TERRASAT Communications, Inc.

IBUC 2
Ka-Band Intelligent Block Upconverter

IBUC Advantages

Integrated BUC/SSPA For higher performance and reliability.

DC power can be supplied via IFL coax or separate DC connector for 5 W and 10 W models.

All models available with integral AC power supply or separate DC power supply.

Internal 10MHz reference option automatically switches to internal reference when external reference is not detected.

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

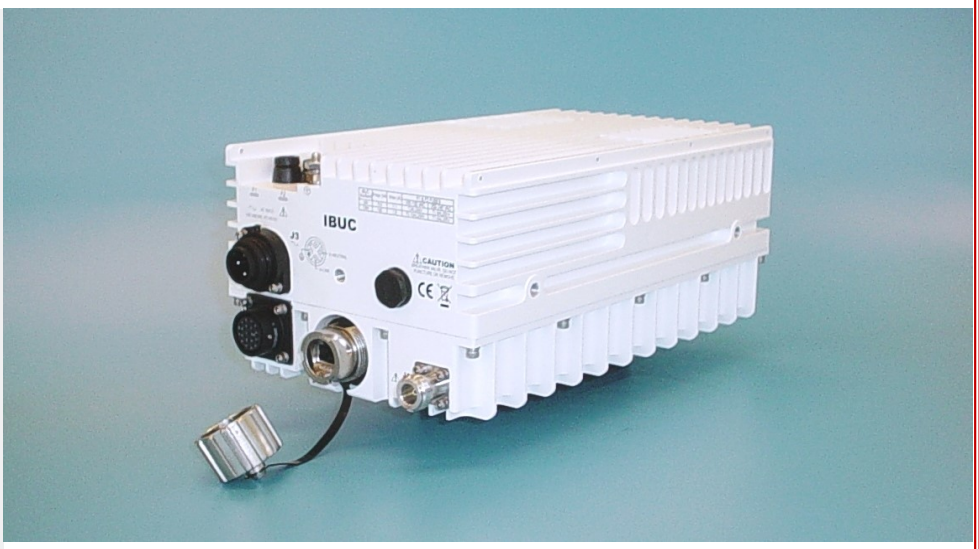
AGC or ALC circuits hold gain or output level constant.

30dB User-adjustable gain in 0.1 dB steps preserves modem dynamic range.

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

Advanced user interfaces:

- TCP/IP HTTP with embedded web pages via RJ-45 connector.
- SNMP
- TELNET through TCP/IP
- FSK through TX IFL cable.
- RS232/485 serial port.
- Hand-held terminal



The latest evolution of the **IBUC** has all of the advanced features and reliability of the original **IBUC** in a new, more compact package.

IBUC 2 offers significant benefits:

- High performance in a compact, cost effective package
- Simple design and installation
- Simplified 1+1 configuration

New interfaces connect you to extensive M&C facilities for network management or local access. This powerful new M&C enables:

- ***Trouble free commissioning*** with easy, point-and-click installation/configuration
- Continuous ***verification*** of performance with time-stamped alarm history.
- Simplified ***monitoring*** of terminal status

IBUC 2 comes with a complete set of diagnostic tools including:

- 10 MHz input detector
- Input voltage and current monitoring
- Transmit L-band input level detector
- Transmit RF output level detector
- User configurable thresholds and alarms

Unique to the **IBUC** are internal AGC and ALC functions that satisfy demanding applications with stringent specifications.

IBUC 2
Ka-Band Intelligent Block Upconverter

Frequency range	RF	IF
	29 to 30 GHz	1.0 to 2.0 GHz
	29.5 to 30 GHz	1.0 to 1.5 GHz
	30 to 31 GHz	1.0 to 2.0 GHz
	30.5 to 31 GHz	1.0 to 1.5 GHz

Input

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	-55 to -20 dBm

Gain

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

5 W	68 dB min.
10 W	71 dB min.
16 W	73 dB min.
20 W	74 dB min.
25 W	75 dB min.
Attenuator range	30 dB variable in 0.1 dB steps
Gain flatness	
Full band	4 dB p-p max
36 MHz	1.5 dB p-p max
Gain variation over temperature	
Open loop	4 dB p-p max
With AGC	1 dB p-p max

RF Output

Interface	WR28 UG cover with groove	
VSWR	1.3:1 max	
Output Power	P_{sat} (typ)	P_{linear} (min)*
5 W	+37 dBm min.	+34 dBm
10 W	+40 dBm min.	+37 dBm
16 W	+42 dBm Min.	+39 dBm
20 W	+43 dBm min.	+40 dBm
25 W	+44 dBm min.	+41 dBm

*P_{linear} is the maximum linear power as defined by MIL-STD-188-164B

Level stability with ALC	± 0.5 dB	
Output power detector range	Rated power to –20 dB	
Power reading accuracy	± 1.0 dB max.	
Spurious	in band	-60 dBc
	out of band	-60 dBc
AM/PM Conversion	< 2 deg/dB @ P_{linear}	
Output Noise Power Density, TX	< -75 dBm/Hz	

SSB Phase Noise	External Refer-	IBUC 2
10 Hz	-115 dBc/Hz	-43 dBc/Hz
100 Hz	-140 dBc/Hz	-68 dBc/Hz
1 kHz	-150 dBc/Hz	-78 dBc/Hz
10 kHz	-155 dBc/Hz	-83 dBc/Hz
100 kHz	N/A	-92 dBc/Hz
1 MHz	N/A	-102 dBc/Hz

External Reference (multiplexed on TX IFL)

Frequency	10 MHz
Level	-12 to +5 dBm

Internal reference - optional

Local Oscillator Frequency

Sense	Non-inverting
29 to 30 GHz	28000 MHz
29.5 to 30 GHz	28500 MHz
30 to 31 GHz	29000 MHz
30.5 to 31 GHz	29500 MHz

IBUC Power Supply	DC	AC
Voltage	48 ± 11 VDC	100 to 240 VAC
Option for 5 W:	24 ± 4 VDC	

DC via coax available on 5 W and 10 W

Power Consumption	@ P_{linear}	@ P_{linear}
5 W	75 W	90 VA
10 W	115 W	130 VA
16 W	180 W	200 VA
20 W	200 W	220 VA
25 W	220 W	250 VA

Monitor and Control

Ethernet (HTTP, Telnet, SNMP) via RJ-45 connector,

RS232/485, Hand-held Terminal via MS-type connector,

FSK multiplexed on TX IFL.

Environmental

Operating temperature	5 W–10 W	-40°C to +60°C
	16 W-25 W	-40°C to +55°C
Relative humidity	100% condensing	
Altitude	10,000 ft (3,000m) ASL	

Mechanical	DC powered	AC powered
5 W	10.5 x 6 x 3.8 in.	10.5 x 6 x 4.2 in.
	9.5 lbs	10.8 lbs
10 W	10.5 x 6 x 5.2 in.	10.5 x 6 x 5.6 in.
	11 lbs	12.1 lbs
16 W - 25 W	10.5 x 6 x 5.7 in.	10.5 x 6 x 6.1 in.
	11.5 lbs	12.8 lbs