IBDH(B) series

Multi-Band/Range, Rack Mount, Block DownConverters with full user interface and remote control

High Grade DownConverter Products;

IBDH2000, IBDH2000D (Dual)	Ku-Band (10.95-12.75GHz) to L-Band (950-2000MHz max) 2 ranges
IBDH2001, IBDH2001D (Dual)	Ku-Band (10.70-12.75GHz) to L-Band (950-2000MHz max) 2 ranges
IBDH2003, 4	C-Band (3.4-4.8GHz) to L-Band (950-1750MHz max) 2 ranges
IBDH3000, IBDH3000D (Dual)	Ku-Band (10.95-12. 75GHz) to L-Band (950-1700MHz max) 3 ranges
IBDH3001, IBDH3001D (Dual)	Ku-Band (10.70-12.75GHz) to L-Band (950-1750MHz max) 3 ranges
IBDH3000-2	Ku-Band (10.95-11.70+12.25-12.75GHz) to L-Band (950-1700MHz max) 2 ranges
IBDH3003, 3M	Dual-Band (C inverted, Ku-Hi, Ku-Lo) to L-Band (950-2000MHz max) 3 ranges
IBDH3003b, bM	Dual-Band (C non-inverted, Ku-Hi, Ku-Lo) to L-Band (950-2000MHz max) 3 ranges
IBDH3004, 4M	Tri-Band (C inverted, X, Ku-Hi, Ku-Lo) to L-Band (950-2000MHz max) 4 ranges
IBDH4004, 4M	Dual-Band (Full C-Band inverted and full Ku-Band) to L-Band (950-2000MHz max) 4 ranges

For other 'non-standard' frequency requirements, please contact the factory.
For single-range block down converters please see IBDH(A) series datasheet.
For equivalent lower cost BDC units without the full user interface please see IBD(B) series datasheet.
For equivalent remote mount units, please see PBD(B) series datasheet.

The 19-inch, 1U rack mounted **IBDH(B) series** of multi-band/ range block frequency down converter units from Peak Communications 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 **IBDH(B) series** of units are mains 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-band, multi-range converters are offered with either internal band switching (single input & output connections) or separate inputs & outputs for each band allowing simultaneous band operation (see units with suffix 'M'). Sub-band ranges are internally switched as standard and can also be supplied with separate inputs & outputs allowing simultaneous range operation (see option 11).
Band/ range selection is performed manually from the front panel or via remote control.

For redundancy the **IBDH(B)** uses a simple CANBUS® interface and has an integral redundancy controller for 1+1 & 2+1 operation (for use with external **R1000HH**, **R2000HH series** switch units), also compatible with the **RCUH100 series** 1+1 'standalone' redundancy controller. For N+1 systems the **RCU1002 series** is offered.

The unit incorporates a graphics display module, membrane keyboard and features a clear and intuitive control and configuration menu fully utilising the unique graphics display.

The unit has a highly stable internal reference source 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
- Electronically variable attenuator options for both local & remote control of gain
- Integral 1+1 & 2+1 CANBUS® redundancy control & N+1 switch systems available
- RS232/ 485 or optional Ethernet remote control

IBDH(B) series - Typical Specification

SHF Input

IBDH2000/D	Ku-Band 10.95-11.70 & 11.70-12.75GHz
IBDH2001/D	Ku-band 10.70-11.70 & 11.70-12.75GHz
IBDH2003	C-Band 3.4-4.2 (inverted output) & 4.5-4.8GHz
IBDH2004	C-band 3.4-4.2 (non-inverted) & 4.5-4.8GHz
IBDH3000/D	Ku-band 10.95-11.70, 11.70-12.25 & 12.25-12.75GHz
IBDH3001/D	Ku-band 10.70-11.45, 11.45-12.25 & 12.25-12.75GHz
IBDH3000-2	Ku-band 10.95-11.70, 12.25-12.75GHz
IBDH3003, 3M	Dual-Band; C-Band 3.4-4.2GHz (inverted output), Ku-Band 10.70-11.70 & 11.70-12.75GHz
IBDH3003b, M	Dual-Band; C-Band 3.4-4.2GHz (non-inverted output), Ku-Band 10.70-11.70 & 11.70-12.75GHz
IBDH3004, 4M	Tri-Band; C-Band 3.4-4.2 (inverted output), X-Band 7.25-7.75, Ku-Band 10.70-11.70 & 11.70-12.75GHz
IBDH4004, 4M	Dual-Band; C-Band 3.4-4.2 (inverted output) & 4.5-4.8GHz, Ku-Band 10.70-11.70 & 11.70-12.75GHz

Note: Units with a suffix 'M' include separate input & output connections for each band allowing simultaneous band operation. For simultaneous sub-band 'range' operation see option 11.

Connector	SMA (f), 50Ω
Option 1a;	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	SMA (f), 50Ω
Option 1b;	N-Type (f), 50Ω
Option 1c;	BNC (f), 50Ω
Option 3;	BNC (f), 75Ω
Return loss	>15dB
1dB GCP	+8dBm
Option 5b;	+16dBm

Transfer Characteristics

Conversion gain	30dB ±1dB at band centre
Option 4b;	40dB ±1dB
Gain stability	±0.5dB from 0 to 50°C
Gain flatness	±1dB across each sub-band range (±1.5dB if bandwidth ≥800MHz) ±1.5dB across full Ku-band ±0.5dB across any 40MHz in-band
LO frequency	dependent on model

Electronically Variable L-Band Attenuation (Option 10)

Note: For SHF attenuation options please consult the factory.

Attenuation range	30dB nominal
Step size	
Option 10a;	0.5dB
Option 10b;	0.1dB
Control	Local & remote

Note: Attenuation options can degrade the flatness performance.

Typical RF Performance

LO phase noise (typical with good phase noise ext. 10MHz ref)	-55dBc/Hz at 10Hz -75dBc/Hz at 100Hz -92dBc/Hz at 1kHz -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)

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

3rd order Intercept	>+18dBm
LO leakage	<-80dBm (always out of band)

L-Band & SHF Monitor (Option 2)

L-Band or SHF monitor ports, front or rear panel mounted

Connector	50Ω, SMA (f)

Note: Other connector styles available, please consult the factory.

Level	-20dBc ±3dB

External Reference Input (with automatic detection)

Frequency	10MHz (5MHz factory settable)
Connector	BNC (f), 50Ω
Level	0dBm ±5dB
Required phase noise	better than 50dBc/Hz of output phase noise
Locking delay	<2 minutes to stabilise from cold

Internal Back-up Reference Stability

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 50°C

High stability (Option 8)

Allan deviation	3 x 10^{-12} over 1s
Ageing	<2 x 10^{-10} per day, <2 x 10^{-8} per year
Temp stability	<3 x 10^{-9} over 0 to 50°C

Mechanical

Width	19" standard rack mountable
Height	1U (1.75")
Depth	~400mm (15.7"), plus connectors (2 range) ~534mm (21"), plus connectors (3 & 4 range, IBDH2004)
Construction	Aluminium chassis
Weight	4-6.5kgs (9-15lbs) approx., unit and option dependent

Environmental

Operating temp	0°C to +50°C
EMC	EN 55022, part B & EN 50082-1
Safety	EN 60950

Power Supply

Voltage	90-264VAC
Frequency	47-63Hz
Power	50 Watts max.

Control System Interface

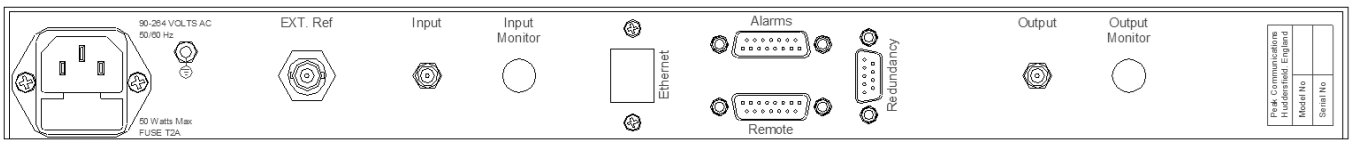
Remote control	RS232/ 485 port
Option 9;	Ethernet; embedded web server & SNMP network management support
Redundancy	CANBUS® interface for N+1 system In-built 1+1 & 2+1 controller
Discrete 'alarms interface'	LO lock failure PSU failure

Options

1a) N-Type (f) SHF interface connection
1b) N-Type (f) L-Band interface connection
1c) BNC (f) L-Band interface connection
2a) -20dBc L-band monitor on rear panel (SMA)
2b) -20dBc L-band monitor on front panel (SMA)
2c) -20dBc SHF monitor on rear panel (SMA)
2d) -20dBc SHF monitor on front panel (SMA)
3) 75Ω interface at L-band (6dB gain loss)
4b) 10db increase in gain to 40dB
5b) 1dB GCP increase to +16dBm (includes extra 10dB gain)
8) High stability internal reference option
9) Ethernet interface with embedded web server & SNMP
10a) Attenuator L-Band, 30dB range, stepped 0.5dB
10b) Attenuator L-Band, 30dB range, stepped 0.1dB
11) Separate inputs & outputs for simultaneous range operation

Note: The addition of options can modify the typical specification, for details please consult the factory.

Rear Panel View (sample)



Peak Communications reserves the right to alter the specifications of this equipment without prior notice. IBDH(B)series-120626.
Peak Communications Ltd., Unit 1, The Woodvale Centre, Woodvale Road, Brighouse, West Yorkshire, HD6 4AB, U.K.
Tel; +44 (0)1484 714200 email; sales@peakcom.co.uk web; www.peakcom.co.uk