The 3116-107 Downconverter converts 10.7 - 11.7 GHz to 0.95 - 1.95 GHz with low phase noise and flat frequency response. Frequency translation is via a 9.75 GHz local oscillator. The gain is +35 ± 2 dB maximum and is adjustable in 0.5 ± 0.5 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 stays in external if the external level is +1 to +8 dBm. 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.

**Front Panel**

**EQUIPMENT SPECIFICATIONS**

*Input Characteristics (RF)*
- Impedance/Return Loss: 50Ω/14 dB
- Frequency: 10.7 to 11.7 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 1.95 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 @ Fc; 30 dB adjustment in 0.5 ± 0.5 dB Steps
- Image Rejection: > 60 dB, min
- Spurious, In Band: SIGNAL RELATED: -55 dBC in band, 0 dBm out; 2XFo < -45dBC; SIGNAL INDEPENDENT, < -60 dBm
- Spurious, Out of Band: < -50 dBm (0.5-0.95 GHz and 1.95-2.5 GHz Out)
- Intermodulation: < -55 dBC for two carriers each at -10 dBm out
- Frequency Response: ± 1.5 dB, 950 - 1950 MHz out; ± 0.5 dB, 40 MHz BW
- Frequency Sense: Non-inverting

*LO Characteristics*
- LO Frequency: 9.75 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>dB/Hz</th>
<th>100</th>
<th>1K</th>
<th>10K</th>
<th>100K</th>
<th>1M</th>
</tr>
</thead>
<tbody>
<tr>
<td>dBm</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
- Power: Alarm; Remote
- Remote: RS232/RS485/422, 9600 baud (Ethernet Optional)

*Other*
- RF/L-band Connector: SMA (female), 50Ω / BNC (female), 50Ω
- 10 MHz Connectors: BNC (female), 75Ω, works with 50 or 75 ohms
- Alarm/Remote Conn: DB9 - NO or NC contact closure on Alarm
- Power: 100-240 ± 10% VAC, 47 - 63 Hz, 30 watts max.

*Options - Contact Cross for others*
- 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

*Gain/Power Options*
- W50 - Gain (38 dB ± 3 dB) & P1dB = +18 dB

*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)

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