IBUH(A) Series

Single range, Single & Multi-Channel, Rack Mounted, Block Up Converters with full user interface and remote control

High grade standard product range;

BUC Model	L-Band input (MHz)	SHF output (GHz)
IBUH600, IBUH602 (Dual), IBUH604 (Quad)	950-1525	5.85-6.425 (C-Band)
IBUH665	950-1750	5.85-6.65 (extended C-Band)
IBUH6725	950-1825	5.85-6.725 (super extended C-Band)
IBUH7025	950-1275	6.70-7.025 (INSAT C-Band)
IBUH710	950-1350	6.70-7.10 (INSAT C-Band)
IBUH790	950-1450	7.90-8.40 (X-band)
IBUH1275	950-1700	12.75-13.50 (low Ku-Band)
IBUH1275B	950-1950	12.75-13.75 (low Ku-band)
IBUH130	950-1700	13.00-13.75 (low Ku-Band)
IBUH137	950-1700	13.75-14.50 (extended Ku-band)
IBUH140, IBUH142 (Dual), IBUH144 (Quad)	950-1450	14.00-14.50 (Ku-Band)
IBUH145	950-1250	14.50-14.80 (INSAT Ku-Band)
IBUH148	950-2000	13.75-14.80 (wide Ku-Band)
IBUH180	950-1750	17.30-18.10 (DBS-Band)
IBUH184	950-2050	17.30-18.40 (extended DBS-band)

For other 'non-standard' frequency requirements or multi-channel units, please contact the factory.
For multiple-range block up converters covering wider bandwidths please see IBUH(B) series datasheet.
For equivalent lower cost units without the full user interface please see IBU(A) series datasheet.
For Ka-Band block up converters please see IBUH(Ka) series datasheet.
For equivalent remote mount units, please see PBU(A) series datasheet.

The 19-inch 1U rack mounted **IBUH(A) series** of block frequency up converter units from Peak Communications are designed to take the output of an up converter or modem at L-Band and produce an output at SHF.

The **IBUH(A) series** of units are mains powered and are constructed of high-grade components to give the ultimate performance. They utilise externally phase locked dielectric resonator oscillators (XPDROs) and are far superior in stability and phase noise to voltage-controlled oscillators (VCOs), as commonly used in other BUC designs.
High rejection performance filtering techniques are employed to ensure unrivalled spurious response.

For redundancy the **IBUH(A)** uses a simple CANBUS® interface and has an integral redundancy controller for 1+1 & 2+1 operation (for use with external **T1000HH**, **T2000HH series** switch units), also compatible with the **RCUH100/ RCUH200 series** 1+1/ 2+1 'stand-alone' redundancy controllers. For N+1 systems the **RCU1002 series** is offered.

The unit incorporates a graphics display module, membrane keyboard and features a clear and intuitive control and configuration menu fully utilising the unique graphics display. With optional input power monitoring 'built-in test' enhancement features, compression warning alarms and attenuation control, this product series offers the user the ultimate in controllability.

The unit has a highly stable internal reference source and will automatically detect and lock to an external 10MHz signal, when applied.

Peak Features

- High stability, low ripple and excellent phase noise, using PDRO technology
- 10MHz external reference fitted as standard with automatic internal reference back-up
- Optional input signal power detector with user settable input & 'compression alarm' threshold levels
- Electronically variable attenuator options for both local & remote control of gain
- Integral 1+1 & 2+1 CANBUS® redundancy control & N+1 switch systems available
- Integral test loop translator option available for TX signal path monitoring
- L-Band monitor, RF mute and fibre optic L-Band interface options available
- Available in dual, triple & quad-channel versions

IBUH(A) series - Typical Specification

SHF Output

Frequency	Model dependant (see front page)
Connector	SMA (f), 50Ω
Option 1a;	N-Type (f), 50Ω
Note: For multi-channel version, multiple connectors are provided	
Return loss	>18dB
1dB GCP	+8dBm
Option 5;	+18dBm

L-Band Input

Frequency	950 up to 2050MHz, model dependant
Connector	SMA (f), 50Ω
Option 1b;	N-Type (f), 50Ω
Option 3;	BNC (f), 75Ω
Note: For multi-channel version, multiple connectors are provided	
Return loss	>15dB

Transfer Characteristics

Conversion gain	17dB ±1dB at band centre
Option 4;	27dB ±1dB
Gain stability	±0.5dB from 0 to 40°C
Gain flatness	±1dB full band (±1.5dB if bandwidth >800MHz) ±0.5dB across any 40MHz in-band
LO frequency	Model dependant

RF Performance

Note: For IBUH180, IBUH184 spurious and LO leakage performance please consult the factory.

LO phase noise (typical with good phase noise ext. 10MHz ref)	-55dBc/Hz at 10Hz -75dBc/Hz at 100Hz -95dBc/Hz at 1kHz -100dBc/Hz at 10kHz -105dBc/Hz at 100kHz -125dBc/Hz at 1MHz

Note: See table below for band specific typical performance.

Harmonics	Better than -50dBc

Note: IBUH184 -40dBc (at ≥18.25GHz, due to natural 2xIF harmonic)

Spurious	<-80dBm (in-band non-carrier related) <-75dBc (in-band carrier related)
3rd order intercept	>+18dBm (standard unit)
LO leakage	-80dBm (always out of band)
Channel isolation	-65dBc (for multi-channel versions only)

External Reference Input (with automatic detection)

Frequency	10MHz (5MHz factory settable)
Connector	50Ω, BNC (f)
Level	0dBm ±5dB
Required phase noise	Better than 50dBc/Hz of output phase noise
Locking delay	<2minutes to stabilise from cold

Internal Back-up Reference Stability

Allan deviation	5 x 10^{-11} over 1s
Ageing	<5 x 10^{-9} per day, <5 x 10^{-7} per year
Temp stability	<5 x 10^{-8} over 0 to 50^{0}C

High stability (Option 8)

Allan deviation	3 x 10^{-12} over 1s
Ageing	<2 x 10^{-10} per day, <2 x 10^{-8} per year
Temp stability	<3 x 10^{-9} over 0 to 50^{0}C

LO, L-Band & SHF Monitor (Option 2)

Front or rear panel mounted

Option 2a;	-20dBc L-band monitor on rear panel
Option 2b;	-20dBc L-band monitor on front panel
Option 2c;	-20dBc SHF monitor on rear panel
Option 2d;	-20dBc SHF monitor on front panel
Option 2e;	-13dBm nominal LO monitor on rear panel
Option 2f;	-13dBm nominal LO monitor on front panel
Connector	50Ω, SMA (f)

Note: Other connector styles available, please consult the factory

Level	-20dBc ±3dB (-13dBm nominal for LO monitor)

Electronically Variable L-Band Attenuation (Option 10)

Attenuation range	30dB nominal
Step size	
Option 10a;	0.5dB
Option 10b;	0.1dB
Control	Local & remote

Integral Test Loop Translator (Option 12)

TX sample Input	SMA (f), 50Ω on rear panel, 0dBm max.
L-Band output	SMA (f), 50Ω on rear panel
Translation loss	15dB

RF Mute (Option 13)

Activation	Front panel and remote control
Option 13a;	discrete control input on rear panel
Isolation	60dB min

Input Power Detector & Alarms (Option 14)

Detection range	0 to -50dBm
Display	Actual input and calculated output power, graphical via front panel and available via remote control
Low input power Alarm	User settable via front panel interface
Compression alarm	Automatic 'pre-set' warning alarm for input/output compression point. User settable via front panel interface

L-Band Linear Slope compensation (Option 15, 15b)

Compensates for internal circuitry & external primarily across-site cables.

Note: Unit options chosen will determine 'surplus' available for external compensation (for details contact factory).

Frequency	950-2150MHz
Option 15;	Passive, fixed 5dB nom., positive slope
Option 15b;	Active, user settable 0 to 8dB nom., positive slope (reduces to 0 to 6dB nom., over 950-1750MHz & 0 to 5dB, over 950-1450MHz)

Note: Option 15b includes variable attenuation facility 25dB range, 0.1dB step.

Mechanical

Width	19" standard rack mountable
Height	1U (1.75")
Depth	~400mm (15.7"), plus connectors

Note: For multi-channel versions, a longer ~534mm (21") chassis may be provided, depending upon options selected.

Construction	Aluminium chassis
Weight	4-6kgs (9-13lbs) approx., unit & option dependent

Environmental

Operating temp	0°C to +50°C
EMC	EN 55022, part B & EN 50082-1
Safety	EN 60950

Power Supply

Voltage	90-264VAC
Frequency	47-63Hz
Power	50 Watts max.
Option 7;	Redundant PSU; provides a 1+1 redundant PSU configuration with separate prime power inputs

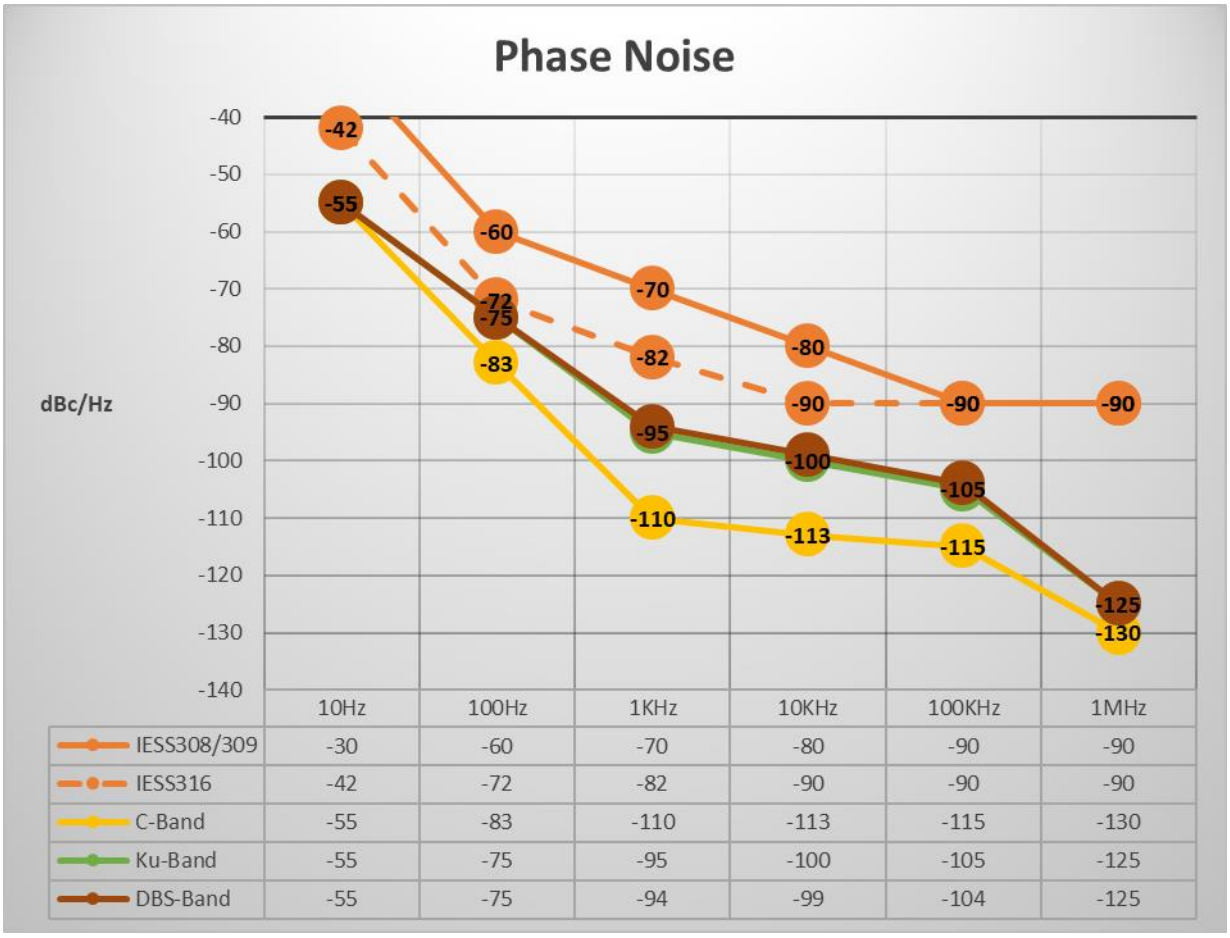
Control System Interface

Remote control	RS232/ 485 port
Option 9;	Ethernet; embedded web server & SNMP network management support
Redundancy	CANBUS® interface for N+1 system In-built 1+1 & 2+1 controller
Discrete 'alarms interface'	LO lock failure, PSU failure alarm, amplifier failure alarm
Option 13a;	mute input control

Options

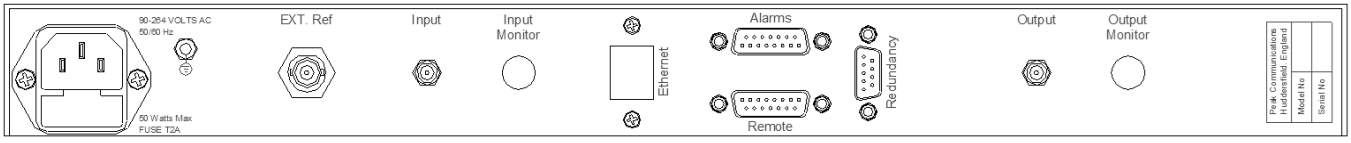
1a) N-Type (f) SHF interface connection
1b) N-Type (f) L-Band interface connection
2a) -20dBc L-band monitor on rear panel (SMA)
2b) -20dBc L-band monitor on front panel (SMA)
2c) -20dBc SHF monitor on rear panel (SMA)
2d) -20dBc SHF monitor on front panel (SMA)
2e) -13dBm nominal LO monitor on rear panel (SMA)
2f) -13dBm nominal LO monitor on front panel (SMA)
3) 75Ω interface at L-band (6dB gain loss)
4) Extra 10db increase in gain, to +27dB
5) 1dB GCP increase to +18dBm (includes extra 10dB Gain option)
6) Fibre optic L-band interface connection
7) Redundant power supplies
8) High stability Internal reference option
9) Ethernet interface with embedded web server & SNMP
10a) Attenuator with local & remote control, 30dB stepped 0.5dB
10b) Attenuator with local & remote control, 30dB stepped 0.1dB
12) Integral TLT for transmit signal monitoring
13) RF mute option with front panel and remote control
13a) Mute control input on rear panel
14) Input signal power detector and alarms.
15) 5dB passive, fixed, slope compensation
15b) Active, user settable, slope compensation, including variable gain facility

Note: The addition of options can modify the typical specification, for details please consult the factory.



	10Hz	100Hz	1KHz	10KHz	100KHz	1MHz
IESS308/309	-30	-60	-70	-80	-90	-90
IESS316	-42	-72	-82	-90	-90	-90
C-Band	-55	-83	-110	-113	-115	-130
Ku-Band	-55	-75	-95	-100	-105	-125
DBS-Band	-55	-75	-94	-99	-104	-125

Rear panel view *(sample)*



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