

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)
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 (XPDRs) 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 and fibre optic L-Band interface 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 2x1F 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 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°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°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

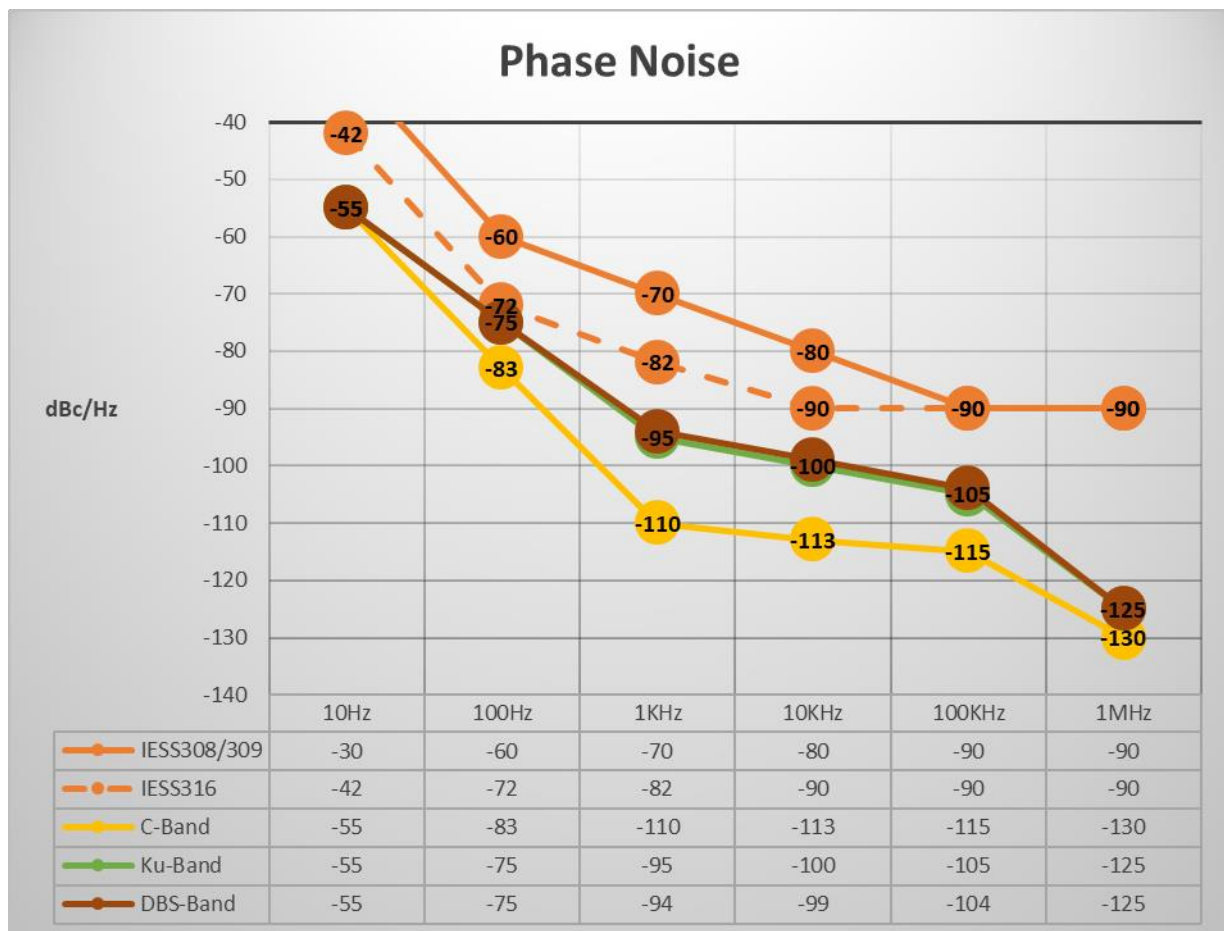
Voltage	90-264VAC
Frequency	47-63Hz
Power	50 Watts max.
Option 7;	Redundant PSU; provides a 1+1 redundant PSU configuration with separate prime power inputs

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)
 - 6) Fibre optic L-band interface connection
 - 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)



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