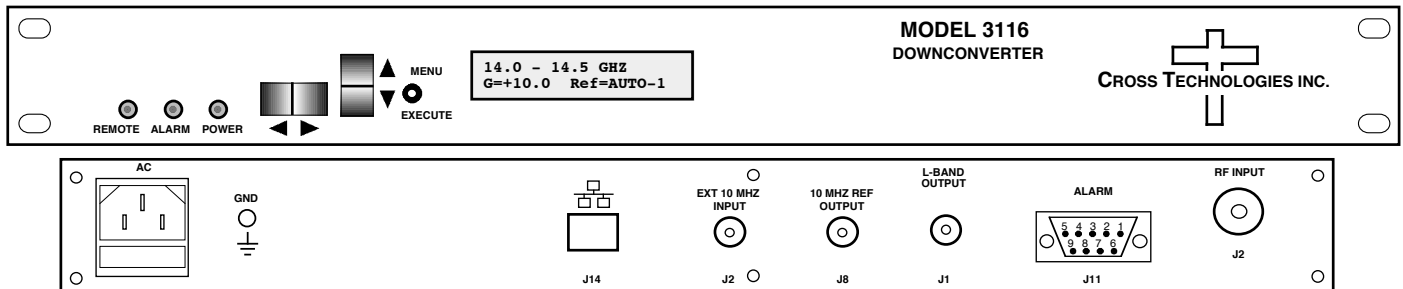


**3116-140 Block Downconverter, 14.0 - 14.5 GHz to 0.95 - 1.45 GHz**

The 3116-140 Downconverter converts 14.0 - 14.5 GHz to 0.95 - 1.45 GHz with low phase noise and flat frequency response. Frequency translation is via a 13.05 GHz local oscillator. The gain is  $+35 \pm 2$  dB maximum and is adjustable in  $0.5 \pm 0.5$  dB steps. Front panel LEDs provide indication of Remote operation, PLL Alarm and DC Power. Gain and internal/external/Auto reference frequency selection are controlled by front panel switches or remote selection (via RS 232C, standard; Ethernet Optional) and are viewable on the LCD Display. Connectors are SMA female for the RF and BNC female for the L-Band and external reference input and reference output. In AUTO, the 10 MHz reference stays in external if the external level is **+1 to +8 dBm**. The 3116 is powered by a 100-240  $\pm 10\%$  VAC power supply, and housed in a 1 3/4" X 19" X 14" rack mount chassis.



**Front Panel**

**EQUIPMENT SPECIFICATIONS\***

**Input Characteristics (RF)**

Impedance/Return Loss 50Ω/14 dB  
 Frequency 14.0 to 14.5 GHz  
 Noise Figure, Max. 12 dB max gain  
 Input Level range -55 to -35 dBm  
 Input 1 dB compression -25 dBm

**Output Characteristics (L-Band)**

Impedance/Return Loss 50Ω/14 dB  
 Frequency 0.95 to 1.45 GHz  
 Output Level Range -20 to 0 dBm  
 Output 1 dB compression +10 dBm at max. gain

**Channel Characteristics**

Gain, max; adjustment +35 dB  $\pm 2$  dB, max. gain @ Fc; 30 dB adjustment in  $0.5 \pm 0.5$  dB Steps  
 Image Rejection > 60 dB, min  
 Spurious, In Band SIGNAL RELATED < -55 dBc in band, 0 dBm out; SIGNAL INDEPENDENT, < -60 dBm  
 Spurious, Out of Band < -50 dBm (**0.5-0.95 GHz and 1.45-2.0 GHz Out**)  
 Intermodulation < -55 dBc for two carriers each at -10 dBm out  
 Frequency Response  $\pm 1.5$  dB, 950 -1450 MHz out;  $\pm 0.5$  dB, 40 MHz BW  
 Frequency Sense Non-inverting

**LO Characteristics**

LO Frequency 13.05 GHz  
 Frequency Accuracy  $\pm 0.01$  ppm max over temp internal reference; ext. ref. input  
 10 MHz In/Out Level 3 dBm,  $\pm 3$  dB, w/ Auto-detect

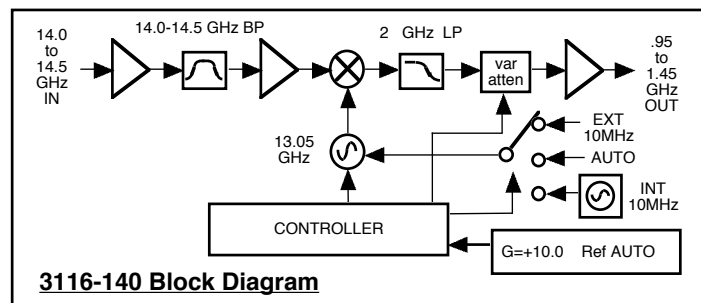
Phase Noise @ F (Hz) >	100	1K	10K	100K	1M
dBC/Hz	-70	-80	-85	-100	-110

**Controls, Indicators**

Gain; Ext Ref Selection Direct readout LCD; pushbutton switches or remote  
 Power; Alarm; Remote Green LED; Red LED; Yellow LED  
 Remote RS232C/RS485/422, 9600 baud (Ethernet Optional)

**Other**

RF/L-band Connector SMA (female), 50Ω / BNC (female), 50Ω  
 10 MHz Connectors BNC (female), **75Ω, works with 50 or 75 ohms**  
 Alarm/Remote Conn. DB9 - NO or NC contact closure on Alarm  
 Size 19 inch standard chassis 1.75" high X 14.0" deep  
 Power 100-240  $\pm 10\%$  VAC, 47 - 63 Hz, **30 watts max.**



**3116-140 Block Diagram**

**Options - Contact Cross for others**

Remote M&C Ethernet Options

W8 - Ethernet w/web browser Interface  
 W18 - Ethernet w/SNMP (and MIB) Interface  
 W28 - Ethernet w/direct TCP/IP Interface

Gain/Power Options

W50 - Gain (38 dB  $\pm 3$  dB) & P1dB = +18 dB

Extended Temperature Option

W31 - 0°C to 50°C

Connector Options

N - 50Ω N-type (RF), 75Ω BNC (L-BAND)  
 NF - 50Ω N-type (RF), 75Ω F-type (L-BAND)  
 NN - 50Ω N-type (RF), 50Ω N-type (L-BAND)  
 S7 - 50Ω SMA (RF), 75Ω BNC (L-BAND)  
 SF - 50Ω SMA (RF), 75Ω F-type (L-BAND)  
 SN - 50Ω SMA (RF), 50Ω N-type (L-BAND)  
 SS - 50Ω SMA (RF), 50Ω SMA (L-BAND)

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