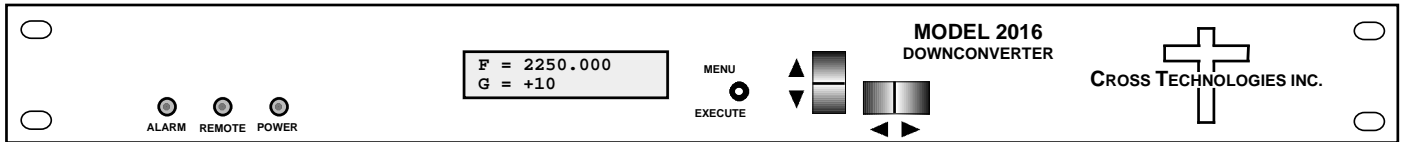


## 2016-25-300 Downconverter, 2.0 - 2.5 GHz to 300 ±100 MHz

The **2016-25-300** Downconverter converts 2000 to 2500 MHz to **300 ± 100 MHz** in 1 MHz step (**0.5 MHz to 1 kHz step options available**) with low group delay and flat frequency response. Synthesized local oscillators (LO) provide frequency selection. Push button switches select the RF frequency, gain, and other parameters. Front panel LEDs provide indication of DC power (green), remote operation (yellow), and PLL alarm (red). Variable attenuators for the RF input provide a gain range of 0 to +50 dB as adjusted by the front panel pushbutton 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 RF, IF and the optional external reference input and output. **Option E, external 10 MHz** includes a 10 MHz output connector which contains either the internal or external 10 MHz reference signal. **Option H, high stability (±0.01ppm) internal 10 MHz**, is also available. 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\*

#### Input Characteristics (RF)

Impedance/Return Loss 50Ω / 12 dB  
Frequency 2.0 to 2.5 GHz  
**Noise Figure, max. 15 dB (max gain)**  
Level Range -70 to -20 dBm

#### Output Characteristics (IF)

Impedance/Return Loss 75Ω / 18 dB  
Frequency **300 ± 100 MHz**  
Level Range -30 to -20 dBm  
Output 1 dB compression -15 dBm

#### Channel Characteristics

Gain range (adjustable) 0.0 to +50.0 dB, **1±1 dB steps**  
Image Rejection > 50 dB, min.  
Frequency Response **±2.0 dB, 2.0 - 2.5 GHz; ± 1.0 dB, 200 MHz BW**  
Spurious Response < -45 dBC, in band  
Group Delay, max. **5 ns parabolic; 5 ns linear; 2 ns ripple, 200 MHz BW**  
Frequency Sense **Non-inverting**

#### Synthesizer Characteristics

Frequency Accuracy ±1.0 ppm internal reference (±0.01 ppm, **option H**)  
Frequency Step 1.0 MHz (**0.5 MHz to 1 kHz step options available**)  
10 MHz In/Out Level +3 dBm ± 3 dB (**option E**)

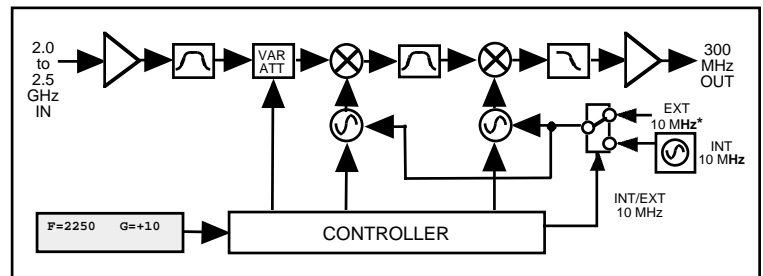
| Phase Noise @ F (Hz) >          | 10         | 100        | 1K         | 10K        | 100K        | 1M          |
|---------------------------------|------------|------------|------------|------------|-------------|-------------|
| Standard-1 MHz steps: dBC/Hz    | -55        | -70        | -70        | -80        | -95         | -105        |
| <b>X1004-1kHz steps: dBC/Hz</b> | <b>-60</b> | <b>-75</b> | <b>-85</b> | <b>-90</b> | <b>-105</b> | <b>-120</b> |

#### Controls, Indicators

Freq/Gain Selection direct readout LCD; manual or remote selection  
Pwr; Alarm; Rem; Mute Green LED; Red LED; Yellow LED; Red LED  
Remote RS232C, 9600 baud (**RS485, Ethernet Optional**)

#### Other Esterbal

RF, IF Connectors 50Ω BNC (female), 75Ω BNC (female)  
10MHz Connectors BNC (female), **75Ω, works with 50 or 75 ohms (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 ± 10% VAC, 47-63 Hz, **25 Watts max. (24 and 48 VDC Optional)**



**Block Diagram**

#### Available Options

E - External 10 MHz ref input & output  
H - High Stability (±0.01ppm) Internal Ref  
-5 - 0.5 MHz Frequency Steps  
X - 125 kHz step size  
**X1004 - 1 kHz step, includes option -H**

#### Comm. Interface/Standard RS232

Q - RS485 Remote Interface  
W8 - Ethernet; w/Web Browser (WB)  
W18 - Ethernet; w/WB & SNMP  
W28 - Ethernet; w/TCP/IP, Telnet

#### Connectors/Impedance

B - 75Ω BNC (RF), 75Ω BNC (IF)  
D - 50Ω BNC (RF), 50Ω BNC (IF)  
N - 50Ω N-type (RF), 75Ω BNC (IF)  
M - 50Ω N-type (RF), 50Ω BNC (IF)  
**S - 50Ω SMA (RF), 50Ω BNC (IF)**  
**Contact Cross for other available options**

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