernet with TCP/IP, Telenet®

#### Connectors/Impedance

M - 50 $\Omega$  N-type (RF), 50 $\Omega$  BNC (IF)  
N - 50 $\Omega$  N-type (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.