IBU(A) Series

Single-Range, Single & Multi-Channel, Rack Mounted, Block Up Converters

High grade standard product range;

BUC Model	L-Band input (MHz)	SHF output (GHz)
IBU600, IBU602 (Dual), IBU604 (Quad)	950-1525	5.85-6.425 (C-Band)
IBU665	950-1750	5.85-6.65 (extended C-Band)
IBU6725	950-1825	5.85-6.725 (super extended C-Band)
IBU7025	950-1275	6.70-7.025 (INSAT C-Band)
IBU7025B	950-1250	6.725-7.025 (INSAT C-Band)
IBU710	950-1350	6.70-7.10 (INSAT C-Band)
IBU790	950-1450	7.90-8.40 (X-band)
IBU1275	950-1700	12.75-13.50 (low Ku-Band)
IBU1275B	950-1950	12.75-13.75 (low Ku-band)
IBU130	950-1700	13.00-13.75 (low Ku-Band)
IBU137	950-1700	13.75-14.50 (extended Ku-band)
IBU140, IBU142 (Dual), IBU144 (Quad)	950-1450	14.00-14.50 (Ku-Band)
IBU145	950-1250	14.50-14.80 (INSAT Ku-Band)
IBU148	950-2000	13.75-14.80 (wide Ku-Band)
IBU180	950-1750	17.30-18.10 (DBS-Band)
IBU184	950-2050	17.30-18.40 (extended DBS-band)

For other non-standard frequency requirements or multi-channel units, please contact the factory.
For multi-range block up converters covering wider bandwidths please see IBU(B) series datasheet.
For equivalent units with full user interface, remote control and digital attenuation, please see IBUH(A) series datasheet.
For Ka-Band block up converters please see IBU(Ka) series datasheet.
For equivalent remote mount units, please see PBU(A) series datasheet.

The 19-inch 1U rack mounted **IBU(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 **IBU(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.

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
- Integral test loop translator option available for TX signal path monitoring
- Fully compatible with **RCU100/ RCU200 & RCUH100/ RCUH200 series** 1+1/ 2+1 redundancy controllers and **RCU1001 series** for N+1 redundancy units
- L-Band monitor & RF mute options available
- Available in dual, triple & quad-channel versions

IBU(A) series - Typical Specification

SHF Output

Frequency	Model dependant (see front page)
Connector	50Ω, SMA (f)
Option 1a;	50Ω, N-Type (f)

Note: For multi-channel versions, multiple connectors are provided

Return loss	>15dB
1dB GCP	+8dBm
Option 5;	+18dBm

L-Band Input

Frequency	950 up to 2050MHz, depending on model
Connector	50Ω, SMA (f)
Option 1b;	50Ω, N-Type (f)
Option 3;	75Ω, BNC (f)

Note: For multi-channel versions, 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 for bandwidths ≥800MHz)
	±0.5dB across any 40MHz in-band
LO frequency	dependent on model

Manual Attenuation (Option 10)

Attenuation range	30dB nominal
Control	Continuously variable from front panel

Note: Can degrade gain flatness performance

RF Performance

Note: For IBU180, IBU184 spurious & LO leakage performance please consult the factory.

LO phase noise	-55dBc/Hz at 10Hz
(typical with good	-75dBc/Hz at 100Hz
phase noise	-95dBc/Hz at 1kHz
ext. 10MHz ref)	-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: IBU184; -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)

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)

Integral Test Loop Translator (Option 12)

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

RF Mute (Option 13)

Activation	Front panel switch
Option 13a;	Discrete control input on rear panel, replacing the standard front panel control.
Option 13b;	Discrete control input on rear panel as well as the standard front panel control.
Isolation	60dB min

L-Band Linear Passive Slope compensation (Option 15)

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
Slope	5dB nom., fixed positive compensation

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	<2 minutes to stabilise from cold

Internal Back-up Reference Stability

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

High stability (Option 8)

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

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	3.5-6kgs (8-13lbs) 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

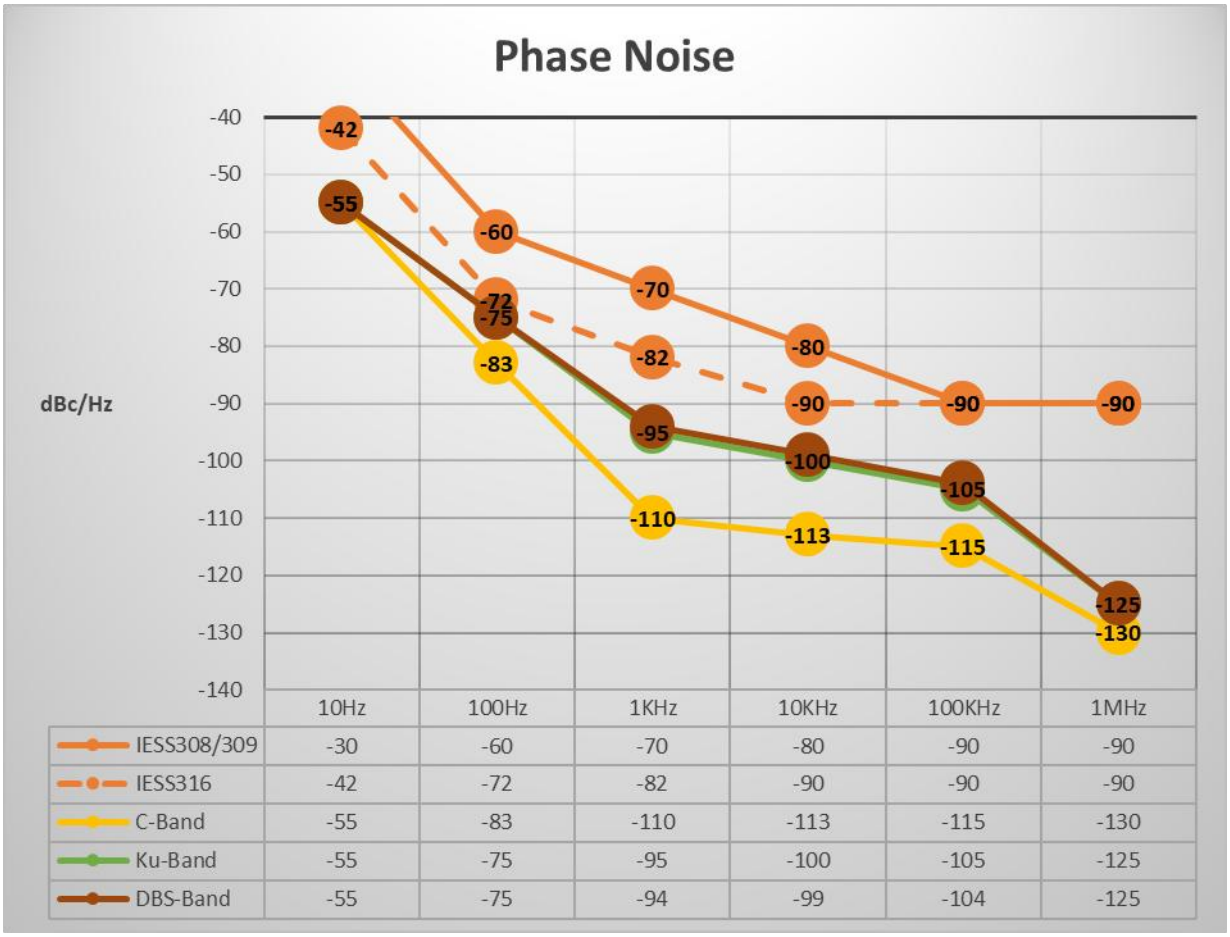
Control System Interface

Alarms	LO lock failure
	PSU failure
	Amplifier failure
Controls	Mute input (Option 13a)

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 rear panel LO monitor (SMA)
2f)	-13dBm front panel LO monitor (SMA)
3)	75Ω interface at L-band (6dB gain loss)
4)	10dB increase in gain, to +27dB
5)	1dB GCP increase to +18dBm (includes extra 10dB gain option)
7)	Redundant power supplies
8)	High stability internal reference option
10a)	Manual variable attenuator, 0-30dB, at L-band
10b)	Manual variable attenuator, 0-30dB, at SHF
12)	Integral TLT for TX signal monitoring
13)	RF mute option, activated from front panel
13a)	Mute control input on rear panel, replacing front panel control
13b)	Mute control input on rear panel as well as front panel control
15)	5dB passive, fixed, slope compensation

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



Rear panel view *(sample)*

PEAK COMMUNICATIONS

Peak Communications reserves the right to alter the specifications of this equipment without prior notice. IBU(A)series-120626.
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