



IBUC 2G

100W / 125W GaN

C-Band Intelligent Block Upconverter

IBUC Advantages

Integrated BUC/SSPA for higher performance and reliability.

GaN amplifier technology enables compact size and high efficiency.

Integral AC power supply.

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

Low phase noise exceeds IESS308/309 requirements by a minimum of 10 dB.

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 - 100W / 125W GaN C-Band Intelligent Block Upconverter

| Frequency range | RF | IF |
|--------------------|------------------|------------------|
| Band 1 Std C-Band | 5850 to 6425 MHz | 950 to 1525 MHz |
| Band 2 Palapa/ST1 | 6425 to 6725 MHz | 975 to 1275 MHz |
| Band 3 Insat | 6725 to 7025 MHz | 1150 to 1450 MHz |
| Band 4 Ext. C-Band | 5850 to 6650 MHz | 950 to 1750 MHz |
| Band 5 Full C-Band | 5850 to 6725 MHz | 975 to 1850 MHz |

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

| | |
|------------------|-------------------------------------|
| 100W | 81 dB min |
| 125W | 82 dB min |
| Attenuator range | 30 dB variable in 0.1 dB steps |
| Gain flatness | <u>Bands 1/2/3</u> <u>Bands 4/5</u> |
| Full band | 3 dB p-p max 4 dB p-p max |
| 36 MHz | 1 dB p-p max 1.5 dB p-p max |
| 1 MHz | 0.25 dB p-p 0.25 dB p-p |

Gain variation over temperature

| | | |
|-----------|--------------|--------------|
| Open loop | 3 dB p-p max | 4 dB p-p max |
| With AGC | 1 dB p-p max | 1 dB p-p max |

RF Output

| | |
|-----------|-----------|
| Interface | CPR-137G |
| VSWR | 1.3:1 max |

Output Power

| | Band 1 | | Band 2/3/4/5 | |
|-----------------|-------------|-------------|--------------|-------------|
| | <u>100W</u> | <u>125W</u> | <u>100W</u> | <u>125W</u> |
| P_{sat} (typ) | +50 dBm | +51 dBm | +49.5 dBm | +50.5 dBm |
| P_{lin} (min) | +49 dBm | +50 dBm | +48 dBm | +49 dBm |

P_{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_{lin}

| | |
|-------------|---|
| In Band | -65 dBc |
| Out of Band | Complies with EN 301 443 and MIL-STD 188-164B |

Harmonics @ P_{lin} -50 dBc max.

Output Noise Power Density

| | |
|----|---------------|
| TX | < -76 dBm/Hz |
| RX | < -145 dBm/Hz |

| SSB Phase Noise | External reference | IBUC |
|-----------------|--------------------|-------------|
| 10 Hz | -115 dBc/Hz | -54 dBc/Hz |
| 100 Hz | -140 dBc/Hz | -79 dBc/Hz |
| 1 kHz | -150 dBc/Hz | -89 dBc/Hz |
| 10 kHz | -155 dBc/Hz | -94 dBc/Hz |
| 100 kHz | N/A | -100 dBc/Hz |
| 1 MHz | N/A | -110 dBc/Hz |

External Reference (multiplexed on TX IFL)

| | |
|-------------------------------|---------------|
| Frequency | 10 MHz |
| Level | -12 to +5 dBm |
| Internal Reference - optional | |

Local Oscillator Frequency

| Sense | Inverting | Non-inverting |
|--------|-----------|-------------------------------|
| Band 1 | 7375 MHz | 4900 MHz |
| Band 2 | 7700 MHz | n/a |
| Band 3 | 8175 MHz | n/a |
| Band 4 | 7600 MHz | 4900 MHz |
| Band 5 | 7700 MHz | 4900 MHz (IF 950-1825 MHz) |

IBUC Power Supply

| | | |
|---------|----|----------------|
| Voltage | AC | 100 to 240 VAC |
|---------|----|----------------|

| Power Consumption | P_{sat} | P_{lin} |
|-------------------|-----------|-----------|
| 100 W | 520 VA | 490 VA |
| 125 W | 560 VA | 520 VA |

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 | -40°C to +55°C |
| Relative humidity | 100% condensing |
| Altitude | 10,000 ft., (3,000 m) ASL |

Mechanical

| | |
|--------|---|
| Size | 10.5 x 6 x 6.1 in. (not including isolator) 267 x 152 x 155 mm |
| Weight | 13.5 lbs, 6.1 kg |

Specifications are subject to change without notice.

IBUC 2G 100W / 125W C-Band Data Sheet 08/30/17



315 Digital Drive, Morgan Hill, CA 95037
Tel. +1 408-782-5911 Fax +1 408-782-5912
www.terrasatinc.com