

## 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 2G** is a full-featured Intelligent Block Upconverter that now supports multicarrier transmission across the X-band spectrum and uses Gallium Nitride amplifier technology. GaN advantages include higher power in a smaller outdoor enclosure and low power consumption. In addition, Terrasat's unique implementation maximizes useable output power requiring only 2 dB of output power backoff from  $P_{Sat}$  to  $P_{Linear}$ . Designed for long lifetime performance in demanding environments.

Multiple sensors & a new, high-capacity microprocessor provide tools to optimize remote terminal performance. The **IBUC 2G** is a perfect solution for mobile defense terminals operating in demanding environments.

### Options

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

## X-Band IBUC 2G

100W Compact GaN IBUC For Multicarrier Application



# X-Band 100W IBUC 2G - For Multicarrier Applications

Frequency Range	RF (MHz)	IF (MHz)
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 Range options:		
Standard Version		WGS Version
-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		WGS Version
81 dB min		70 dB min

Attenuator Range	30 dB variable in 0.1 dB steps
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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

at $P_{Sat}$ (typ)	+50 dBm
at $P_{Lin}$ (min)	+48 dBm

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

19 dB min of NPR (Noise Power Ratio) at +45 dBm.

Level stability with ALC	$\pm 0.5$ dB
Output power detector range	Rated power to -20 dB
Power reading accuracy	$\pm 1.0$ dB max.

## Spurious @ $P_{Lin}$

In Band	-65 dBc
Out of Band	Complies with MIL-STD 188-164C

Harmonics @ $P_{Lin}$	-60 dBc max.
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## Output Noise Power Density

Transmit	Receive
Tx < -76 dBm/Hz	Rx < -76 dBm/Hz (Without Receive Reject Filter)
	Rx < -166 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 <sup>2</sup>
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 & Level	10 MHz	-12 to +5 dBm
Internal Reference- Optional		

## Local Oscillator Frequency

	6950 MHz
Sense	Non-Inverting

## IBUC Power Supply

Voltage	AC	100 to 240 VAC	
Power Consumption		$P_{Lin}$	$P_{Sat}$
		440 VA	520 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/](http://www.terrasatinc.com/products/)

## Environmental

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

## Mechanical

Size	10.5 x 6 x 6.1 x in. 267 x 152 x 155 mm
Weight	13.5 lbs 6.1 kg