3116-41-310 Ka-band Block Downconverter, 4 Band, 27.5-31.0 to 0.95-1.95 GHz

The 3116-41-310 Ka-band Block Downconverter converts 27.5 - 31.0 GHz up to 0.95 - 1.95 GHz in four selectable fixed bands. The RF to L-band gain is +30 dB, adjustable in 1 ± 1 dB steps. Front panel LEDs indicate Remote operation, PLL Alarm and DC Power. Band select, gain and internal/external/Auto reference frequency selection are controlled by front panel switches or remotely via RS 232C or RS485/422 (Ethernet Optional) and are viewable on the LCD Display. Connectors are 2.92 mm 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 in the +2 to +8 dBm range. The 3116 is powered by a 100-240 ± 10% VAC power supply, and housed in a 1 3/4” X 19” X 17” rack mount chassis.

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**EQUIPMENT SPECIFICATIONS**

**Input Characteristics**
- Impedance/Ret. Loss: 50Ω/14 dB
- Frequency (GHz):
  - BAND1 27.5 to 28.5
  - BAND2 28.0 to 29.0
  - BAND3 29.0 to 30.0
  - BAND4 30.0 to 31.0
- Noise Figure, Max.: 20 dB max gain
- Input Level range: -50 to -30 dBm

**Output Characteristics**
- Impedance/Ret. Loss: 50Ω/14 dB
- Frequency: 0.95 to 1.95 GHz
- Output Level Range: -20 to 0 dBm
- Output 1 dB comp.: +10 dBm, max gain

**Channel Characteristics**
- Gain at $f_C$: +30 ± 3 dB, (+30 to 0 dB variable in 1 ± 1 dB steps)
- Image Rejection: > 60 dB, min
- Spurious, Inband: Sig. REL. <-50 dBc, -15 to 0 dBm out; 2XFo <-45 dBc; Sig. INDEP., <-60 dBm; 95-1.95 GHz out, G_max
- Spurious, Out of band: <-55 dBm, signal independent; 0.5-2.45 GHz out
- Intermodulation: <-50 dBc for two carriers at 4 MHz spacing, each at -10 dBm out. Gain = +30 dB
- Frequency Response: ±2 dB, over RF band; ± 0.5 dB, 40 MHz BW
- Frequency Sense: Non-inverting

**LO Characteristics**
- LO Frequency: Band Specific
- Frequency Accuracy: ± 0.05 ppm max over temp internal reference; ext. ref. input
- 10 MHz level In/Mon: +2 to +8 dBm in; Monitor Output = input level ± 1.0 dB, 50 ohms

**Phase Noise @ $f (Hz)$**

<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>dBc/Hz</td>
<td>-65</td>
<td>-75</td>
<td>-80</td>
<td>-95</td>
<td>-105</td>
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</tbody>
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**Controls, Indicators**
- Band; Gain;10M Ref Sel.
- Rem; Alarm; Mute; Pwr
- Direct readout LCD: pushbutton switches or remote
- Yellow LED: Red LED; Yellow LED: Green LED
- RS232C/RS485/422, 9600 baud (Ethernet Optional)

**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

**Available Connector Options**
- 297 - 500 2.92 (RF), 75Ω BNC (L-BAND)
- 29N - 500 2.92 (RF), 50Ω N-type (L-BAND)
- 29S - 500 2.92 (RF), 50Ω SMA (L-BAND)

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*+0 to +50 degrees C; Specifications subject to change without notice*