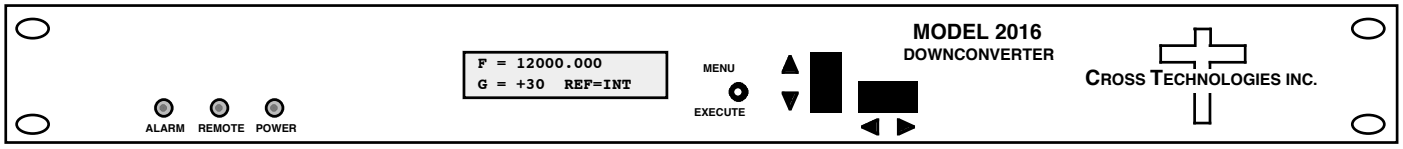
CROSS TECHNOLOGIES, INC.

DATA SHEET
REV. B
11/29/12

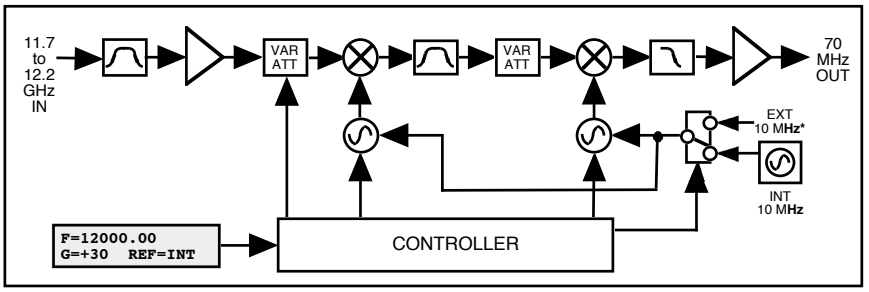
2016-117 Downconverter, 11.7 - 12.2 GHz

The 2016-117 Downconverter converts 11.7 to 12.2 GHz in 125 kHz steps to 70 ± 18 MHz with low group delay and flat frequency response. Synthesized local oscillators (LO) provide low phase noise and ± 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 ±10% VAC power supply, and housed in a 1 3/4" X 19 " X 16" rack mount chassis.



Front Panel

EQUIPMENT SPECIFICATIONS*



Block Diagram

Input Characteristics (RF)

Impedance/Return Loss	50Ω /14 dB
Frequency	11.7 to 12.2 GHz
Level	-70 to -40 dBm
1dB Compression	-30 dBm @ +30 dB gain

Output Characteristics (IF)

Impedance/Return Loss	75Ω/18 dB
Frequency	70 ± 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	±1.5 dB, 11.7-12.2 GHz ; ± 0.6 dB, 36 MHz BW
Group Delay, max	**0.015 ns**/MHz^2 parabolic; **0.05 ns**/MHz linear, 1 ns ripple
Frequency Sense	Non-inverting

Synthesizer Characteristics

Frequency Accuracy	± 0.01 ppm internal reference; external reference input
Frequency Step	125 kHz minimum
10 MHz In/Out Level	3 dBm ± 3 dB

Phase Noise @ Freq	100 Hz	1kHz	10kHz	100kHz	1 MHz
dBC/Hz	-60	-70	-80	-90	-100

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 - 50Ω N-type (RF), 50Ω BNC (IF)
N - 50Ω N-type (RF), 75Ω BNC (IF)
S - 50Ω SMA (RF), 50Ω BNC **(IF)**

Controls, Indicators

Freq/Gain Selection	direct readout LCD; pushbutton switches or remote selection
Pwr; Alm; Remote; Mute	Green LED; Red LED; Yellow LED; Yellow LED
Remote	RS232C, 9600 baud **(options; RS485, Q; Ethernet, W8, W18, W28)**

Other

RF Connector	SMA (female)
IF Connector	BNC (female)
10 MHz Connectors	BNC (female), 50Ω/75Ω
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 ±10% VAC, 47-63 Hz, 45 watts max

*10˚C to 40˚C; Specifications subject to change without notice

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