The 3116-35 Downconverter converts 3.59 - 4.09 GHz to 0.95 - 1.45 GHz (non-inverted) with 8.84 and 11.48 GHz local oscillators. The gain is +35 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/485, standard; Ethernet Optional) and are viewable on the LCD Display. Connectors are Type N female for RF In 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 +3 dBm, ±3 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.

**Equipment Specifications**

**Input Characteristics (RF)**
- Impedance/Return Loss: 50Ω/14 dB
- Frequency: 3.59 to 4.09 GHz
- Noise Figure, Max.: 15 dB max gain
- Input Level range: -55 to -35 dBm
- Input 1 dB compression: -25 dBm

**Output Characteristics**
- Impedance/Return Loss: 50Ω/14 dB
- Frequency: 0.95 to 1.45 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± 1 dB Steps
- Image Rejection: >60 dB, min
- Spurious, In Band: -55 dBc in band, 0 dBm out; (0.95-1.45 GHz Out)
- Spurious, Out of Band: <50 dBm (0.5-0.95 GHz and 1.45-2.5 GHz Out)
- Intermodulation: <55 dBc for two carriers each at -10 dBm out
- Frequency Response: ±1.0 dB, 0.95-1.45 GHz out; ± 0.5 dB, 40 MHz BW
- Frequency Sense: Non-inverting

**LO Characteristics**
- LO Frequencies: 8.84 and 11.48 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>Standard dBC/Hz</th>
<th>10</th>
<th>100</th>
<th>1K</th>
<th>10K</th>
<th>100K</th>
<th>1M</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-55</td>
<td>-70</td>
<td>-80</td>
<td>-80</td>
<td>-95</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)

**Other**
- RF In Connector: Type N (female), 50Ω
- L-band Connector: 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
- Size: 19 inch standard chassis 1.75” high X 14.0” deep
- Power: 100-240 ± 10% VAC, 47 - 63 Hz, 30 watts max.

**Available Options**
- W31 0 to +50 degrees C operation
- 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

**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)

**Contact Cross for other options**

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