

PBD(Ka) Series

Ka-Band, Single-Range, Remote Mounted Block DownConverters



The **PBD(Ka) 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(Ka)** outdoor units will accept the SHF input from an LNA system and provide a frequency conversion to L-Band.

The **PBD(Ka) 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;

PBD1820	Ka-Band (18.20-19.20GHz) to L-Band
PBD1890	Ka-Band (18.90-19.60GHz) to L-Band
PBD1920	Ka-Band (19.20-20.20GHz) to L-Band
PBD1950	Ka-Band (19.50-20.20GHz) to L-Band
PBD1970	Ka-Band (19.70-20.20GHz) to L-Band
PBD2140	Ka-Band (21.40-22.00GHz) to L-Band
PBD2950	Ka-Band (29.50-30.00GHz) to L-Band

For other non-standard frequency requirements, please contact the factory.
For equivalent rack mount units, please see IBDH(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



PBD(Ka) Series – Typical Specification

SHF Input

Frequency	
PBD1820	18.2-19.2GHz
PBD1890	18.9-19.6GHz
PBD1920	19.2-20.2GHz
PBD1950	19.5-20.2GHz
PBD1970	19.7-20.2GHz
PBD2140	21.4-22.0GHz
PBD2950	29.5-30.0GHz
Connection	K-Type (f), 50 Ω or 2.92mm (f)
Return loss	>14dB
RF input power	-20dBm max

L-Band Output

Frequency	
PBD1820	950-1950MHz
PBD1890	950-1650MHz
PBD1920	950-1950MHz
PBD1950	950-1650MHz
PBD1970	950-1450MHz
PBD2140	950-1550MHz
PBD2950	950-1450MHz
Connection	N-type (f), 50Ω
Return loss	>15dB
1dB GCP	+8dBm

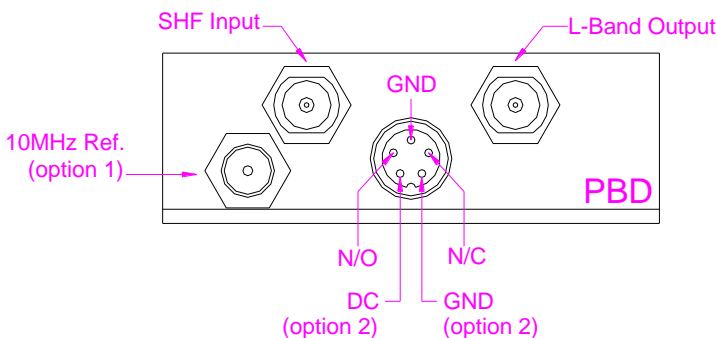
RF Performance

LO Phase noise (typical with good phase noise ext. 10MHz ref)	-38dBc/Hz at 10Hz -65dBc/Hz at 100Hz -85dBc/Hz at 1kHz -95dBc/Hz at 10kHz -100dBc/Hz at 100kHz -120dBc/Hz at 1MHz
Spurious	<-65dBm (in band non-carrier related) <-60dBc (in band carrier related)
LO leakage	-60dB (always out of band)
3rd Order Intercept	>+18dBm

Transfer Characteristics

Conversion gain	30dB ±1dB at band centre
Gain stability	±1dB over temperature range
Gain flatness	±0.75dB full band
Noise figure	7dB max

Connector panel view



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 ⁻¹⁰ per second
Temp. Stability	<±5 x 10 ⁻⁸ (0 to +60°C)
Ageing	<±5 x 10 ⁻⁹ 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	1A 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 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

