PBD(B) Series

Multi-Range, Remote Mount, High Grade, Block Down Converters

Products;

PBD250	S-Band (2.00-2.50GHz) to L-Band (950-1450MHz)
PBD340	C-Band (3.40-4.20GHz) to L-Band (950-1750MHz), non-inverting
PBD2003	C-Band (3.40-4.80GHz) to L-Band (950-1750MHz max), 2-range
PBD2000	Ku-Band (10.95-12.75GHz) to L-Band (950-2000MHz max), 2-range
PBD2001	Ku-Band (10.70-12.75GHz) to L-Band (950-2000MHz max), 2-range
PBD3000-2	Ku-Band (10.95-11.70 & 12.25-12.75GHz) to L-Band (950-1700MHz max), 2-range

For non-standard frequency requirements, please contact the factory.
For single-range block down converters see PBD(A) series datasheet.
For equivalent rack mount units see IBD(B) & IBDH(B) series datasheets.

The remote mounted **PBD(B) series** of multi-range block frequency down converter units are designed to take the incoming SHF signal and produce an output at L-Band that is suitable for direct connection to an L-band demodulator or for further conversion typically by a **P7001** synthesised down converter.

The **PBD(B) series** of units are DC powered and are constructed of high-grade components to give the ultimate performance. They 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.

These multi-range converters are offered with internal range switching and a single input and output connection. Range selection is performed via remote control.

For control, the unit incorporates a serial communications interface and an Ethernet interface that supports control from a web-page or SNMP network management system, as standard. The **FPC100** is also offered which is a standard 19" rack mount control unit that can interface with up to three **PBD(B)** units plus the 1+1 or 2+1 redundancy systems.

For redundancy, the **PBD(B)** uses a simple CANBUS® interface and has an integral redundancy controller for 1+1 & 2+1 operation (for use with remote mounted **R1000HR**, **R2000HR** switch units, that automatically configure the 'standby' unit during the switch-over process).

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

- High stability, low ripple and excellent phase noise, using PDRO technology
- 10MHz external reference fitted as standard, with automatic internal reference back-up
- Full remote control including Ethernet with embedded web server and SNMP NMS
- Compact rugged weatherproof design
- Integral 1+1 & 2+1 CANBUS® redundancy control & external switch units available
- Indoor rack mount & outdoor weatherproof AC to DC PSU's available

PBD(B) series - Typical Specification

SHF Input

Frequency

PBD250	2.00-2.50GHz
PBD340	3.40-4.20GHz (non-inverted output)
PBD2003	3.40-4.20 (inverted output), 4.50-4.80GHz
PBD2000	10.95-11.70, 11.70-12.75GHz
PBD2001	10.70-11.70, 11.70-12.75GHz
PBD3000-2	10.95-11.70, 12.25-12.75GHz
Connector	N-Type (f), 50Ω
Return loss	>18dB

L-Band Output

Frequency	Up to 950-2000MHz, dependent upon model
Spectrum sense	Non-inverting unless specified above
Connector	N-Type (f), 50Ω
Return loss	>15dB
1dB GCP	+8dBm

Note: Higher power levels available (please contact factory).

Transfer Characteristics

Conversion gain	30dB ±1dB at band centre

Note: Higher gain levels available (please contact factory).

Gain stability	±0.5dB from 0 to 50°C
Gain flatness	±1dB across each sub-band (±1.5dB for bandwidth >800MHz) ±1.5dB across full Ku-band ±0.5dB across any 40MHz in band
LO frequency	dependant on model

Typical RF Performance

Phase noise	-55dBc/Hz at 10Hz
(typical with good	-75dBc/Hz at 100Hz
phase noise	-92dBc/Hz at 1kHz
ext. 10MHz ref)	-100dBc/Hz at 10kHz
	-105dBc/Hz at 100kHz
	-125dBc/Hz at 1MHz
Harmonics	Better than -50dBc
Spurious	<-80dBm (in band non-carrier related) <-75dBc (in band carrier related)

Note; C-Band units specified as <-65dBc at input -40dBm.

3rd order intercept	>+18dBm

External Reference Input

Frequency	10MHz
Connection	TNC (f), 50Ω
Option 6;	Fed in via L-Band cable
Level	0dBm ±5dB
Required phase noise	to be better than 50dBc/Hz of output phase noise
Locking delay	<2 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°C

Additional Filtering (Option 15)

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

Electronically Variable L-Band Attenuation (Option 10a)

Attenuation range	30dB nominal
Step size	0.5dB
Control	Remote control

L-Band Linear Slope compensation (Option 17)

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
Type	Passive, fixed 5dB nom., positive slope

Mechanical

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

Environmental

Operating temp	-10°C to +50°C (less solar gain)
Option 12;	-40°C to +50°C (less solar gain), with extended warm-up for cold start operation & higher current
Humidity	0-100% condensing
EMC	EN55022 part B & EN50082-1
Safety	EN60950

Power supply

Voltage	+27 to +36VDC
Power	35 Watts max (option dependent)
Connection	Fed via control system interface connection
Option 4a;	DC input via the L-Band interface.
Option 4b;	DC input via the L-Band interface as well as via the control system interface.

Control System

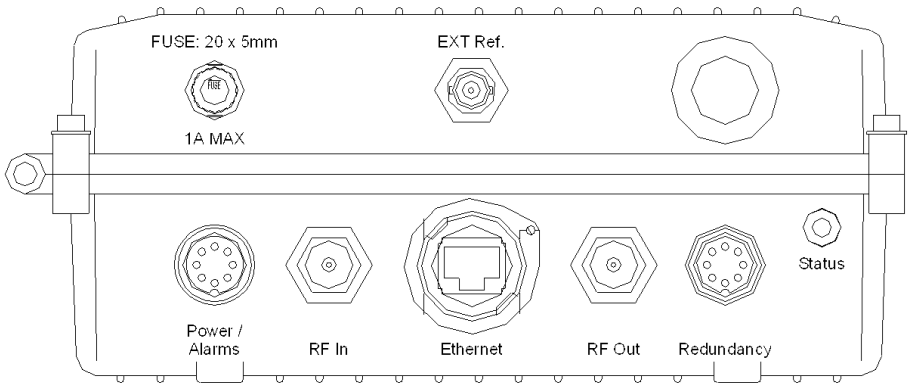
M&C	Summary failure relay (form C) Local interface for range selection via external switch
Option 7;	Range selection switch mounted on chassis with LED range indication
Remote control	RS232/ 485 port Ethernet; embedded web server & SNMP network management support
Redundancy	CANBUS® interface & in-built 1+1 & 2+1 controller
Connection	Multi-pin circular, weatherproof (mating part supplied)

Options

4a)	DC input feed via the L-Band interface.
4b)	DC input feed via the L-Band interface, as well as via the control system interface.
6)	External reference fed in on L-Band cable.
7)	Range switch on chassis with LED range indication.
10a)	Attenuator with remote control, 30dB range, stepped 0.5dB
11)	Separate inputs & outputs for simultaneous range/ band operation
12)	Low temperature operation to -40°C
15)	Filtering for close proximity UHF transmitters
16)	Factory pre-set IP address
17)	5dB passive, fixed, slope compensation

Notes: 'PBD(A) series' options do not apply to these products.
The addition of options can modify the typical specification, for details please consult the factory.

Connector panel view *(sample)*



PEAK COMMUNICATIONS

Peak Communications reserves the right to alter the specifications of this equipment without prior notice. PBD(B)series-120626.
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