

## PBD(A) Series

### Single-Range, Remote Mounted Block DownConverters



The **PBD(A) Series** remote mounted, Block DownConverter units from Peak Communications are designed to be fully compatible with a wide range of L-Band modulators and frequency converters. The high grade range of **PBD(A)** outdoor units will accept the SHF input from an LNA system and provide a frequency conversion to L-Band.

The **PBD(A) Series** 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 BDC 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.**

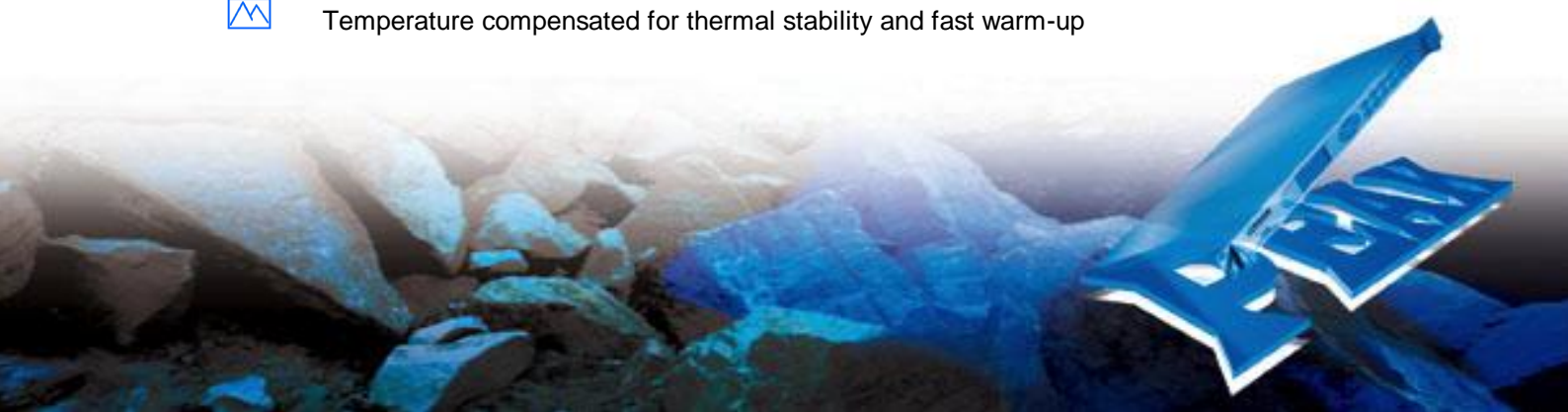
#### High Grade DownConverter units;

<b>PBD420</b>	C-Band (3.4-4.2GHz) to L-Band Inverted spectrum
<b>PBD450</b>	INSAT C-Band (4.5-4.8GHz) to L-Band
<b>PBD725</b>	X (7.25-7.75GHz) to L-Band
<b>PBD1070</b>	Ku-Band (10.70-11.70GHz) to L-Band
<b>PBD1095</b>	Ku-Band (10.95-11.70GHz) to L-Band
<b>PBD1120</b>	Ku-Band (11.20-11.70GHz) to L-Band
<b>PBD1170</b>	Ku-Band (11.70-12.20GHz) to L-Band
<b>PBD1171</b>	Ku-Band (11.70-12.75GHz) to L-Band
<b>PBD1225</b>	Ku-Band (12.25-12.75GHz) to L-Band

For other non-standard frequency requirements, please contact the factory.  
 For multi-range Block DownConverters please see PBD(B) series datasheet.  
 For equivalent rack mount units, please see IBD(A) & IBDH(A) 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** 1+1 redundancy controllers and remote switch units
-  Rugged weatherproof housing
-  Temperature compensated for thermal stability and fast warm-up



## PBD(A) series – Typical Specification

### SHF Input

Frequency	
<b>PBD420</b>	3.4-4.2GHz
<b>PBD450</b>	4.5-4.8GHz
<b>PBD725</b>	7.25-7.75GHz
<b>PBD1070</b>	10.70-11.70GHz
<b>PBD1095</b>	10.95-11.70GHz
<b>PBD1120</b>	11.20-11.70GHz
<b>PBD1170</b>	11.70-12.20GHz
<b>PBD1171</b>	11.70-12.75GHz
<b>PBD1225</b>	12.25-12.75GHz
Connection	N-type (f), 50Ω
Return loss	>18dB
RF input power	-25dBm max

### L-Band Output

Frequency	
<b>PBD420</b>	1750-950MHz (Inverted spectrum)
<b>PBD450</b>	950-1250MHz
<b>PBD725</b>	950-1450MHz
<b>PBD1070</b>	950-1950MHz
<b>PBD1095</b>	950-1700MHz
<b>PBD1120</b>	950-1450MHz
<b>PBD1170</b>	950-1450MHz
<b>PBD1171</b>	950-2000MHz
<b>PBD1225</b>	950-1450MHz
Connection	N-type (f), 50Ω
Return loss	>15dB
1dB GCP	+8dBm

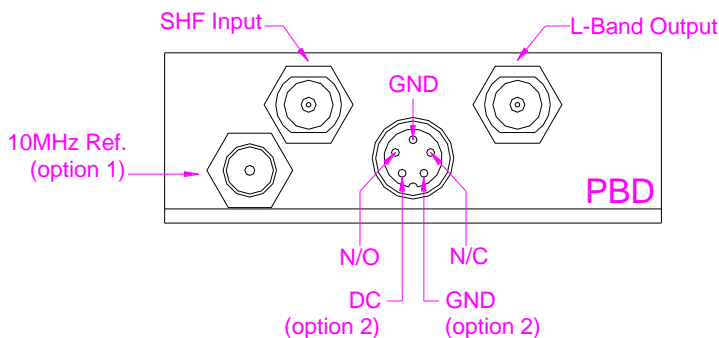
### RF Performance

LO Phase noise (typical with good phase noise ext. 10MHz ref)	-55dBc/Hz at 10Hz -75dBc/Hz at 100Hz -92dBc/Hz at 1kHz -100dBc/Hz at 10kHz -107dBc/Hz at 100kHz -125dBc/Hz at 1MHz
Spurious	<-80dBm (in band non-carrier related) <-75dBc (in band carrier related) Note: PBD420 specified at Input power of -40dBm
3rd Order Intercept	>+18dBm

### Transfer Characteristics

Conversion gain	30dB ±1dB at band centre
Gain stability	±0.5dB from 0 to 40°C (-0.026dB per +°C)
Gain flatness	±1dB full band ±0.5dB across any 40MHz in band
Noise	7dB max

### Connector panel view



### External Reference Input

Frequency	10MHz
Connection	Fed in on L-band cable
Option 1;	Separate TNC (f), 50Ω input
Level	0dBm ±3dB
Required phase noise	better than 50dBc/Hz of output Phase Noise
Locking delay	<2 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	500mA nom
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 'Ext Ref lock' alarm
Note;	External reference 'lock' alarm is included in the summary alarm as standard, this can be removed if 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

