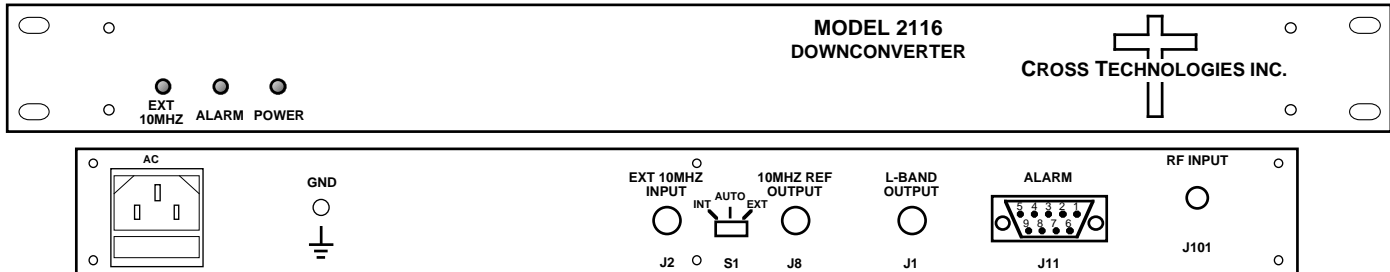


**2116-139 Block Downconverter, 13.95 - 14.45 GHz**

The 2116-139 Block Downconverter converts 13.95 - 14.45 GHz to 1.20 - 1.70 GHz with low phase noise and flat frequency response. Frequency translation is via a 12.75 GHz local oscillator. Front panel LEDs provide indication of DC Power, External 10 MHz, and PLL Alarm. The gain is +35 dB. Connectors are SMA female for the RF and BNC female for the L-Band and external reference input and reference output. A three-way switch controls which 10 MHz reference is being used. In the INT position, the internal reference is used, in the EXT position, the external reference is used, and in the AUTO position, the internal reference is used unless a 3 dBm ± 3 dB, 10MHz reference signal is connected to the external reference input. The 2116 is powered by a 100-240 ±10% VAC power supply, and housed in a 1 3/4" X 19" X 14" rack mount chassis.



**Front and Rear Panels**

**EQUIPMENT SPECIFICATIONS\***

**Input Characteristics**

Impedance/Return Loss 50Ω/14 dB  
 Frequency 13.95 to 14.45 GHz  
 Noise Figure, Max. 20 dB max. gain  
 Input Level range -55 to -35 dBm  
 Input 1 dB compression -25 dBm

**Output Characteristics**

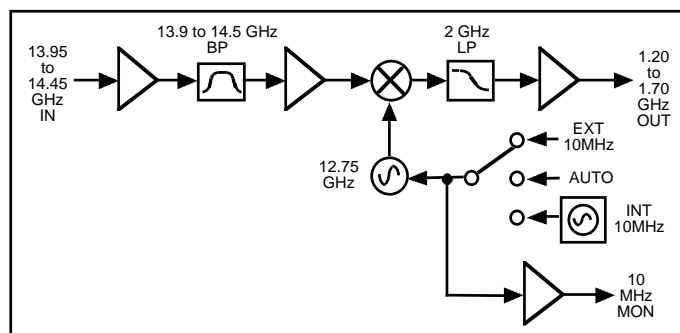
Impedance/Return Loss 50Ω / 14 dB  
 Frequency 1.20 to 1.70 GHz  
 Output Level Range -20 to 0 dBm  
 Output 1 dB compression +10 dBm

**Channel Characteristics**

Gain +35 dB ±2 dB  
 Image Rejection > 60 dB, min  
 Spurious, In Band SIGNAL RELATED <-60 dBC in band, 0 dBm out; SIGNAL INDEPENDENT, <-60 dBm  
 Spurious, Out of Band LO < -70 dBm  
 Intermodulation <-55 dBC for two carriers each at -10 dBm out  
 Frequency Response ±1.5 dB, 1.20 - 1.70 GHz out; ± 0.5 dB, 40 MHz BW  
 Frequency Sense Non-inverting

**LO Characteristics**

LO Frequency 12.75 GHz  
 Frequency Accuracy ± 0.01 ppm max over temp internal reference; ext. ref. input  
 10 MHz level 3 dBm, ± 3 dB, 75 ohms, External In or Monitor out



**2116-139 Block Diagram**

Phase Noise @ F (Hz) >	100	1K	10K	100K	1M
dBC/Hz	-65	-80	-85	-100	-110

**Controls, Indicators**

Ext 10 MHz Yellow LED, indicates external 10 MHz reference selected (rear panel DPDT switch)  
 PLL Alarm Red LED, External contact closure  
 Power Green LED

**Other**

RF Connector SMA (female), 50Ω  
 L-Band Connector BNC (female), 50Ω  
 10 MHz Connectors BNC (female), 75Ω connector; Works for 50Ω/75Ω  
 Alarm Connector DB9 - NO or NC contact closure on Alarm  
 Size 19 inch standard chassis 1.75" high X 14.0" deep  
 Power 100-240 ±10% VAC, 47 - 63 Hz, 25 watts max.

**Available Connector Options**

M - 50Ω N-type (RF), 50Ω BNC (L-BAND)  
 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 to +40 degrees C; Specifications subject to change without notice