The **Jersey Microwave** Block Converter series are specially designed to translate a block of L-Band frequencies into X-band, or vice versa, for use in transmitting or receiving of Satellite applications. **Jersey Microwave** components can be tailored to meet your company’s specific needs. Alternate gain, higher output level, custom frequency plans can all be considered.

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### Features/Options

- **Low Phase Noise** – Exceeds MIL-188-164A
- **25 dB L-Band Gain Control** with 0.1 dB Step
- **Auto Switch Over to an Internal High Stability REF**
- **Internal REF Tune to Match with External <1KHz**
- **High Reliability & Low Cost**
  - Ethernet Control
  - Full Monitor and Control Functionality
- **High Frequency Stability**
- **Gain Slope Equalizer**
- **High Output Power up to 2W**
- **RF/IF Monitor**
- **Indoor 1 RU chassis**
# Standard Frequency Bands

## X-Band Block Down Converters

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Input Frequency</th>
<th>Output Frequency</th>
<th>LO Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>XBDC-675725-3018-ODU</td>
<td>6.75-7.25 GHz</td>
<td>950-1450 MHz</td>
<td>5800 MHz</td>
</tr>
<tr>
<td>XBDC-725775-3018-ODU</td>
<td>7.25-7.75 GHz</td>
<td>950-1450 MHz</td>
<td>6300 MHz</td>
</tr>
<tr>
<td>XBDC-820870-3018-ODU</td>
<td>8.20-8.70 GHz</td>
<td>1000-1500 MHz</td>
<td>7200 MHz</td>
</tr>
</tbody>
</table>

## X-Band Block Up Converters

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Input Frequency</th>
<th>Output Frequency</th>
<th>LO Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>XBUC-790840-2015-ODU</td>
<td>950-1450 MHz</td>
<td>7.90-8.40 GHz</td>
<td>6950 MHz</td>
</tr>
</tbody>
</table>

Custom bands and custom specifications can be provided.

## Electrical Specification

### Up Converter

<table>
<thead>
<tr>
<th>IF Port Characteristics</th>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>- See Table -</td>
<td>- See Table -</td>
</tr>
<tr>
<td>Impedance</td>
<td>50 Ω</td>
<td></td>
</tr>
<tr>
<td>Return Loss</td>
<td>18 dB min.</td>
<td></td>
</tr>
</tbody>
</table>

### RF Port Characteristics

| Frequency Range | - See Table - | - See Table - |
| Impedance       | 50 Ω   |        |
| Return Loss     | 18 dB min. |        |

### LO Characteristics

<table>
<thead>
<tr>
<th>Frequency</th>
<th>- See Table -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Input</td>
<td>10 MHz</td>
</tr>
<tr>
<td>Reference Input Level</td>
<td>-10 to +5 dBm</td>
</tr>
<tr>
<td>Auto-switchover level</td>
<td>External: ≥ -10 dBm / Internal: &lt; -12 dBm</td>
</tr>
</tbody>
</table>

**External Reference Phase Noise**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>-90 dBC/Hz, max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Hz</td>
<td></td>
</tr>
<tr>
<td>100 Hz</td>
<td>-120 dBC/Hz, max.</td>
</tr>
<tr>
<td>1 KHz</td>
<td>-145 dBC/Hz, max.</td>
</tr>
<tr>
<td>10 KHz</td>
<td>-155 dBC/Hz, max.</td>
</tr>
<tr>
<td>100 KHz</td>
<td>-160 dBC/Hz, max.</td>
</tr>
</tbody>
</table>

**Frequency Stability:**

<table>
<thead>
<tr>
<th>External</th>
<th>Same as the reference unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>±2 x 10⁻⁸ per day @ constant temperature</td>
</tr>
<tr>
<td></td>
<td>±1 x 10⁻⁷ over operating temperature, after 72 hours of operation</td>
</tr>
</tbody>
</table>

### Input to Output Performance

<table>
<thead>
<tr>
<th>Transfer Type</th>
<th>Single Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Sense</td>
<td>No Spectral Inversion</td>
</tr>
<tr>
<td>Gain</td>
<td>20 dB ± 2 dB</td>
</tr>
<tr>
<td>Gain Flatness</td>
<td>Over RF Band ≤ ±1.0 dB peak-peak</td>
</tr>
<tr>
<td></td>
<td>Over any 40 MHz Segment ≤ ±0.25 dB peak-peak</td>
</tr>
</tbody>
</table>

**Note** - Specifications may change without notice, please consult the factory for your specific needs.
### Gain Control
- **Range**: 25 dB
- **Step Size**: 0.1 dB
- Power up default set at 25 dB attenuation

<table>
<thead>
<tr>
<th>Output Power Po (1dB)</th>
<th>≥ +15 dBm</th>
<th>≥ +18 dBm</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMD (two output carriers at 0 dBm total)</td>
<td>≤ -50 dBc</td>
<td>≤ -55 dBc</td>
</tr>
</tbody>
</table>

### Gain vs. temperature
- **At constant temperature**: ≤ ± 0.25 dB/day @ constant temperature 25°C
- **Over the operating temperature**: ≤ ± 1.5 dB

### Noise Figure
- ≤ 15 dB

### Group Delay
- ≤ 2 nsec p-p max over RF band

### In-Band Spurious
- **Signal Independent**: ≤ -70 dBm max.
- **Signal Dependent @Po = 0 dBm**: ≤ -70 dBc max.
- **LO Leakage @RF Port**: ≤ -70 dBm max.
- **Image Rejection**: ≤ -70 dBc max.
- **Mute Control**: ≤ -70 dBc max.

### SSB Phase Noise

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Phase Noise (dBc/Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Hz</td>
<td>-45 dBc/Hz</td>
</tr>
<tr>
<td>100 Hz</td>
<td>-70 dBc/Hz</td>
</tr>
<tr>
<td>1 KHz</td>
<td>-95 dBc/Hz</td>
</tr>
<tr>
<td>10 KHz</td>
<td>-105 dBc/Hz</td>
</tr>
<tr>
<td>100 KHz</td>
<td>-110 dBc/Hz</td>
</tr>
<tr>
<td>1 MHz</td>
<td>-120 dBc/Hz</td>
</tr>
<tr>
<td>10 MHz</td>
<td>-130 dBc/Hz</td>
</tr>
</tbody>
</table>

### Power Requirements
- **Voltage Standard**: 90-260 VAC, 3 wires – single phase
- **Frequency**: 47-63 Hz
- **Power**: 30 Watts max.

### Mechanical Configuration
- **Weight**: 15 lbs
- **Dimensions (L x W x D)**: 12.75” x 7.93” x 3.27”
- **Finish**: Weather resistant Iridite / White paint finish
- **RF Connector**: N-Female
- **IF Connector**: N-Female
- **Reference Connector**: SMA-Female
- **AC Power Connector**: PT07C12-3P (027)
- **M & C Control Connector**: PT02E-12-10P (025)
- **Ethernet**: RJ45 Female (RJF2SA1B)
- **Fault Alarm Connector**: PT07C-8-3P

### Environmental
- **Operating Temperature**: -30°C to +70°C
- **Non-Operating Temperature**: -40°C to +80°C
- **Altitude**: Up to 10,000 feet
- **Humidity**: Up to 100% condensation
- **Vibration**: Normal commercial carrier handling

### Monitor & Control
- **Interface**: Standard: RS-485 / RS-422
- **Ethernet**: 10 Base-T
- **Fault**: Form-C Contact Alarm
- **LED Indicator**: Green: Operational

**Note** - Specifications may change without notice, please consult the factory for your specific needs.
Phase Noise Characteristics (1.0 Hz Bandwidth)

Frequency Offset From Carrier (Hz)

-160 -150 -140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 100 1K 10K 100K 1M 10M

Phase Noise (dBc/Hz)

IESS 308/309 MIL-STD-188-164A Nominal JM performance 10 MHz Ref

Note: Dimensions are in inches.