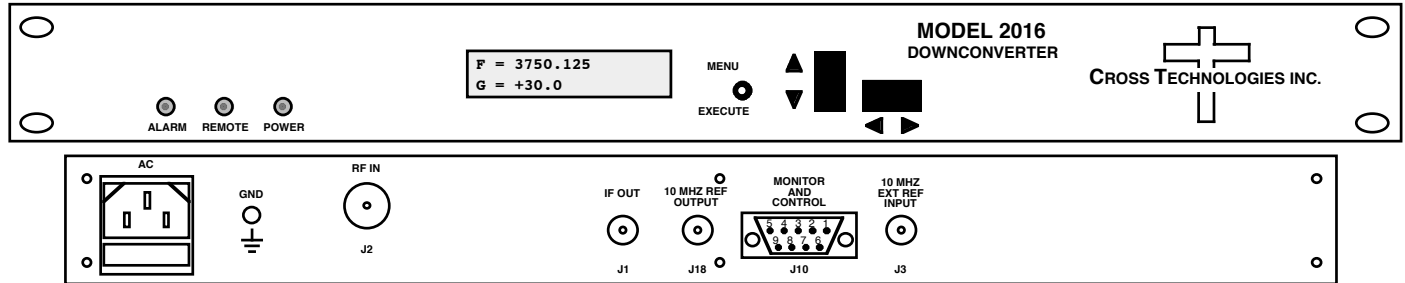


## 2016-37-140 Downconverter, 3.625 - 4.2 GHz to 140 ± 36 MHz

The 2016-37-140 Downconverter converts 3.625 to 4.2 GHz to 140 ± 36 MHz in 125 kHz steps (**1 kHz steps, option X1005**) with low group delay and flat frequency response. Synthesized local oscillators (LO) provide **frequency selection with ±0.01 ppm** stability. 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 by the front panel push-button switches. Remote **M&C** allows selection of the **10 MHz reference**, frequency and gain. Parameter selection and frequency and gain settings appear on the LCD display. Connectors are BNC (female) for IF output and the 10MHz reference input and output, and Type N (female) for the RF input (**other connector configurations available**). A 10 MHz output connector contains either the internal or external 10 MHz reference signal. It 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 and Rear Panels**

### EQUIPMENT SPECIFICATIONS\*

#### Input Characteristics (RF)

Impedance/Return Loss **50Ω/14 dB min**  
 Frequency 3.625 to 4.2 GHz  
**Noise Figure, max. 15 dB (max gain)**  
 Level -70 to -30 dBm

#### Output Characteristics (IF)

Impedance/Return Loss **75Ω /18 dB**  
 Frequency 140 ± 36 MHz  
 Level **-20 to 0 dBm**  
 1dB compression **+10 dBm**

#### Channel Characteristics

**Max. Gain; range +50 ± 2 dB; +30 to +50 dB, 0.5 ± 0.5 dB steps**  
 Image Rejection > 50 dB, min  
 Spurious Response **<-50 dBC, maximum**  
 Intermodulation <-50 dBC for two carriers **at 4 MHz spacing, each at -5 dBm out, Gain +50**  
 Frequency Response ±1.5 dB, 3.625-4.2 GHz ; ± 0.7 dB, 72 MHz BW  
 Group Delay, max **0.0035 ns/MHz<sup>2</sup> parabolic; 0.025 ns/MHz linear, 1 ns ripple**  
 Frequency Sense Non-inverting

#### Synthesizer Characteristics

Frequency Accuracy **± 0.01 ppm internal reference or external reference input**  
 Frequency Step 125 kHz minimum; (**1 kHz steps, option X1005**)  
 10 MHz In/Out Level 3 dBm ± 3 dB

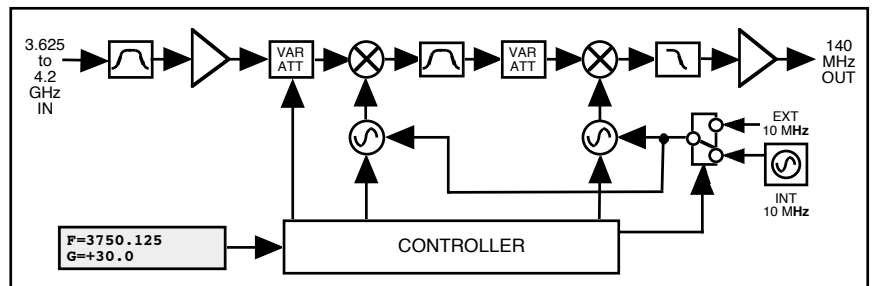
Phase Noise @ Freq	100 Hz	1kHz	10kHz	100kHz	1 MHz
dBC/Hz	-70	-75	-80	-95	-110

#### 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; **RS485/422 or Ethernet optional**

#### Other

RF / IF Connectors RF - Type N (female), **50Ω** / IF - BNC (female), **75Ω**  
 10 MHz Connectors BNC (female), **75Ω, works with 50 or 75 ohms**  
 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



**Block Diagram**

#### Available Options

W7 - RF/IF Monitor Ports (Front)  
 W31 - Ext. Temp 0C to +50C  
 X1005 - 1 kHz frequency step  
**Remote M&C Interfaces:**  
 Q - RS485/422  
 W8 - Ethernet; w/Web Browser (WB)  
 W18 - Ethernet; w/WB & SNMP  
 W28 - Ethernet; w/TCP/IP, Telnet  
**Connectors/Impedance**  
 STD. - 50Ω Type N (RF), 75Ω BNC (IF)  
 M - 50Ω Type N (RF), 50Ω BNC (IF)  
 S - 50Ω SMA (RF), 50Ω BNC (IF)  
 S7 - 50Ω SMA (RF), 75Ω BNC (IF)  
**Contact Cross for other options**

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