



## 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 «

## 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  $P_{1\text{dB}}$  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

## X-Band IBUC 2

Smaller, lighter models with RJ45 interface.



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

# X-Band IBUC 2

<b>Frequency Range</b>	RF (MHz)	IF (MHz)
X-Band	7900 to 8400	950 to 1450
<b>Input</b>		
<b>VSWR/ Impedance</b>	1.5:1 / 50 Ohm	
<b>Input Connector</b>	Type N Female (50 Ohm)	
<b>Input Connector Options</b>	Type F (75 Ohm), TNC (50 Ohm)	
<b>Input Power Detector</b>	<b>Standard Version<sup>1</sup></b>	<b>WGS Version<sup>2</sup></b>
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 <sup>1</sup>	WGS Version <sup>2</sup>
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

<sup>1</sup>Terrasats Standard Version has a higher gain to reduce the need for line amplifiers in long cable runs (IFL).

<sup>2</sup>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 <sub>1dB</sub>	P <sub>Lin</sub>
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<sub>Lin</sub> 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<sub>Lin</sub>

<b>IMD3 (2 Carriers, 3 dB TOBO)</b>	-27 dBc max
<b>Level Stability with ALC</b>	± 0.5 dB
<b>Output Power Detector Range</b>	Rated Power to -20 dB
<b>Power Reading Accuracy</b>	± 1.0 max
<b>Spurious</b>	
In Band	-65 dBc
Out Band	Complies with MIL STD 188-164C
<b>Harmonics</b>	-60 dBc max
<b>Output Noise Power Density</b>	
	TX <- 79 dBm/Hz
	RX w/o RX Reject Filter <- 79 dBm/Hz
<b>Mute AM-PM Conversion Group Delay</b>	
	-70 dBc Max.
	< 3.0 deg/dB @ Rated Power
Linear	0.03 ns/MHz
Parabolic	0.003 ns/MHz <sup>2</sup>
Ripple	1 ns p-p Over Any 36 MHz

<b>SSB Phase Noise</b>	External Reference	<b>IBUC 2</b>
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

<b>X-Band</b>	6950 MHz
<b>Sense</b>	Non-Inverting

### IBUC Power Supply

<b>Voltage</b>	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/](http://www.terrasatinc.com/products/) or at the [Cyber Hardened webpage](http://www.terrasatinc.com/terrasat-communications-launches-new-cyber-hardened-intelligent-bucs/) 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: November 2<sup>nd</sup> 2023

## Questions? Contact Us

+1 (408) 782 5911  
[Sales@Terrasatinc.com](mailto:Sales@Terrasatinc.com)

315 Digital Drive  
Morgan Hill, CA 95037  
[www.Terrasatinc.com](http://www.Terrasatinc.com)