2116-41-109# Block Downconverter, 10.9-12.8 GHz to 0.15-0.75 GHz, 4 Bands

The 2116-41-109# Downconverter, 4 Bands converts 10.9 - 12.8 GHz to 0.15 - 0.75 GHz with dual conversion and a 4 band switchable local oscillator. Front panel LEDs provide indication of DC Power, External 10 MHz, and PLL Alarm. The gain is 0 ±2 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 (design goal), 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. It is powered by a 100-240 ± 10% VAC power supply, and mounted in a 1 3/4” X 19” X 14” rack mount chassis.

### Equipment Specifications

**Input Characteristics (RF)**
- Impedance/Return Loss: 50Ω/14 dB
- Frequency: 10.9 - 12.8 GHz (in 4 Bands)
- Noise Figure, Max.: 25 dB
- Level: -20 to -10 dBm
- Input 1 dB compression: 0 dBm

**Output Characteristics**
- Impedance/Return Loss: 50Ω/14 dB
- Frequency: 0.15 to 0.75 GHz, 4 bands
- Level: -20 to -10 dBm
- 1dB Compression: 0 dBm

**Channel Characteristics**
- Gain: 0 ±2 dB at Fc
- Image Rejection: > 30 dB, 0.15-0.40 GHz out; > 40 dB, 0.41-0.75 GHz out;
- Spurious, In Band: < -40 dBc in band, -10 dBm out, 10.9 -12.8 GHz in, 0.15-0.75 GHz out
- Spurious, Out of Band: < -40 dBm, 0.05 - 0.149 and 0.751 to 1.3 GHz out
- Intermodulation: < -50 dBc for two carriers each at -15 dBm out
- Frequency Response: ±1.5 dB, 0.15-0.75 GHz out; ± 0.5 dB, 40 MHz BW
- Frequency Sense: Non-inverting

**LO Characteristics**
- LO Frequency: Varies with bands, dual conversion
- Frequency Accuracy: Ext. ref. input; ± 1 ppm max over temp internal reference; design goal
- 10 MHz level In/Out: +3 dBm ± 3 dB

**Phase Noise @ F (Hz) > dBC/Hz**

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>-60</th>
<th>-70</th>
<th>-80</th>
<th>-95</th>
<th>-105</th>
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**Controls, Indicators**

### Band Select Switch
- Rotary switch Selects Band 1-4 (front panel SP4T switch)

### INT/AUTO/EXT Switch
- Selects internal or external 10 MHz (rear panel DP3T switch)

### Ext 10 MHz
- Yellow LED, indicates external 10 MHz reference selected

### PLL Alarm
- Red LED, External contact closure

### Power
- Green LED

**Other**

### RF Connector
- SMA (female), standard

### IF Connector
- BNC (female), 50Ω, standard

### 10 MHz Connectors
- BNC (female), 75Ω connector; works with 50Ω or 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 maximum

*+10 to +40 degrees C; Specifications subject to change without notice.*