



# DATA SHEET

REV\_C 10/05/15

## 2116-13T11 Block Translator, 13.75 - 14.50 GHz to 10.95 - 11.70 GHz

The 2116-13T11 Block Translator converts 13.75 - 14.50 GHz to 10.95 - 11.70 GHz with a local oscillator at 2.8 GHz. Front panel LEDs provide indication of external 10 MHz (yellow), PLL alarm (red), and DC power (green). The gain is -30 dB to Output #1 and -50 to Output #2. Connectors are SMA female for RF and BNC female for the 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 Panel**

### EQUIPMENT SPECIFICATIONS\*

#### Input Characteristics

Impedance / Return Loss 50Ω / 15 dB, typ., 14dB min.  
 Frequency 13.75 to 14.50 GHz  
 Input Level range -30 to 0 dBm  
 Input 1 dB compression +10 dBm

#### Output Characteristics

Impedance/Return Loss 50Ω / 15 dB, typ., 14dB min.  
 Frequency 10.95 to 11.70 GHz  
 Output Level Range (#1) -60 to -30 dBm  
 Output Level Range (#2) -80 to -50 dBm

#### Channel Characteristics

Gain -30 dB ±2 dB (Output #1) ; -50 dB ±2 dB (Output #2)  
 Input/Output Isolation 60 dB, min  
 Intermodulation < -50 dBC for two carriers each at -13 dBm in  
 Spurious < -40 dBC, **except known spur at 11.2 GHz (Spec -25 with -10 dBm In / -5 dBC with -30 dBm In)**  
 Frequency Response ±1.5 dB, over frequency band; ± 0.5 dB, 40 MHz BW  
 Frequency Sense Non-inverting

#### LO Characteristics

LO Frequency 2.8 GHz  
 Frequency Accuracy ± 0.01 ppm max over temp internal reference; ext. ref. input  
 10 MHz In/Out Level +3 dBm ± 3 dB

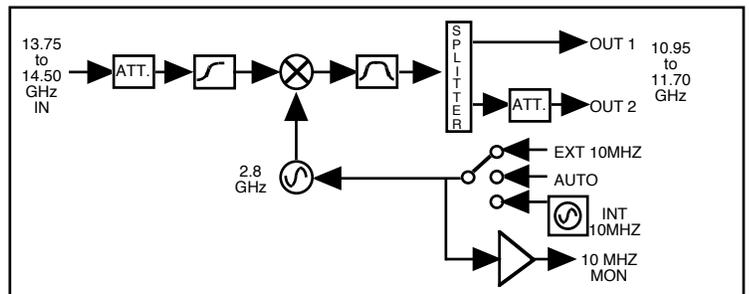
Phase Noise @ F (Hz) >	100	1K	10K	100K	1M
dBC/Hz	-70	-80	-90	-100	-110

#### Controls, Indicators

Power Green LED  
 PLL Alarm Red LED, External contact closure  
 Ext 10 MHz Yellow LED, indicates external 10 MHz reference selected (rear panel DPDT switch)  
 10 MHz Reference 3-way Switch (selects INTERNAL, EXTERNAL, or AUTO mode)

#### Other

RF Connectors SMA (female), 50Ω  
 10 MHz Connectors BNC (female), 50Ω/75Ω  
 Alarm Connector DB9 - NO or NC contact closure on Alarm  
 Size 19 inch standard chassis 1.75" high X 14" deep  
 Power 100-240 ±10% VAC, 47 - 63 Hz, 45 watts max.



**Block Diagram**

#### Available Options

Connectors/Impedance  
 NN - 50Ω N-type (RF)

\*0°C to 50°C; Specifications subject to change without notice