PBD(Ka) Series

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

Products;

PBD1770	Ka-Band (17.70-18.70GHz) to L-Band
PBD1820	Ka-Band (18.20-19.20GHz) to L-Band
PBD1870	Ka-Band (18.70-19.70GHz) 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
PBD2020	Ka-Band (20.20-21.20GHz) 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 and multi-band solutions, please contact the factory.
For equivalent rack mount units, please see IBDH(Ka) series datasheets.

The **PBD(Ka) series** remote mounted, block down converter 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 (XPDROs) and are far superior in stability and phase noise to voltage-controlled oscillators (VCOs), as commonly used in other BDC designs.

For redundancy, the **PBD(Ka)** uses a simple CANBUS® interface and has an integral redundancy controller for 1+1 & 2+1 operation (for use with remote mounted **R1000HR(Ka)**, **R2000HR(Ka)** switch units, that automatically configure the 'standby' unit during the switch-over process). Alternatively, traditional **RCUH50(Ka) /52(Ka)** rack mounted redundancy controllers are available (please contact the factory).

For supply, the units accept a wide range of DC voltages. They can be offered with the remote mounted **OPS Series** AC to DC PSU's, alternatively the **D400** rack mounted DC & reference driver units are available.

The unit has a highly stable internal 10MHz reference signal and will automatically detect and lock to an external 10MHz signal, when applied.

Peak Features

- External reference locking with automatic high stability internal reference back-up
- Temperature compensated for thermal stability and fast warm-up
- Optional electronically variable 0 to 30dB attenuator, with Ethernet based remote control
- Integral 1+1 & 2+1 CANBUS® redundancy control & external switch units available
- High stability, low ripple and excellent phase noise, using PDRO technology
- Rugged weatherproof housing
- Indoor rack mount & outdoor weatherproof AC to DC PSU's available

PBD(Ka) Series – Typical Specification

SHF Input

Frequency	
PBD1770	17.7-18.7GHz
PBD1820	18.2-19.2GHz
PBD1870	18.7-19.7GHz
PBD1890	18.9-19.6GHz
PBD1920	19.2-20.2GHz
PBD1950	19.5-20.2GHz
PBD1970	19.7-20.2GHz
PBD2020	20.2-21.2GHz
PBD2140	21.4-22.0GHz
PBD2950	29.5-30.0GHz
Connection	K-Type (f), 50Ω or 2.92mm (f)
Return loss	18dB
RF input power	-20dBm max

L-Band Output

Frequency	950 up to 1950MHz, dependent upon model
Connection	N-type (f), 50Ω
Return loss	18dB
1dB GCP	+8dBm

RF Performance

LO Phase noise (typical with good phase noise ext. 10MHz ref)	-35dBc/Hz at 10Hz -70dBc/Hz at 100Hz -90dBc/Hz at 1kHz -95dBc/Hz at 10kHz -100dBc/Hz at 100kHz -115dBc/Hz at 1MHz
Spurious	<-65dBm (in band non-carrier related) <-60dBc (in band carrier related)
Note; 2nd harmonic of IF (2xIF) at -50dBc@0dBm output, if in-band	
LO leakage	-70dB (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	±1dB full band (±1.5dB for bandwidths ≥800MHz) ±0.5dB across any 40MHz in-band
Noise figure	7dB max

Variable L-Band Attenuation (Option 3)

Attenuation range	30dB nominal
Step size	0.1dB or 0.5dB
Control	Remote via Ethernet (with option 9)

External Reference Input

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

Internal back-up reference;

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 60^0C

Additional Filtering (Option 14)

Additional filtering for mounting locations within close proximity to UHF transmitters (up to 5W), as often encountered on mobile vehicle installations.

Mechanical

Dimensions	290 x 230 x 95mm (11.4 x 9.1 x 3.7 inch)
Construction	Die-cast Aluminium, weatherproof, IP66 rated
Weight	Approx. 4kgs (9lbs)

Environmental

Operating temp	-25°C to +55°C (less solar gain)
Option 12b;	-40^0C to $+55^0$C (less solar gain), with extended warm-up time for cold start (including degraded gain stability) & higher current
Humidity	0-100% condensing
EMC	EN 55022-part B & EN 50082-1
Safety	EN 60950

Power Supply

Voltage	+27 to +36VDC
Current	1.5A max (option dependent)
Connection	Fed via control system interface connection
Option 2c;	Fed in on L-band cable
Option 2d;	Fed in on the L-Band cable as well as the multi-pin circular control interface connection

Control Interface

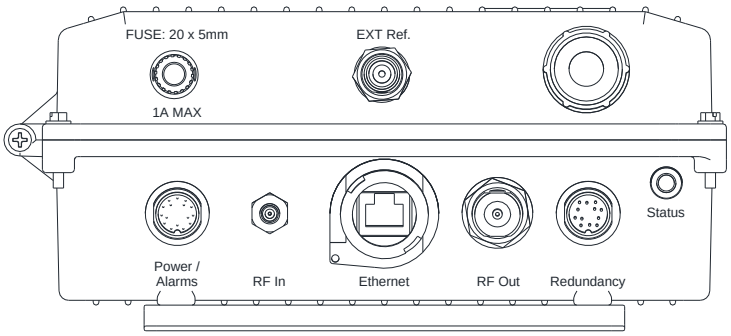
Alarms	Summary failure relay (form C)
Option 5;	Removal of 'Ext Ref lock' alarm
Note; external reference 'lock' alarm is included in the summary alarm as standard, this can be removed if an external reference is not being provided	
Option 7;	Bi- coloured LED for '10MHz lock' and 'DC power' status indication
Connection	multi-pin circular weatherproof (mating part supplied)
Remote control	RS232/ 485 port Ethernet; embedded web server & SNMP network management support.
Redundancy	CANBUS® interface & in-built 1+1 & 2+1 controller

Options

1c) 10MHz reference input via L-Band interface, replacing the separate TNC connection feed system
2c) DC input via L-Band interface, replacing the control interface feed system
2d) DC input via the L-Band interface, as well as the standard DC feed system via the control interface
3a) 30dB L-Band electronic variable attenuator, 0.5dB step
3b) 30dB L-Band electronic variable attenuator, 0.1dB step
5) Removal of ext. ref. 'lock' alarm from summary alarm
7) Bi-coloured ext. ref. 'lock' and 'DC power' status indication
12b) Low temperature operation to -40^0C
14) Filtering for close proximity UHF transmitters
16) Factory pre-set IP address

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

Connector panel view *(sample)*



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