Ku-Band BDC with Multiple Local Oscillators

With multiple local oscillators, this Ku-band block downconverter (BDC) gives you the flexibility to switch between different Ku frequency bands according to your region of operation. It provides IF bandwidth of up to 1.05 GHz – and delivers market-leading performance for broadband Ku satellite communications (SATCOM). Like all Orbital BDCs, this product supports high data rate applications with low bit error rates.

• External referenced for stability
• Low phase noise for maximum data throughput
• Preset signal gains from 20 to 45 dB
• Linearity for higher-order modulation schemes
• Options for temperatures up to 70°C

Applications

Our Ku-band BDC with multiple local oscillators (LO) is designed for military and commercial SATCOM applications, including large satellite teleports, earth stations, comms-on-the-move – and anywhere a user wants to access a Ku satellite's entire spectrum.

An airborne version is also available.

Unlike an LNB, BDCs are used after an external low noise amplifier (LNA). This means you can connect multiple BDCs to a single LNA without affecting the noise figure of the system. BDCs let you receive signals from the entire satellite spectrum – with IF outputs at appropriate frequencies for your demodulators.

Connections:
J1: RF in - SMA male 50 ohm
J2: IF out - BDC pin 10M in

Finish:
MB-07030412 Type I, Class 3, and coated
surface painted white.
**MODEL NUMBER: BDCKUMULTIPLELO**

<table>
<thead>
<tr>
<th>FREQUENCY RANGE</th>
<th>LOW</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input RF Freq GHz</td>
<td>10.7 to 11.7</td>
<td>11.7 to 12.75</td>
</tr>
<tr>
<td>Output RF Freq MHz (options available)</td>
<td>950 to 1950</td>
<td>950 to 2000</td>
</tr>
<tr>
<td>Local Oscillators MHz (2 or more LO’s per BDC – options available)</td>
<td>9.75</td>
<td>10.75</td>
</tr>
<tr>
<td>LO Stability Locked to External Reference</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Output Bandwidth GHz</td>
<td>1.0 max</td>
<td>1.05 max</td>
</tr>
</tbody>
</table>

**NOISE FIGURE**

10 dB typical @ 25°C

**VSWR**

Input 2.0:1 nominal

Output 1.5:1 nominal

**GAIN**

Gain 20 to 45 dB in 5 dB steps

Flatness +/- 0.75 dB over any 27 MHz

Ripple +/- 0.15 dB per 10 MHz

Stability +/- 0.25 dB max over 24 hours @ +25°C

**ENVIRONMENTAL**

Operating Temp -40°C to +60°C

Operating Altitude 10,000 ft. ASL

Operating Relative Humidity 100% Condensing

Standards RoHS & REACH

**INTERFACES**

Input SMA (S)

Output N (N) or SMA (S)

**PHASE NOISE MIL-STD-188-164**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Noise Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Hz</td>
<td>-32 dBc/Hz max</td>
</tr>
<tr>
<td>100 Hz</td>
<td>-62 dBc/Hz max</td>
</tr>
<tr>
<td>1 KHz</td>
<td>-72 dBc/Hz max</td>
</tr>
<tr>
<td>10 KHz</td>
<td>-82 dBc/Hz max</td>
</tr>
<tr>
<td>100 KHz</td>
<td>-92 dBc/Hz max</td>
</tr>
<tr>
<td>1 MHz</td>
<td>-102 dBc/Hz max</td>
</tr>
<tr>
<td>10 MHz</td>
<td>-112 dBc/Hz max</td>
</tr>
</tbody>
</table>

**POWER**

DC In +16 to +26 VDC

Current Draw 280 mA max

Interface via IF Connector

**OPTIONS**

DC Level Band Switching (-DCS ordering option)

Push Button Band Switching (-PBS ordering option)

Open Collector Input Band Switching (-OCS ordering option)

Remote Data Connection for M&C via Micro DB9 (-RDC ordering option)

Extended Temp to +70°C (-ET ordering option)

Improved Gain Over Temp (-GT ordering option)

**OTHER SPECS**

LO Leakage - Output -45 dBm min

LO Leakage - Input -45 dBm max

Image Rejection max -40 dB min

P1 dB -10 dBm min, +15 optional

OIP3 +20 dBm min, +25 optional

Overdrive -20 dBm (non-damaging)

Weight 450 grams

Please contact Orbital Research for ordering information: sales@orbitalresearch.net