2116-288T190 Block Translator, 27.8 - 28.8 GHz to 18.0 - 19.0 GHz, 9.80 GHz LO

The 2116-288T190 Block Translator converts 27.8 - 28.8 GHz to 18.0 - 19.0 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. External LO option W89 allows an external 9.8 GHz LO at +14 dBm ± 2dB level, switched by a SPDT toggle switch. 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**
- Impedance / Return Loss: 50Ω / 12 dB, typ., 10dB min.
- Frequency: 27.8 to 28.8 GHz
- Input Level Range: -10 to 0 dBm
- Input 1 dB Compression: +10 dBm

**Output Characteristics**
- Impedance/Return Loss: 50Ω / 15 dB, typ., 14dB min.
- Frequency: 18.0 to 19.0 GHz
- Output Level Range: -40 to -30 dBm
- Output 1 dB Compression: -20 dBm

**Channel Characteristics**
- Gain: -30 dB ±2 dB at Fc
- Input/Output Isolation: >50 dB, min
- Intermodulation: >50 dBc for two carriers each at -5 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: ± 0.05 ppm max over temp internal reference
- 10 MHz In/Out Level: +3 dBm ± 3 dB

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

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Ext 10 MHz Ref.</th>
<th>9.800 GHz dBC/Hz, W/E6-100</th>
<th>100K</th>
<th>10K</th>
<th>1K</th>
<th>100</th>
<th>10</th>
<th>Ext 10</th>
<th>W89</th>
<th>E6-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>-127</td>
<td>-45</td>
<td>-70</td>
<td>-85</td>
<td>-100</td>
<td>-100</td>
<td>-110</td>
<td>-130</td>
<td>-130</td>
<td>-130</td>
</tr>
<tr>
<td>100</td>
<td>-145</td>
<td>-70</td>
<td>-85</td>
<td>-100</td>
<td>-100</td>
<td>-110</td>
<td>-130</td>
<td>-130</td>
<td>-130</td>
<td>-130</td>
</tr>
<tr>
<td>1000</td>
<td>-150</td>
<td>-85</td>
<td>-100</td>
<td>-100</td>
<td>-110</td>
<td>-130</td>
<td>-130</td>
<td>-130</td>
<td>-130</td>
<td>-130</td>
</tr>
</tbody>
</table>

**Ext LO Freq/Level, W89**
- 9.800 GHz / +14 dBm, ± 2 dB

**Contact Cross for other options**

**Available Options**
- W6-100 Int 100MHz ref. locked to ext 10 MHz
- W41 -20 to +50 degrees C operation
- W89 - Ext. LO, switched & terminated

**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 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*