

## PBU(Ka) Series

### Ka-Band, Single-Range, Remote Mounted Block UpConverters



The **PBU(Ka) Series** remote mounted, Block UpConverter units from Peak Communications are designed to be fully compatible with a wide range of L-Band modulators and frequency converters. This high grade range of **PBU** outdoor units will accept the L-band output of a **P7000 Series UpConverter** or modem and provide the frequency conversion to Ka bands.

The **PBU(Ka) Series** 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.







**The unit will automatically detect when an external 10MHz locking signal is applied, alternatively the unit will automatically switch to the stable internal 10MHz reference signal.**

### High Grade UpConverter units;

<b>PBU1970</b>	L-Band to Ka-Band (19.70-20.20GHz)
<b>PBU2750</b>	L-Band to Ka-Band (27.50-28.60GHz)
<b>PBU2830</b>	L-Band to Ka-Band (28.30-29.10GHz)
<b>PBU2900</b>	L-Band to Ka-Band (29.00-30.00GHz)
<b>PBU2960</b>	L-Band to Ka-Band (29.60-30.20GHz)
<b>PBU3100</b>	L-Band to Ka-Band (30.00-31.00GHz)

For other non-standard frequency requirements, please contact the factory.  
For equivalent rack mount units, please see IBUH(Ka) series datasheets.

### Peak Features

-  Automatic Internal and External Reference locking
-  High stability, low ripple and excellent phase noise, using PDRO technology
-  Full Alarm monitoring
-  Fully compatible with **RCU50(Ka)** 1+1 redundancy controllers and remote switch units
-  Rugged weatherproof housing
-  Temperature compensated for thermal stability and fast warm-up



## PBU(Ka) Series – Typical Specification

### SHF Output

Frequency	
<b>PBU1970</b>	19.7-20.2GHz
<b>PBU2750</b>	27.5-28.6GHz
<b>PBU2830</b>	28.3-29.1GHz
<b>PBU2900</b>	29.0-30.0GHz
<b>PBU2960</b>	29.6-30.2GHz
<b>PBU3100</b>	30.0-31.0GHz
Connection	K-Type (f), 50Ω or 2.92mm (f)
Return loss	18dB
1dB GCP	+8dBm

### L-Band Input

Frequency	
<b>PBU1970</b>	950-1450MHz
<b>PBU2750</b>	950-2050MHz
<b>PBU2830</b>	950-1750MHz
<b>PBU2900</b>	950-1950MHz
<b>PBU2960</b>	950-1550MHz
<b>PBU3100</b>	950-1950MHz
Connector	N-type (f), 50Ω
Return loss	>15dB

### RF Performance

LO Phase noise (typical with good phase noise ext. 10MHz ref)	-45dBc/Hz at 10Hz -65dBc/Hz at 100Hz -85dBc/Hz at 1kHz -95dBc/Hz at 10kHz -105dBc/Hz at 100kHz -120dBc/Hz at 1MHz
Spurious	<-70dBm (in band non-carrier related) <-65dBc (in band carrier related)
3rd Order Intercept LO leakage	>+18dBm <-60dBm (always out of band)

### Transfer Characteristics

Conversion gain	17dB ±1dB at band centre
Gain stability	±0.75dB from 0 to 50°C
Gain flatness	±1dB full band ±0.5dB across any 40MHz in band

### External Reference Input

Frequency	10MHz
Connection	Fed in on L-band cable
Option 1;	Separate TNC (f), 50Ω connection
Level	0dBm ±3dB
Required phase noise	better than 50dBc/Hz of output Phase Noise
Locking delay	<5 minutes to stabilise from cold

### Internal back-up reference;

Stability	<1 x 10 <sup>-10</sup> per second
Temp. Stability	<±5 x 10 <sup>-8</sup> (0 to +60°C)
Ageing	<±5 x 10 <sup>-9</sup> per day

### Mechanical

Width	123mm (4.85")
Height	172mm (6.8"), plus connections & mounting flanges
Depth	48mm (1.89")
Construction	Die-cast Aluminium, IP66 rated
Weight	1.4kgs (3lbs) approx

### Environmental

Operating temp	-25°C to +70°C
EMC	EN 55022 part B & EN 50082-1
Safety	EN 60950

### Power Supply

Voltage	+16.5 to +35VDC
Current	1.5A max
Connection	Fed in on L-band cable
Option 2a;	Fed in on 5-pin control interface connection.
Option 2b;	Fed in on the 5-pin control interface connection as well as the L-Band cable.

### Control Interface

Alarms	Summary alarm contacts
Option 5;	Removal of external reference 'lock' alarm from summary alarm for 'free run' mode where an external reference is not being provided
Option 7;	Bi- coloured LED for '10MHz lock' and 'DC power' status indication
Connection	5-pin circular weatherproof (mating part supplied)

### Options

- 1) Separate external 10MHz reference input (using a TNC connector), replacing the L-band feed system
- 2a) DC input connection wired to 5-pin control interface connector, replacing the L-band feed system
- 2b) DC input connection wired to the 5-pin 'alarms' connector, as well as the standard DC feed system via the L-Band cable
- 5) Removal of Ext. Ref. 'lock' alarm from summary alarm.
- 7) Bi-coloured Ext. Ref. 'lock' and 'DC power' status indication

### Connector panel view

