PBU(B) Series

Multi-Range, Remote Mounted, Block Up Converters

Products;

PBU2000	L-Band (950-1950MHz max) to full Ku-Band (12.75-14.50GHz), 2-range
PBU2001	L-Band (950-1825MHz max) to full C-Band (5.85-7.10GHz), 2-range
PBU2002	L-Band (950-1750MHz max) to Dual-Band (Ku & DBS-Band), 2-range
PBU3000	L-Band (950-1700MHz max) to full Ku-Band (12.75-14.50GHz), 3-range

For other non-standard frequency requirements, please contact the factory.
For single-range block up converters please see PBU(A) series datasheet.
For equivalent rack mount units, please see IBU(B) & IBUH(B) series datasheets.

The remote mounted **PBU(B) series** of multi-range block frequency up converter units are designed to accept an incoming L-Band signal from a Modulator/ Modem or IF to L-Band synthesised up converter (typically a **P7002**) and produce an output at SHF that is suitable for direct connection to a high-power Amplifier.

The **PBU(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 or via an optional 'local' discrete interface.

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 **PBU(B)** units plus the 1+1 or 2+1 redundancy systems.

For redundancy, the **PBU(B)** uses a simple CANBUS® interface and has an integral redundancy controller for 1+1 & 2+1 operation (for use with remote mounted **T1000HR**, **T2000HR** 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 **D600** 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

PBU(B) series - Typical Specification

SHF Output

Frequency

PBU2000	12.75-14.5GHz (2 ranges), 12.75-13.75, 13.75-14.50GHz
PBU2001	5.85-7.10GHz (2 ranges), 5.85-6.725, 6.7-7.1GHz
PBU2002	Dual-Band; Ku-Band (13.75-14.5GHz), DBS (17.3-18.1GHz)
PBU3000	12.75-14.5GHz (3 ranges), 12.75-13.50, 13.00-13.75, 13.75-14.50GHz
Connector	N-Type (f), 50Ω
Return loss	>18dB
1dB GCP	+8dBm

L-Band Input

Frequency	950 up to 1950MHz, dependent upon model
Spectrum sense	Non-inverting
Connector	N-Type (f), 50Ω
Return loss	>15dB

Transfer Characteristics

Conversion gain	17dB ±1dB at band centre
Option 14;	27dB ±1dB at band centre
Note; other gain options available, please contact the 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

RF Performance

Note; for DBS-Band spurious, harmonics and LO leakage performance please consult the factory.

LO phase noise (typical with good phase noise ext. 10MHz ref)	-55dBc/Hz at 10Hz -75dBc/Hz at 100Hz -95dBc/Hz at 1kHz -100dBc/Hz at 10kHz -105dBc/Hz at 100kHz -125dBc/Hz at 1MHz

Note; see table below for band specific typical performance.

Spurious	<-60dBm (in band non-carrier related) <-60dBc (in band carrier related)
3rd order intercept	>+18dBm
LO leakage	<-80dBm (always out of band)

External Reference Input

Frequency	10MHz
Connection	TNC (f), 50Ω
Option 6;	Fed in via the 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^{0}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.

Variable L-Band Attenuation (Option 10a)

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

RF Mute (Option 13)

Activation	Remote control
Option 13a;	discrete control input
Isolation	60dB min

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^{0}C to +50^{0}C (less solar gain)
Option 12;	-40^{0}C to +50^{0}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)

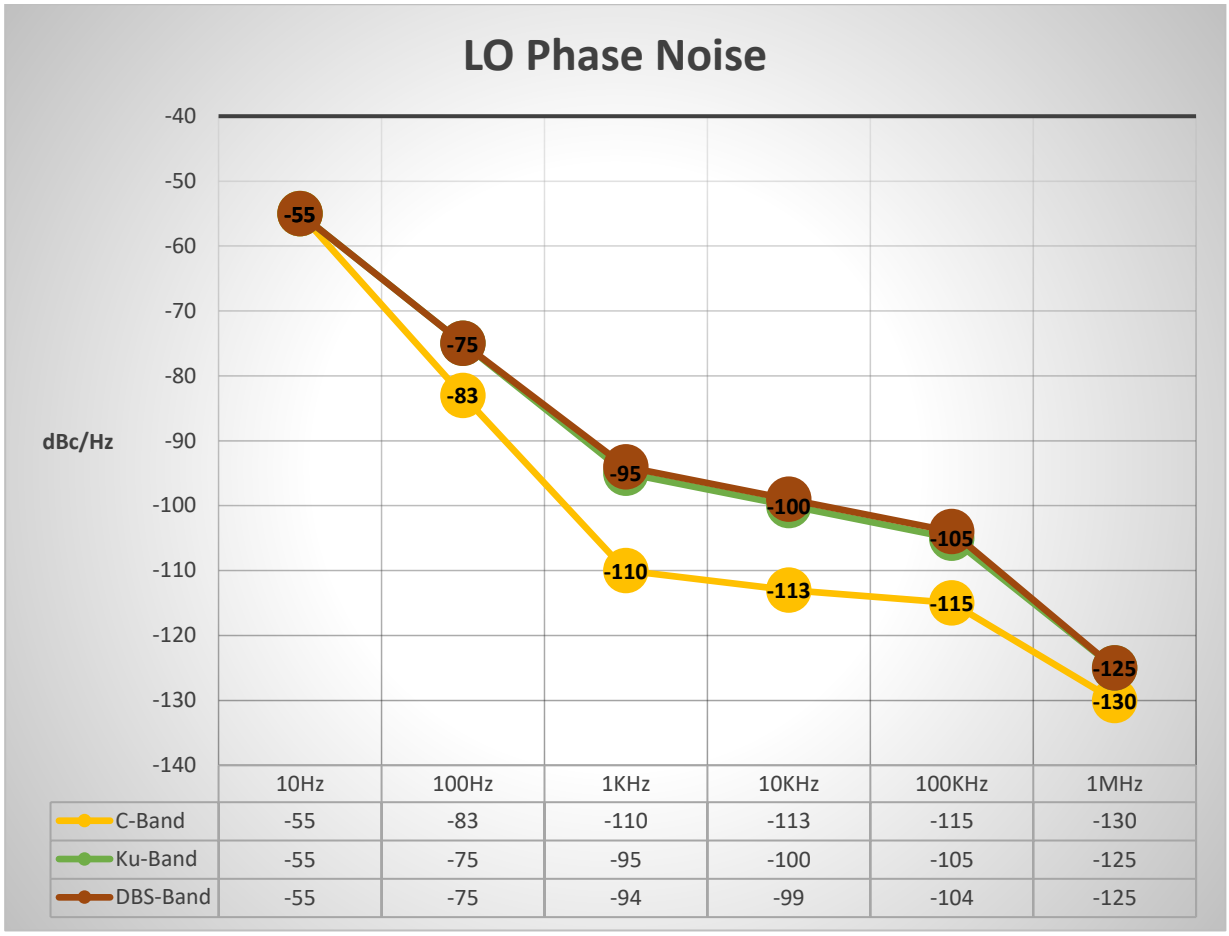
Options

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 the 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^{0}C
13)	RF mute option with remote control
13a)	Mute discrete control input
14)	Additional 10dB gain to +27dB nom.
15)	Filtering for close proximity UHF transmitters
16)	Factory pre-set IP address

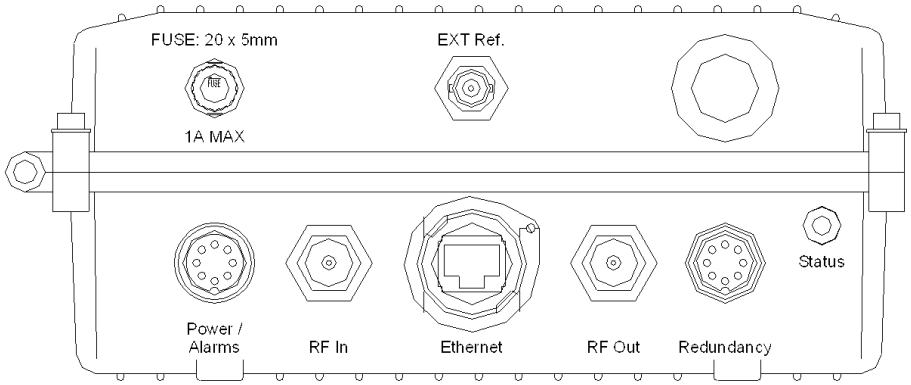
Notes;

'PBU(A) series' options do not apply to these products.

The addition of options can modify the typical performance, for details please consult the factory.



Connector panel view (sample)



Peak Communications Ltd., Unit 1, The Woodvale Centre, Woodvale Road, Brighouse, West Yorkshire, HD6 4AB, U.K.
Tel; +44 (0)1484 714200 Sales; +44 (0)1484 714229 Fax; +44 (0)1484 723666 Email; sales@peakcom.co.uk Web; www.peakcom.co.uk