IBDH(Ka) Series

Ka-Band, Single-Channel, Multi-Channel & Multi-Range, Rack Mount, Block Down Converters with full user interface and remote control.

The 19-inch 1U rack mounted **IBDH(Ka) series** of 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(Ka) series** of units are mains powered and are constructed of high-grade components to give the ultimate performance.

For redundancy the **IBDH(Ka)** uses a simple CANBUS® interface and has an integral redundancy controller for 1+1 & 2+1 operation (for use with external **R1000HH(Ka)**, **R2000HH(Ka)** switch units), also compatible with the **RCUH100/ RCUH200 series** 1+1/ 2+1 redundancy controllers. For N+1 systems the **RCU1002(Ka) 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
- 10MHz external reference fitted as standard with automatic internal reference back-up
- Electronically variable attenuator option for both local & remote control of gain
- Integral 1+1 & 2+1 CANBUS® redundancy control & N+1 switch systems available
- Available in dual, triple & quad-channel versions

High grade, single & multi-range/channel Ka-Band BDC products;

BDC Model	Ka-Band Input Frequency (GHz)	L-Band Output Frequency (MHz)
Traditional receive band coverage;		
IBDH1770	17.7-18.7	950-1950
IBDH1820	18.2-19.2	950-1950
IBDH1870	18.7-19.7	950-1950
IBDH1890	18.9-19.6	950-1650
IBDH1920	19.2-20.2	950-1950
IBDH1950	19.5-20.2	950-1650
IBDH1970	19.7-20.2	950-1450
IBDH2020	20.2-21.2	950-1950
IBDH2140	21.4-22.0	950-1550
IBDH4005	17.7-21.1GHz, switched range; 17.7-18.2, 18.2-19.2, 19.2-20.2, 20.2-21.2	950-1950
IBDH4005b	17.7-21.1GHz, switched range; 17.7-18.7, 18.7-19.7, 19.7-20.2, 20.2-21.2	950-1950
Transmit band coverage for ground test & ranging applications (consult factory with any specific filtering requirements);		
IBDH2750	27.5-28.5	950-1950
IBDH2830	28.3-29.1	950-1750
IBDH2850	28.5-29.5	950-1950
IBDH2900	29.0-30.0	950-1950
IBDH2950	29.5-30.0	950-1450
IBDH3100	30.0-31.0	950-1950

For other 'non-standard' frequency requirements or multi-channel units (dual, triple & quad units), please contact the factory.
For equivalent lower cost BDC units without the full user interface please see IBD(A) series datasheet.
For equivalent remote mount units, please see PBD(A) series datasheet.
For equivalent modular systems, please see DBU200(Ka)/ DBUH200(Ka) series datasheet.

IBDH(Ka) Series - Typical Specification

SHF Input

Connector	K-Type (f), 50 Ω or 2.92mm (f)
	Note: For multi-channel version, multiple connectors are provided
Return loss	18dB
RF input power	-20dBm max

L-Band Output

Frequency	950 up to 2000MHz, depending on model
Connector	SMA (f), 50Ω
Option 1b;	N-Type (f), 50Ω
	Note: For multi-channel version, multiple connectors are provided
Return loss	18dB
1dB GCP	+8dBm

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

Electronically Variable L-Band Attenuation (Option 10)

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

Typical RF Performance

LO phase noise	-35dBc/Hz at 10Hz
(typical with good	-70dBc/Hz at 100Hz
phase noise	-90dBc/Hz at 1kHz
ext. 10MHz ref)	-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	-70dBm (always out of band)
3rd order intercept	>+18dBm

L-Band Monitor (Option 2)

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	50Ω, BNC (f)
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 Stability

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 50^{0}C
High stability (Option 8)	
Allan deviation	3×10^{-12} over 1s
Ageing	$<2 \times 10^{-10}$ per day, $<2 \times 10^{-8}$ per year
Temp stability	$<3 \times 10^{-9}$ over 0 to 50^{0}C

Mechanical

Width	19" standard rack mountable
Height	1U (1.75")
Depth	~400mm (15.7"), plus
	Note: For multi-channel versions, a longer ~534mm (21") chassis may be provided, depending upon options selected.
Construction	Aluminium chassis
Weight	4-6kgs (9-13lbs) approx., unit & 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. (single-range)
	75 Watts max. (multi-range)
Option 7;	Redundant PSU; provides a 1+1 redundant power supply configuration with separate prime power inputs

Control System Interface

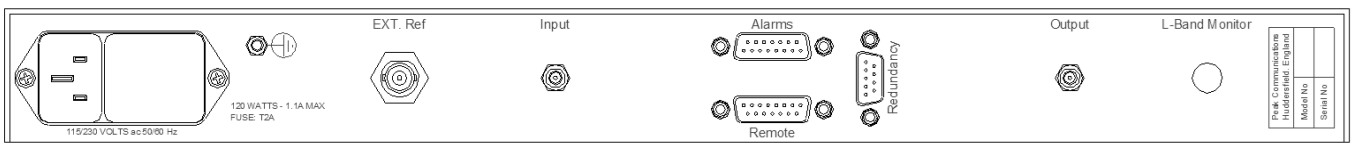
Remote control	RS232/ 485 port
Option 9;	Ethernet; embedded web server & SNMP network management support
Redundancy	CANBUS® interface for N+1 system
	In-built 1+1 & 2+1 controller
Alarms	LO lock failure
	PSU failure

Options

1b) N-Type (f) L-Band interface connection
2a) -20dBc L-band monitor on rear panel (SMA)
2b) -20dBc L-band monitor on front panel (SMA)
7) Redundant power supplies
8) High stability internal reference option
9) Ethernet interface with embedded web server & SNMP
10a) Attenuator with local & remote control, 30dB stepped 0.5dB
10b) Attenuator with local & remote control, 30dB stepped 0.1dB

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

Rear panel view (sample)



PEAK COMMUNICATIONS

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