

## Ku-Band IBUC Block Upconverter

### IBUC Advantages

Internal AGC or ALC.

Digital temperature compensation.

Calibrated input and output detectors.

Advanced customer interfaces:

- TCP/IP with embedded web page
- FSK through TX IFL cable
- RS232/485 serial ports
- Handheld terminal

1+1 switching logic and drivers.

Built-in diagnostics.

Adjustable gain.

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

Low phase noise. Exceeds IESS308/309 requirements by a minimum of 5 dB.

Compact single enclosure eliminates external booster amplifier and cables. Up to 8W without cooling fan.

Multiple transponder operation.



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 range from -40 to +60° C.

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 an embedded web page via the 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 monitor each other's diagnostics and, through a simple interface unit, make the decision to switch according to criteria that you select. 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
Absolute accuracy	+/- 0.5 dB (CSM) +/- 1.0 dB (Burst)

### 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
16W	73 dB min
20W	74 dB min
Attenuator range	10 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

Frequency range	
Band 1	13.75 to 14.25 GHz
Band 2	14.00 to 14.50 GHz
Band 3	13.75 to 14.50 GHz
Interface	WR75 UG cover with groove
VSWR	1.5:1 max
Rated output power (P1dB across temperature range and operating band)	
2W	+33 dBm min
4W	+36 dBm min
8W	+39 dBm min
16W	+42 dBm min
20W	+43 dBm min
IMD3 (2 carriers, 30 kHz apart, each at rated power minus 9 dB)	-30 dBc max
Level stability with ALC	+/- 0.5 dB
Output power detector range	Rated power to -20 dB
Absolute accuracy	+/- 0.5 dB (CSM) +/- 1.0 dB (Burst)
Spurious	Complies with EN 301 428
SSB Phase Noise	
Offset	External Reference    IBUC
10 Hz	-120 dBc/Hz    -35 dBc/Hz
100 Hz	-130 dBc/Hz    -65 dBc/Hz
1 kHz	-143 dBc/Hz    -75 dBc/Hz
10 kHz	-152 dBc/Hz    -85 dBc/Hz
100 kHz	-155 dBc/Hz    -95 dBc/Hz
1 MHz	-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	Amphenol T3106 000 (all units)

### Voltage / Current

	+24 +/- 4 VDC	+48 +/- 11 VDC
2W	1.8A max @ 24VDC	1.0A max @ 48VDC
4W	3.0A max @ 24VDC	1.5A max @ 48VDC
8W	na	3.0A max @ 48VDC
16W	na	6.5A max @ 48VDC
20W	na	7.5A max @ 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 (50 ohms)

#### Interfaces (RS232, RS485, TCP/IP and Handheld Terminal)

Connector	MS3112E-14-19S
RS232/485 (2-wire)	
Data rate	Selectable 1200 to 115,200 bps
Data format	8 data bits, no parity, 1 stop bit, ASCII protocol
Handheld terminal data rate	9600 bps
TCP/IP	Telnet, HTTP

### Environmental

Operating temperature range	-40°C to +60°C
Relative humidity	100% non-condensing

### Mechanical

	Size	Weight
2W, 4W	12.2" (L) x 7.2" (W) x 3.65" (H) 310mm x 183mm x 93mm	12 lbs 5.4 kg
8W	13.7" (L) x 7.2" (W) x 3.65" (H) 348mm x 183mm x 93mm	12 lbs 5.4 kg
16W, 20W	13.7" (L) x 7.2" (W) x 7.96" (H) 348mm x 183mm x 202mm	18 lbs 8.2 kg



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\*Specifications are subject to change without notice.