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 «

Ku-Band IBUC G

300W & 400W GaN **IBUC** for multicarrier application

New Cyber Hardened version available | Multicarrier Application | 300W P_{Lin} 150W & 400W P_{Lin} 200W | GaN Tech Amplifier | 3 Year Warranty

Applications

The new **IBUC G** now supports multicarrier transmission across the entire Ku-band spectrum. The **IBUC G** delivers the highest available output power, making it an ideal solution for high data rate applications such as maritime, broadcast and network hubs. Terrasat's unique implementation is designed for long lifetime performance in demanding environments.

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
- Three Factory Select Bands (Low, Std, and Full Ku-Bands)
- Mounting Brackets
- Optional Type N, F-Type, or TNC Input Connectors
- Handheld Terminal
- Cyber Hardened Core M&C
- WGS (Wideband Global SATCOM) compatible

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

Ku-Band 300W | 400W **IBUC G** for Multicarrier Application

Frequency Range	RF	IF
Band 1 Std Ku-Band	14.00 to 14.50 GHz	950 to 1450 MHz
Band 2 Full Ku-Band	13.75 to 14.50 GHz	950 to 1700 MHz
Band 3 Low Ku-Band	12.75 to 13.25 GHz	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]**
300W	83 dB min	75 dB min
400W	83 dB min	76 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	4 dB p-p max
36 MHz	1.5 dB p-p max
1 MHz	0.25 dB p-p

Gain Variation Over Temperature

Open Loop	4 dB p-p Max
With AGC	1 dB p-p Max

RF Output

Interface	WR75 Cover with Groove
VSWR	1.3:1 max

Output Power	300W	400W
at P_{Sat} (typ)	54.8 dBm	56.0 dBm
at P_{Lin} (min)	51.8 dBm (150W)	53.0 dBm (200W)
19 dB min of NPR (Noise Power Ratio) at:	48.8 dBm	50.0 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 at P_{Lin}

In Band	-65 dBc
Out of Band	Complies with ETSI EN 301 428/430 & MIL-STD 188-164C

Harmonics at P_{Lin} -60 dBc max.

Output Noise Power Density

Tx < - 73 dBm/Hz

Rx <- 145 dBm/Hz

SSB Phase Noise	External Reference	**IBUC G**
10 Hz	-115 dBc/Hz	-50 dBc/Hz
100 Hz	-140 dBc/Hz	-75 dBc/Hz
1 KHz	-150 dBc/Hz	-85 dBc/Hz
10 KHz	-155 dBc/Hz	-90 dBc/Hz
100 KHz	N/A	-95 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

Sense	**Non-Inverting**
Band 1	13050 MHz
Band 2	12800 MHz
Band 3	11800 MHz

IBUC Power Supply

Voltage AC 200 to 240 VAC | 50 Hz / 60 Hz

Power Consumption	**300W**	**400W**
at P_{Sat}	2750 VA	3100 VA
at P_{Lin}	2250 VA	2500 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	83 lbs *38 kg*
Size	29 x 15 x 10.1 x in. *737 x 381 x 257 mm*

Specifications subject to change without notice.

Updated: November 18th, 2024

TERRASAT Communications, Inc. Engineered to Endure

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PART NUMBER CONFIGURATION | OPTIONS AVAILABLE FOR:

Ku-Band 300W & 400W GaN IBUC

Cyber Hardened Option Part Number

Example/Std Offer: IBB137145-2NC400NKWW-0000

IBB XXXXXX - X X C XXX N K W W - XXXX

Power Output

300	300W
400	400W

Optional Specs & Features

0000	Std Options and Std Specs
0218	WGS Compatibility Option

Power Supply

C	AC Powered

Color

W	Std Terrasat Inc Color (White)
X	Other Colors (Please, Provide Color Specs)

IF Input Connector

N	N-Type IF Input Connector
F	F-Type IF Input Connector

Spectral Sense and 10MHz Reference

0	Non-Inverting + External 10MHz
2	Non-Inverting + Internal 10MHz Std (30ppb stability)
4	Non-Inverting + Internal 10MHz High Stability (5ppb)

RF Frequency Plan

140145	14.000-14.500 GHz (Std Ku-Band)
137145	13.750-14.500 GHz (Full Ku-Band)
127132	12.750-13.250 GHz (Low Ku-Band)

Std M&C Option Part Number

Example/Std Offer: IBR137145-2NA401WW-0019

IBR XXXXXX - X X C XXX W W - XXXX

Power Output

301	300W
401	400W

Optional Specs & Features

0019	Std product with Multicarrier compatibility only
2018	WGS Compatibility Option + Multicarrier

Color

W	Std Terrasat Inc Color (White)
X	Other Colors (Please Provide Color Specs)

Power Supply

C	AC Powered

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