

Ku-Band IBUC Transceiver

IBUC Advantages

NMS-friendly interfaces enable remote management of your earth station RF.

Embedded web pages provide management for small networks using any web browser.

AGC or ALC circuits hold output power or level constant.

Customer-selectable gain makes it possible to compensate for cable and terminal losses.

Advanced customer interfaces:

- TCP/IP HTTP with embedded web pages.
- FSK through TX IFL cable.
- RS232/485 serial port.
- Handheld terminal

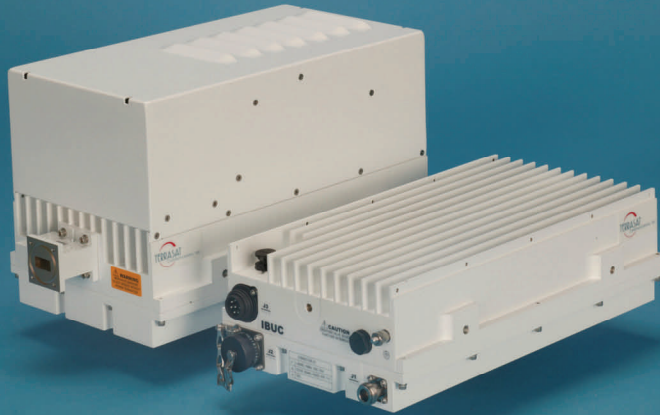
1+1 switching logic and drivers built into the IBUC eliminate expensive external switching controller.

Extensive diagnostics displayed as web pages for faster setup and troubleshooting.

Guaranteed rated output power across the entire operating temperature range and frequency band.

Low phase noise exceeds IESS308/309 requirements by a minimum of 10dB.

Integrated BUC/SSPA packaging for higher performance and reliability.



The revolutionary **IBUC** (Intelligent Block Upconverter) incorporates advanced features to take your network to new heights.

Compared to traditional 70 MHz solutions, the **IBUC** offers significant benefits:

- Lower terminal cost
- Simpler design and installation
- Superior RF performance
- Simplified 1+1 configuration

Unique in the **IBUC** are internal AGC and ALC functions to satisfy demanding applications with stringent specifications. As always, the **IBUC** carries Terrasat's guarantee of rated output power across the operating band and specified temperature range.

New interfaces connect you to the **IBUC**'s extensive M&C facilities for network management or local access. The **IBUC** presents M&C information on embedded web pages via a TCP/IP connection. Serial RS232 and RS485 interfaces are also standard. The handheld terminal interface provides convenient local access to the **IBUC** M&C.

Other BUCs leave you with no way to verify the unit's performance. In contrast, the **IBUC** comes with a complete set of diagnostic tools to assist you with terminal analysis including:

- 10 MHz input detector
- Input voltage and current monitoring
- Transmit L-band input level detector
- Transmit RF output level detector
- Alarm history

The **IBUC** not only supports 1+1 protection – it redefines it. Instead of relying on a separate switching logic unit with its expense, we built the switching logic and drivers into the **IBUC** itself. Protected units make the decision and initiate the command to switch without the need for an external device. The **IBUC** cloning feature enables uncomplicated 1+1 setup. Terrasat's 1+1 solution is a complete package with available dual-**IBUC** mounting bracket for convenient installation.

The **IBUC** is manufactured in our modern Morgan Hill, CA facility according to the same exacting quality processes as our PowerPlus series and OEM microwave products. Each unit undergoes rigorous testing, burn-in at elevated temperature, BER, and final testing over temperature so that you are assured of a high quality, reliable product.

Ku-Band IBUC Block Upconverter Specifications

L-Band Input

Frequency range	
Bands 1 & 2	950 to 1450 MHz
Band 3	950 to 1700 MHz
VSWR / Impedance	1.5:1 max / 50 ohms
Connector	Type N female
Input power detector range	-55 to -20 dBm

Gain

Small Signal Gain (L-band to RF) with attenuator set to 0 dB

2W	64 dB min
4W	67 dB min
8W	70 dB min
12W	72 dB min
16W	73 dB min
20W	74 dB min
25W	75 dB min
30W	76 dB min
40W	77 dB min

Attenuator range 10 dB variable in 0.1dB steps

Gain flatness	<u>2W to 25W</u>	<u>30W to 40W</u>
Full band	3 dB p-p max	4dB p-p max
36 MHz	1dB p-p max	1.5 dB p-p max
1 MHz	0.25 dB p-p	0.25 dB p-p

Gain variation over temperature

Open loop	3 dB p-p max	4 dB p-p max
With AGC	1 dB p-p max	1 dB p-p max

RF Output

Frequency range	
Band 1	13.75 to 14.25 MHz
Band 2	14.00 to 14.50 MHz
Band 3	13.75 to 14.50 MHz
Interface	WR75 UG cover with groove
VSWR	1.5:1 max

Rated output power (P1dB across temperature range and freq. band)

2W	+33 dBm min
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

IMD3 (2 carriers, 30 kHz apart, 9dB BO) -30 dBc max

Level stability with ALC ± 0.5 dB

Output power detector range Rated power to -20 dB

Spurious Complies with EN 301 443

SSB Phase Noise

Offset	External reference	IBUC
10Hz	-120 dBc/Hz	-35 dBc/Hz
100Hz	-130 dBc/Hz	-65 dBc/Hz
1 kHz	-143 dBc/Hz	-75 dBc/Hz
10 kHz	-152 dBc/Hz	-85 dBc/Hz
100kHz	-155 dBc/Hz	-95 dBc/Hz
1MHz	-155 dBc/Hz	-110 dBc/Hz

External Reference (multiplexed on TX IFL)

Frequency	10 MHz
Level	-8 to +3 dBm

Local Oscillator

LO Frequency	
Bands 1 & 3	12800 MHz
Band 2	13050 MHz
Sense	Non-inverting

IBUC DC Supply

Multiplexed on TX IFL	2W, 4W, 8W	
Connector	MS3102R14S-6P	
Voltage / Current		
	+24 ± 4 VDC	+48 ± 11 VDC
2W	1.8A @ 24VDC	1.0A @ 48VDC
4W	3.0A @ 24VDC	1.5A @ 48VDC
8W	na	3.0A @ 48VDC
12W	na	5.0A @ 48VDC
16W	na	6.5A @ 48VDC
20W	na	7.5A @ 48VDC
25W	na	8.5A @ 48VDC
30W	na	9.5A @ 48VDC
40W	na	11.0A @ 48VDC

Monitor and Control

FSK (multiplexed on TX IFL)

Transmitter	
Frequency	650 kHz ± 5%
Deviation	± 60 kHz
Output Level	-5 to -15 dBm (50 ohms)
Receiver	
Nominal frequency	650 kHz
Locking range	± 32.5 kHz
Input sensitivity	-15 dBm
Interfaces (RS232, RS485, TCP/IP and Handheld Terminal)	
Connector	MS3112E-14-19S
RS232/485	
Data Rate	Selectable 1.2 to 115.2 kbps
Data Format	8 bits, no parity, 1 stop bit, ASCII
Handheld Terminal data rate	9600 bps
TCP / IP	Telnet, HTTP

Environmental

	<u>2W-25W</u>	<u>30W-40W</u>
Operating temperature	-40°C to +60°C	-40°C to +55°C
Relative humidity	100% non-condensing	

Mechanical

	Size	Weight
2W, 4W	12.2"(L)x7.2"(W)x3.65"(H)	12 lbs
	310mm x 183mm x 93mm	5.4 kg
8W	12.2"(L)x7.2"(W)x4.2"(H)	18 lbs
	310mm x 183mm x 107mm	8.2 kg
12W, 16W, 20W	12.2"(L)x7.2"(W)x8.5"(H)	19 lbs
	310mm x 183mm x 216mm	8.6 kg
25W, 30W, 40W	12.2"(L)x7.2"(W)x9.1"(H)	20 lbs
	310mm x 183mm x 231mm	8.9 kg