TERRASAT Communications, Inc.
Engineered to Endure

IBUC

The Intelligent Block UpConverter

Superior RF Performance | Ultimate Reliability | Complete Feature Set | Multiprotocol Management & Diagnostics

www.terrasatinc.com

The IBUC Advantage

All IBUCs are equipped with cutting-edge intelligent technology:

- Highest quality & exacting performance guaranteed through individual unit testing over temperature
- Superior linearity for maximum useable output power
- Amplifier overdrive protection
- User-selectable AGC/ALC for optimal performance & compatibility with modem adaptive coding
- New high capacity microprocessor & extended M&C functions
- Weatherized RJ45 Ethernet interface for simplified connection

Ultimate Management & Control

» Local Web Interface & NMS-Friendly SNMP «

» 70+ User Configurable Thresholds & Alarms «

» Upgraded Event Log with 1,000 Sensor Readings «

» Performance Trend Analysis Tools & Statistical logs «

» Embedded Web Pages for Universal Web Browser Access «

X-Band IBUC G

200W GaN **IBUC** For Multicarrier Application

New **Cyber Hardened** version available | Multicarrier Application | 200W P_{Lin} 100W | GaN Tech Amplifier | 3 Year Warranty

Applications

The new **IBUC G** now supports multicarrier transmission across the full X-band spectrum. The **IBUC G** delivers the highest available output power, making it an ideal solution for high data rate multicarrier applications such as maritime, broadband, broadcast and network hubs.

Gallium Nitride amplifier technology enables smaller packaging for antenna mounting, eliminating the losses in long waveguide runs. And the greater power efficiency translates to an appreciable reduction in power consumption. Comparing favorably with earlier technology TWTAs, the GaN **IBUC G** delivers maximum linear output power with the reliability of solid state.

Options

- 1+1 Transmit Redundancy with Eco-Mode
- High Stability Internal 10 MHz Reference with Auto-Detection
- Mounting Brackets
- N-Type or F-Type
- Handheld Terminal
- Cyber Hardened Core M&C
- WGS (Wideband Global SATCOM) compatible
- External Waveguide Rx Reject Filter

Note: Since not all the optional features can be combined, please, contact our sales team for further info at: Sales@Terrasatinc.com

X-Band 200W **IBUC G** - For Multicarrier Applications

Frequency Range

	RF	IF
X-Band	7900 to 8400 MHz	950 to 1450 MHz

Input

VSWR/ Impedance	1.5:1 / 50 Ohm
Input Connector	Type N Female (50 Ohm)
Input Connector Options	Type F (75 Ohm), TNC (50 Ohm)

Input Power Detector	**Standard Version[1]**	**WGS Version[2]**
Range options:	-55 to -20 dBm	-35 to 0 dBm

Gain

Small Signal Gain (L-band to RF) with attenuator set to 0 dB options:

Standard Version[1]	**WGS Version[2]**
84 dB min	73 dB min

[1]Terrasats Standard Version has a higher gain to reduce the need for line amplifiers in long cable runs (IFL).
[2]WGS Compatible Versions have lower gain allowing operations to drive the IF signal up to 0 dBm.

Attenuator Range 30 dB variable in 0.1 dB steps

Gain Flatness

Full Band	3 dB p-p max
36 MHz	1 dB p-p max
1 MHz	0.25 dB p-p max

Gain Variation Over Temperature

Open Loop	3 dB p-p max
With AGC	1 dB p-p max

RF Output

Interface	CPR-112G
VSWR	1.3:1 max

Output Power

	200W
at P_{Sat} (typ)	+53 dBm
at P_{Lin} (min)	+50 dBm
19 dB min of NPR (Noise Power Ratio) at:	+47 dBm

P_{Lin} is the maximum linear power as defined by MIL STD 188-164C
Two-tone measured at 5MHz and 150 MHz spacing

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 MIL-STD 188-164C

Harmonics @ P_{Lin} -60 dBc max.

Output Noise Power Density

Transmit	**Receive**
Tx < - 73 dBm/Hz	Rx < - 73 dBm/Hz (Without Receive Reject Filter) Rx < - 163 dBm/Hz (With Optional Rx Reject Filter)

Mute	-70 dBc max
AM-PM Conversion	< 3.0 deg/dB @P_{Lin}

Group Delay

Linear	0.03 ns/MHz
Parabolic	0.003 ns/MHz^2
Ripple	1 ns p-p Over Any 36 MHz

SSB Phase Noise

	External Reference	**IBUC 2G**
10 Hz	-115 dBC/Hz	-55 dBc/Hz
100 Hz	-140 dBc/Hz	-80 dBc/Hz
1 KHz	-150 dBc/Hz	-90 dBc/Hz
10 KHz	-155 dBc/Hz	-95 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 feature includes auto-detection of External Reference

Local Oscillator Frequency

X-Band	6950 MHz
Sense	Non-Inverting

IBUC Power Supply

Voltage	AC	100 to 240 VAC	50 Hz / 60 Hz
Power Consumption		P_{Lin}	P_{Sat}
		200W	800 VA	1000 VA

Monitor & Control - For Standard Versions

Ethernet (HTTP, Telnet, SNMPv2c) via RJ45 Connector

RS232/485, **Handheld Terminal** via MS-Type Connector

FSK multiplexed on TX IFL

Monitor & Control - For Cyber Hardened Versions

Ethernet (HTTPS, SSHv2, SNMPv3 with USM and VACM) via RJ45 Connector

RS232 via MS-Type Connector

XSS (Cross Site Scripting)

Two **NTP Servers** Providing Redundancy

FIPS 140-2 compatible

The Cyber Hardened versions have embedded new high-end Cyber Security features, from hardware to software, including a new controller board and the new firmware.
For further details, refer to the Cyber Hardened IBUCs' datasheet at www.terrasatinc.com/products/ or at the Cyber Hardened webpage on https://www.terrasatinc.com/terrasat-communications-launches-new-cyber-hardened-intelligent-bucs/

Environmental

Operating Temperature	-40°C to +55°C
Relative Humidity	100% Condensing
Altitude	10,000 ft (3,000 m) ASL

Mechanical

Weight	33lbs *14.9 kg*
Size	16.2 x 10 x 7.6 in *411 x 254 x 193 mm*

(Dimensions not including isolators)

Specifications are subject to change without notice.

Updated: July 23rd, 2024

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PART NUMBER CONFIGURATION | OPTIONS AVAILABLE FOR:

X-Band 200W GaN IBUCs

Cyber Hardened Option Part Number

Example/Std Offer: IBB079084-2NA200QCWW-0000

IBB 079084 - X X A 200 Q C W W - XXXX

- XXXX
  - **0000** Std Options and Std Specs
  - **0218** WGS Compatibility Option
- X (1st)
  - **N** N-Type IF Input Connector
  - **F** F-Type IF Input Connector
- X (2nd)
  - **W** Std Terrasat Inc Color (White)
  - **X** Other Colors (Please, Provide Color Specs)
- A
  - **0** Non-Inverting + External 10MHz
  - **2** Non-Inverting + Internal 10MHz

Std M&C Option Part Number

Example/Std Offer: IBR079084-2NA201WW-0919

IBR 079084 - X X A 201 W W - XXXX

- XXXX
  - **0919** Std (X-Band) unit with Multicarrier compatibility only
  - **1818** WGS Compatibility Option + Multicarrier
- X (1st)
  - **N** N-Type IF Input Connector
  - **F** F-Type IF Input Connector
- W
  - **W** Std Terrasat Inc Color (White)
  - **X** Other Colors (Please Provide Color Specs)
- A
  - **0** Non-Inverting + External 10MHz
  - **2** Non-Inverting + Internal 10MHz

Note: Consult Terrasat Communications Inc for more options.

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