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 2

Smaller, lighter models with RJ45 interface.
4W to 50W

New Cyber Hardened version available | Multicarrier Application | 4W to 50W | GaAs Tech Amplifier | 3 Year Warranty

Applications

The **IBUC 2** is a compact integrated Intelligent BUC/GaAs SSPA designed for higher performance & reliability. Block Upconverters based on linear GaAs amplifier technology require minimal output power backoff. 24-48-hour environmental chamber testing guarantees $P_{1\,dB}$ output power over frequency.

Multiple sensors & a new, high-capacity microprocessor provide tools to optimize terminal performance. The **IBUC 2** is a popular choice for medium-high power Satcom terminals in telecom, defense, air traffic control, government & other demanding network applications.

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)
- AC or DC Input Models
- 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 **IBUC 2**

4W to 50W

Frequency Range

	RF	IF
Band 1 Std Ku	14.00 to 14.50 GHz	950 to 1450 MHz
Band 2 Full Ku	13.75 to 14.50 GHz	950 to 1700 MHz
Band 3 Low Ku	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

	Standard Version[1]	**WGS Version[2]**
4W	67 dB min	56 dB min
8W	70 dB min	59 dB min
12W	72 dB min	61 dB min
16W	73 dB min	62 dB min
20W	74 dB min	63 dB min
25W	75 dB min	64 dB min
30W	76 dB min	65 dB min
40W	77 dB min	66 dB min
50W	78 dB min	67 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	**Bands 1 & 3**	**Band 2**
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 max	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	WR75 Cover with Groove	
VSWR	1.5:1 max (4W to 30W)	1.3:1 max (40W to 50W)

Output Power

	P_{1dB}
4W	+36 dBm min
8W	+39 dBm min
12W	+40.8 dBm min
16W	+42 dBm min
20W	+43 dBm min
25W	+44 dBm min
30W	+44.8 dBm min
40W	+46 dBm min
50W	+47 dBm min

P_{Lin} is the maximum linear power as defined by MIL STD 188-164C

IMD3 (2 Carriers, 3 dB TOBO) -25 dBc max

Level Stability with ALC ± 0.5 dB

Output Power Detector Range Rated Power to -20 dB

Power Reading Accuracy ± 1.0 max

Spurious

In Band -65 dBc

Out Band Complies with EN 301 428/430 & MIL STD 188-164C

Harmonics -50 dBc max

Output Noise Power Density

TX <- 78 dBm/Hz

RX <- 145 dBm/Hz

SSB Phase Noise

	External Reference	**IBUC 2**
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

DC	48 ± 11 VDC	
AC	100 to 240 VAC	| 50 / 60 Hz
Options for 4W, 8W	24 ± 4 VDC	

DC via coax available on 4W-16W

Power Consumption	**DC**	**AC**
4W	77W	85 VA
8W	80W	115 VA
12W	125W	158 VA
16W	168W	200 VA
20W	200W	225 VA
25W	250W	270 VA
30W	270W	300 VA
40W	280W	420 VA
50W	N/A	460 VA

Monitor & Control

Ethernet (HTTP, Telnet, SNMP) via RJ45 Connector

RS232/485, **Handheld Terminal** via MS-Type Connector, **FSK** multiplexed on TX IFL.

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

	4W - 25W	30W - 50W
Operating Temperature	-40°C to +60°C	-40°C to +55°C
Relative Humidity	100% Condensing	
Altitude	10,000 ft (3,000 m) ASL	

Mechanical

	DC Powered	**AC Powered**
4W-8W	10.5 x 6 x 3.8 in. *267 x 152 x 97 mm* 9.3 lbs (*4.2 kgs*)	10.5 x 6 x 4.2 in. *267 x 15 x 107 mm* 10.5 lbs (*4.8 kgs*)
12W-20W	10.5 x 6 x 5.2 in. *267 x 152 x 132 mm* 10.9 lbs (*5.0 kgs*)	10.5 x 6 x 5.6 in. *267 x 152 x 142 mm* 11.9 lbs (*5.4 kgs*)
25W-50W	10.5 x 6 x 5.7 in. *267 x 152 x 145 mm* 12.3 lbs (*5.6 kgs*)	10.5 x 6 x 6.1 in. *267 x 152 x 155 mm* 13.5 lbs (*6.1 kgs*)

40W, 50W: Dimensions do not include isolators.

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PART NUMBER CONFIGURATION | OPTIONS AVAILABLE FOR:
Ku-Band 4W to 50W GaAs IBUC

Cyber Hardened Option Part Number

Example/Std Offer: IBB137145-2NA050DSWW-0000

IBB XXXXXX - X X X XXX D S W W - XXXX

Power Output

004	4W
008	8W
012	12W
016	16W
020	20W
025	25W
030	30W
040	40W
050	50W

Optional Specs & Features

0000	Std Options and Std Specs
0218	WGS Compatibility Option

Color

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

Power Supply

A	AC Powered
2	DC Powered, With Power Thru Coax, 24 ± 4 VDC (Valid for 4W and 8W IBUCs only)
4	DC Powered, With Power Thru Coax, 48 ± 11 VDC (Valid for 4W to 16W IBUCs only)
5	DC Powered, No Power Thru Coax, 48 ± 11 VDC (Valid for 4W to 40W IBUCs only)

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: IBR137145-2NA052WW-0019

IBR XXXXXX - X X X XXX W W - XXXX

Power Output

004	4W
008	8W
012	12W
016	16W
020	20W
025	25W
030	30W
040	40W
052	50W

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

A	AC Powered
2	DC Powered, With Power Thru Coax, 24 ± 4 VDC (Valid for 4W and 8W IBUCs only)
4	DC Powered, With Power Thru Coax, 48 ± 11 VDC (Valid for 4W to 16W IBUCs only)
5	DC Powered, No Power Thru Coax, 48 ± 11 VDC (Valid for 4W to 40W IBUCs only)

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)
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Note: Consult Terrasat Communications Inc for more options.