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 2

Smaller, lighter models with RJ45 interface.

New Cyber Hardened version available | Multicarrier Application | 5W to 60W | GaAs Tech Amplifier | 3 Year Warranty

Applications

The **IBUC 2** is a compact integrated BUC/GaAs SSPA designed for higher performance & reliability. Intelligent 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 and temperature range.

Multiple sensors & a new, high-capacity microprocessor provide tools to optimize terminal performance. The **IBUC 2** is a popular choice for mid-power mobile & fixed defense terminals operating in demanding environments.

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

X-Band **IBUC 2**

Frequency Range	RF (MHz)	IF (MHz)
X-Band	7900 to 8400	950 to 1450

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 10 dB

	Standard Version[1]	**WGS Version**[2]
5W	68 dB min	57 dB min
10W	71 dB min	60 dB min
20W	74 dB min	63 dB min
25W	75 dB min	64 dB min
40W	77 dB min	66 dB min
50W	78 dB min	67 dB min
60W	79 dB min	68 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	1.5:1 max

Output Power

	P_{1dB}	P_{Lin}
5W	+37 dBm min	36.5 dBm
10W	+40 dBm min	39.5 dBm
20W	+43 dBm min	42.5 dBm
25W	+44 dBm min	43.5 dBm
40W	+46 dBm min	45 dBm
50W	+47 dBm min	46 dBm
60W	+47.8 dBm min	46.8 dBm

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

19 dB min of NPR (Noise Power Ratio) at 3 dB B.O. from P_{Lin}

IMD3 (2 Carriers, 3 dB TOBO)	-27 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 MIL STD 188-164C
Harmonics	-60 dBc max
Output Noise Power Density	TX <- 79 dBm/Hz RX w/o RX Reject Filer <- 79 dBm/Hz
Mute	-70 dBc Max.
AM-PM Conversion	< 3.0 deg/dB @ Rated Power
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 2**
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	DC	48 ± 11 VDC	
	AC	100 to 240 VAC	| 50 Hz / 60 Hz
	Options for 5W, 10W	24 ± 4 VDC	

DC via coax available on 5W-20W

Power Consumption

5W	60W	75 VA
10W	90W	130 VA
20W	160W	200 VA
25W	175W	220 VA
40W	300W	350 VA
50W	350W	400 VA
60W	400W	430 VA

Monitor & Control

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

	5W-40W	50W/60W
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
5W-10W	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*)
20W-25W	10.5 x 6 x 5.2 in. *267 x 152 x 132 mm* 10.8 lbs (*4.9 kgs*)	10.5 x 6 x 5.6 in. *267 x 152 x 142 mm* 11.7 lbs (*5.3 kgs*)
40W-60W	10.5 x 6 x 5.7 in. *267 x 152 x 145 mm* 11.5 lbs (*5.2 kgs*)	10.5 x 6 x 6.1 in. *267 x 152 x 155 mm* 12.4 lbs (*5.6 kgs*)

Specifications subject to change without notice.

Updated: July 23rd 2023

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PART NUMBER CONFIGURATION | OPTIONS AVAILABLE FOR:
X-Band 5W to 60W GaAs IBUCs

Cyber Hardened Option Part Number

Example/Std Offer: IBB079084-2NA060DSWW-0000

IBB 079084 - X X X XXX D S W W - XXXX

XXX:
- 005 5W
- 010 10W
- 020 20W
- 025 25W
- 040 40W
- 050 50W
- 060 60W

XXXX:
- 0000 Std Options and Std Specs
- 0218 WGS Compatibility Option

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

X:
- A AC Powered
- 2 DC Powered, With Power Thru Coax, 24 ± 4 VDC (Valid for 5W and 10W IBUCs only)
- 4 DC Powered, With Power Thru Coax, 48 ± 11 VDC
- 5 DC Powered, No Power Thru Coax, 48 ± 11 VDC

X:
- N N-Type IF Input Connector
- F F-Type IF Input Connector

X:
- 0 Non-Inverting + External 10MHz
- 2 Non-Inverting + Internal 10MHz

Std M&C Option Part Number

Example/Std Offer: IBR079084-2NA060WW-0919

IBR 079084 - X X X XXX W W - XXXX

XXX:
- 005 5W
- 010 10W
- 020 20W
- 025 25W
- 040 40W
- 050 50W
- 060 60W

XXXX:
- 0919 Std (X-Band) unit with Multicarrier compatibility only
- 1818 WGS Compatibility Option + Multicarrier

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

X:
- A AC Powered
- 2 DC Powered, With Power Thru Coax, 24 ± 4 VDC (Valid for 5W and 10W IBUCs only)
- 4 DC Powered, With Power Thru Coax, 48 ± 11 VDC
- 5 DC Powered, No Power Thru Coax, 48 ± 11 VDC

X:
- N N-Type IF Input Connector
- F F-Type IF Input Connector

X:
- 0 Non-Inverting + External 10MHz
- 2 Non-Inverting + Internal 10MHz

Note: Consult Terrasat Communications Inc for more options.

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ESATCOM INC

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