

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

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	-55dBc/Hz at 10Hz
(typical with good	-75dBc/Hz at 100Hz
phase noise	-95dBc/Hz at 1kHz
ext. 10MHz ref)	-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 x 10 ⁻¹¹ over 1s
Ageing	<5 x 10 ⁻⁹ per day, <5 x 10 ⁻⁷ per year
Temp stability	<5 x 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.

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°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)

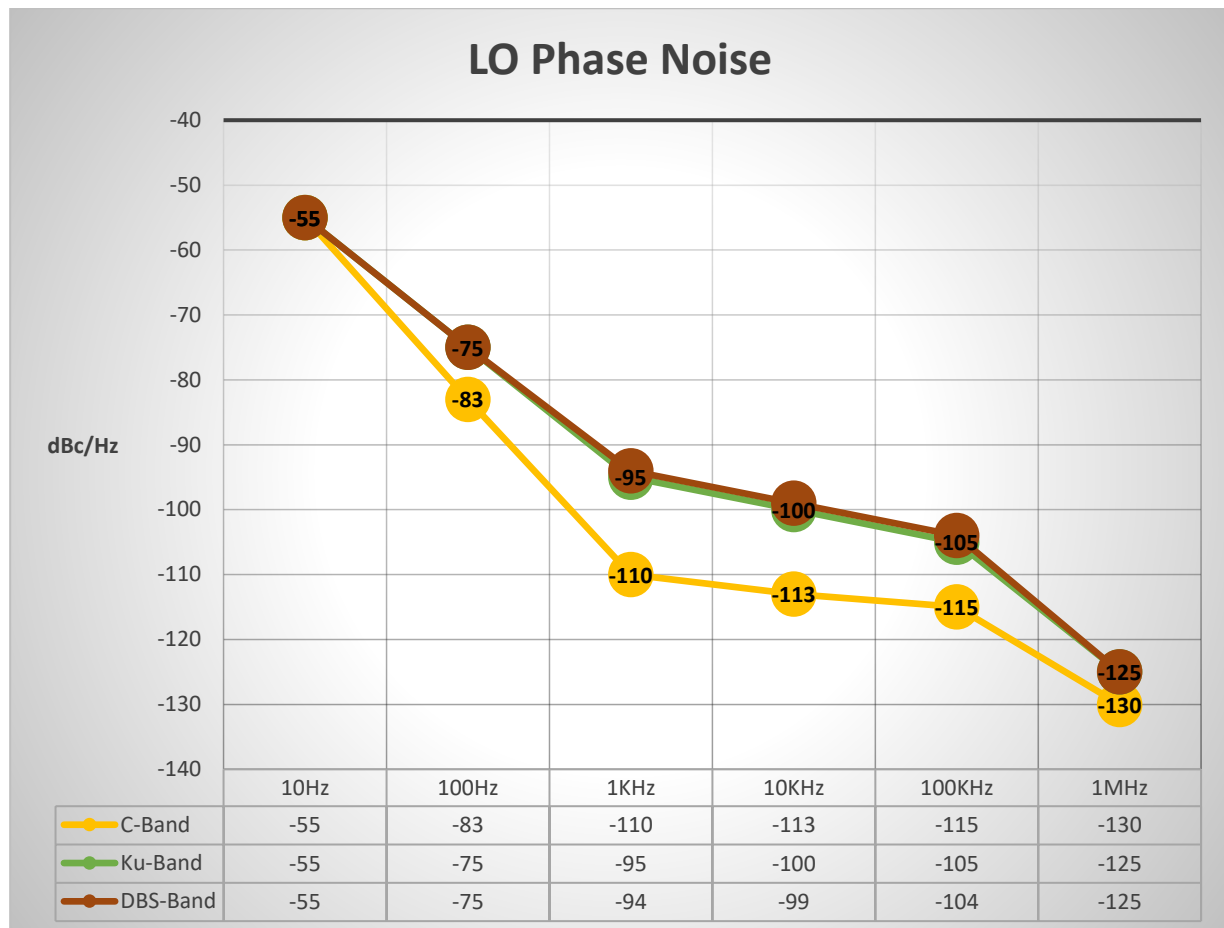
Options

- 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 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°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

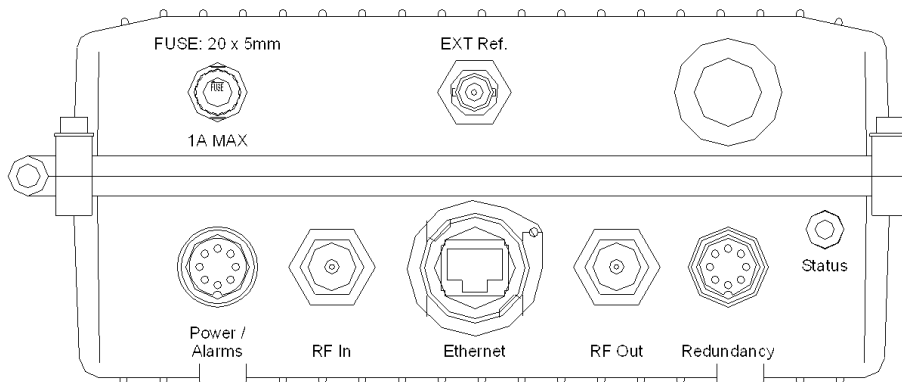
Notes;

'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)



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