The 3116-137 Downconverter converts 13.75 - 14.50 GHz to 0.95 - 1.7 GHz with low phase noise and flat frequency response. Frequency translation is via a 12.80 GHz local oscillator. The gain is +35 dB maximum and is adjustable in 1 dB steps. Front panel LEDs provide indication of Remote operation, PLL Alarm and DC Power. Gain and internal/external/Auto reference frequency selection are controlled by front panel switches or remote selection (via RS 232C, standard; Ethernet Optional) and are viewable on the LCD Display. Connectors are SMA female for the RF and BNC female for the L-Band and external reference input and reference output. In AUTO, the 10 MHz reference switches to internal when the external is below 0 dBm ± 1 dB. The 3116 is powered by a 100-240 ± 10% VAC power supply, and housed in a 1 3/4" X 19" X 14" rack mount chassis.

**Input Characteristics (RF)**
- Impedance/Return Loss: 50Ω/14 dB
- Frequency: 13.75 to 14.50 GHz
- Noise Figure, Max.: 12 dB max gain
- Input Level range: -55 to -35 dBm
- Input 1 dB compression: -25 dBm

**Output Characteristics (L-Band)**
- Impedance/Return Loss: 50Ω/14 dB
- Frequency: 0.95 to 1.7 GHz
- Output Level Range: -20 to 0 dBm
- Output 1 dB compression: +10 dBm at max. gain

**Channel Characteristics**
- Gain, max; adjustment: +35 dB ±2 dB, max. gain; 30 dB adjustment in 1 dB Steps
- Image Rejection: > 60 dB, min
- Spurious, In Band: SIGNAL RELATED< -55 dB in band, 0 dBm out; 2XFo < -45dB; SIGNAL INDEPENDENT, < -60 dBm
- Spurious, Out of Band: < -55 dBm, 0.5-0.95 GHz and 1.70 - 2.5 GHz
- Intermodulation: < -55 dBc for two carriers each at -10 dBm out
- Frequency Response: ±1.5 dB, 950 - 1700 MHz out; ±0.5 dB, 40 MHz BW
- Frequency Sense: Non-inverting

**LO Characteristics**
- LO Frequency: 12.80 GHz
- Frequency Accuracy: ±0.01 ppm max over temp internal reference; ext. ref. input
- 10 MHz In/Out Level: 3 dBm, ±3 dB, w/ Auto-detect

**Phase Noise @ F (Hz)**

<table>
<thead>
<tr>
<th>F (Hz)</th>
<th>100</th>
<th>1K</th>
<th>10K</th>
<th>100K</th>
<th>1M</th>
</tr>
</thead>
<tbody>
<tr>
<td>dBc/Hz</td>
<td>-70</td>
<td>-80</td>
<td>-85</td>
<td>-100</td>
<td>-110</td>
</tr>
</tbody>
</table>

**Controls, Indicators**
- Gain; Ext Ref Selection: direct readout LCD; pushbutton switches or remote
- Pwr; Alarm; Rem; Mute: Green LED; Red LED; Yellow LED; Yellow LED
- Remote: RS232C/RS485/422, 9600 baud (Ethernet Optional)

**Extended Temperature Option**
- W31 - 0°C to 50°C

**Connector Options**
- 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)

**Available Options**
- Remote M&C Ethernet Options
  - W8 - Ethernet w/web browser Interface
  - W18 - Ethernet w/SNMP (and MIB) Interface
  - W28 - Ethernet w/direct TCP/IP Interface

**Contact Cross for other options**