The 2116-310T212 Block Translator converts 30.0 - 31.0 GHz to 20.2 - 21.2 GHz with a local oscillator at 9.80 GHz. Front panel LEDs provide indication of DC Power, External 10 MHz, and PLL Alarm. The gain is -30 dB. Connectors are 2.92mm female for RF In, Super SMA female for RF Out and BNC female for the external reference input and reference output. A three-way switch controls which 10 MHz reference is being used. When 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 mounted in a 1 3/4" X 19" X 14" rack mount chassis.

**EQUIPMENT SPECIFICATIONS**

**Input Characteristics**
- Impedance / Return Loss: 50Ω / 12 dB, typ., 10dB min.
- Frequency: 30.0 to 31.0 GHz
- Input Level range: -30 to -10 dBm
- Input 1 dB compression: 0 dBm

**Output Characteristics**
- Impedance/Return Loss: 50Ω / 15 dB, typ., 14dB min.
- Frequency: 20.2 to 21.2 GHz
- Output Level Range: -60 to -40 dBm
- Output 1 dB compression: -30 dBm

**Channel Characteristics**
- Gain: -30 dB ±2 dB at Fc
- Input/Output Isolation: >50 dB, min
- Intermodulation: >50 dBC for two carriers each at -13 dBm in
- Spurious, Inband: SIGNAL RELATED<-50 dBC,typ., -40 dBC max; SIGNAL INDEPENDENT<-80 dBm;
- Spurious, Out of band,2XLO: <45 dBm, at 19.6 GHz at the output
- Frequency Response: ±2.0 dB, over frequency band; ± 0.5 dB, 40 MHz BW
- Frequency Sense: Non-inverting

**LO Characteristics**
- LO Frequency: 9.80 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) > dBC/Hz**

<table>
<thead>
<tr>
<th></th>
<th>100</th>
<th>1K</th>
<th>10K</th>
<th>100K</th>
<th>1M</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 MHz</td>
<td>-70</td>
<td>-80</td>
<td>-85</td>
<td>-95</td>
<td>-110</td>
</tr>
</tbody>
</table>

**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 In / RF Out Con.: 2.92 mm / Super SMA
- 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.

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