IBUC Advantages

Integrated BUC/SSPA for higher performance and reliability.

GaN amplifier technology enables compact size and high efficiency.

Integral AC power supply option.

Internal 10MHz reference option automatically switches to internal reference when external reference is not detected.

Low phase noise exceeds IESS308/309 requirements.

NMS-friendly interfaces enable remote management of your earth station RF.

Embedded Web pages provide management for small networks using any Web browser.

AGC or ALC circuits hold gain or output level constant.

30 dB User-adjustable gain in 0.1 dB steps preserves modem dynamic range.

Output sample port included.

Advanced user interfaces:

- TCP/IP HTTP with embedded Web pages
- SNMP
- TELNET through TCP/IP
- FSK through TX IFL cable
- RS232/485 serial port
- Hand-held terminal

The revolutionary IBUC 2G has advanced features and a Gallium Nitride (GaN) amplifier for increased efficiency.

IBUC 2G offers significant benefits:

- Low terminal cost
- Simple design and installation
- Superior RF performance
- Simplified 1+1 configuration
- Compact, light-weight package

New interfaces connect you to extensive M&C facilities for network management or local access. This powerful new M&C enables:

- **Trouble-free commissioning** with easy, point-and-click installation/configuration
- Continuous **verification** of performance with time-stamped alarm history
- Simplified **monitoring** of terminal status

The IBUC 2G comes with a complete set of diagnostic tools including:

- 10 MHz input detector
- Input voltage and current monitoring
- Transmit L-band input level detector
- Transmit RF output level detector
- User configurable thresholds and alarms

Unique to the IBUC are internal AGC and ALC functions that satisfy demanding applications with stringent specifications.
**IBUC 2G**

**Ka-Band Intelligent Block Upconverter**

<table>
<thead>
<tr>
<th>Frequency range</th>
<th>RF</th>
<th>IF</th>
</tr>
</thead>
<tbody>
<tr>
<td>29.0 to 30.0 GHz</td>
<td>1.0 to 2.0 GHz</td>
<td></td>
</tr>
<tr>
<td>29.5 to 30.0 GHz</td>
<td>1.0 to 1.5 GHz</td>
<td></td>
</tr>
<tr>
<td>30.0 to 31.0 GHz</td>
<td>1.0 to 2.0 GHz</td>
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</tbody>
</table>

**Input**
- **VSWR / Impedance**: 1.5:1 max / 50 Ohm
- **Input Connector**: Type N female (50 Ohm)
- **Input Connector options**: Type F (75 Ohm), TNC (50 Ohm)
- **Input power detector**: -55 to -20 dBm

**Gain**
- **Small Signal Gain (L-band to RF)** with attenuator set to 0 dB
  - 5 W: 68 dB min
  - 10 W: 71 dB min
  - 16 W: 73 dB min
  - 20 W: 74 dB min
  - 25 W: 75 dB min
  - 40 W: 77 dB min

**Attenuator range**: 30 dB variable in 0.1 dB steps

**Gain flatness**
- Full band: 4 dB p-p max
- 36 MHz: 1.5 dB p-p max

**Gain variation over temperature**
- Open loop: 4 dB p-p max
- With AGC: 1 dB p-p max

**RF Output**
- **Interface**: WR28 UG cover with groove
- **VSWR**: 1.3:1 max

<table>
<thead>
<tr>
<th>Output power</th>
<th>( P_{\text{sat}} ) (typ)</th>
<th>( P_{\text{lin}} ) (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 W</td>
<td>+37 dBm</td>
<td>+34 dBm</td>
</tr>
<tr>
<td>10 W</td>
<td>+40 dBm</td>
<td>+37 dBm</td>
</tr>
<tr>
<td>16 W</td>
<td>+42 dBm</td>
<td>+39 dBm</td>
</tr>
<tr>
<td>20 W</td>
<td>+43 dBm</td>
<td>+40 dBm</td>
</tr>
<tr>
<td>25 W</td>
<td>+44 dBm</td>
<td>+41 dBm</td>
</tr>
<tr>
<td>40 W</td>
<td>+46 dBm</td>
<td>+43 dBm</td>
</tr>
</tbody>
</table>

\( P_{\text{lin}} \) is the maximum linear power as defined by MIL STD 188-164B

**Level stability with ALC**: ±0.5 dB

**Output power detector range**: Rated power to -20 dB

**Power reading accuracy**: ± 1.0 dB max.

**Spurious @ \( P_{\text{lin}} \)**
- In Band: -60 dBc
- Out of Band: -60 dBc

**AM/PM Conversion**: < 2 deg/dB @ \( P_{\text{linear}} \)

**Output Noise Power Density, TX**: < -75 dBm/Hz

**SSB Phase Noise**

<table>
<thead>
<tr>
<th>External reference</th>
<th>IBUC 2G</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Hz</td>
<td>-115 dBc/Hz</td>
</tr>
<tr>
<td>100 Hz</td>
<td>-140 dBc/Hz</td>
</tr>
<tr>
<td>1 kHz</td>
<td>-150 dBc/Hz</td>
</tr>
<tr>
<td>10 kHz</td>
<td>-155 dBc/Hz</td>
</tr>
<tr>
<td>100 kHz</td>
<td>N/A</td>
</tr>
<tr>
<td>1 MHz</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**External Reference** (multiplexed on TX IFL)
- **Frequency**: 10 MHz
- **Level**: -12 to +5 dBm

**Internal Reference - optional**

**Local Oscillator Frequency**
- **Sense**: Non-inverting
  - 29.0 to 30.0 GHz: 28000 MHz
  - 29.5 to 30.0 GHz: 28500 MHz
  - 30.0 to 31.0 GHz: 29000 MHz

**IBUC Power Supply**
- **DC**: 48 ± 11 VDC
- **AC**: 100 to 240 VAC

<table>
<thead>
<tr>
<th>Power Consumption</th>
<th>( P_{\text{linear}}/P_{\text{sat}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 W</td>
<td>65/80 W</td>
</tr>
<tr>
<td>10 W</td>
<td>80/110 W</td>
</tr>
<tr>
<td>16 W</td>
<td>130/175 W</td>
</tr>
<tr>
<td>20 W</td>
<td>135/180 W</td>
</tr>
<tr>
<td>25 W</td>
<td>150/200 W</td>
</tr>
<tr>
<td>40 W</td>
<td>270/360 W</td>
</tr>
</tbody>
</table>

**Monitor and Control**
- **Ethernet**: (HTTP, Telnet, SNMP), via RJ45 connector,
- **RS232/485, Hand-held Terminal**: via MS-type connector,
- **FSK**: multiplexed on TX IFL.

**Environmental**
- **Operating temperature**
  - 5 to 10 W: -40°C to +60°C
  - 16 to 40 W: -40°C to +55°C
- **Relative humidity**: 100% condensing
- **Altitude**: 10,000 ft., (3,000 m) ASL

**Mechanical**
- **Size**
  - 5 to 10 W: 10.5x6x3.8 in.
  - 16 to 40 W: 10.5x6x5.7 in.
- **Weight**
  - 5 to 10 W: 9.5 lbs
  - 16 to 40 W: 11.5 lbs

Specifications are subject to change without notice.

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IBUC 2G Ka-Band Data Sheet 08/22/18