IBD(Ka) series

Ka-Band, Single-range, Single & Multi-Channel, Rack Mount, Block Down Converters

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;		
IBD1770	17.7-18.7	950-1950
IBD1820	18.2-19.2	950-1950
IBD1870	18.7-19.7	950-1950
IBD1890	18.9-19.6	950-1650
IBD1920	19.2-20.2	950-1950
IBD1950	19.5-20.2	950-1650
IBD1970	19.7-20.2	950-1450
IBD2020	20.2-21.2	950-1950
IBD2140	21.4-22.0	950-1550
Transmit band coverage for ground test & ranging applications (consult factory with any specific filtering requirements);		
IBD2750	27.5-28.5	950-1950
IBD2830	28.3-29.1	950-1750
IBD2850	28.5-29.5	950-1950
IBD2900	29.0-30.0	950-1950
IBD2950	29.5-30.0	950-1450
IBD3100	30.0-31.0	950-1950

For other 'non-standard' frequency requirements and multi-channel units, please contact the factory.
For equivalent units with full user interface, remote control and digital attenuation, please see IBDH(Ka) series datasheet.
For equivalent remote mount units, please see PBD(Ka) series datasheet.

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

For 1+1 & 2+1 redundancy the **IBD(Ka) series** are offered with the **RCU100/ RCU200 & RCUH100/ RCUH200 series** redundancy controllers. For N+1 the **RCU1001(Ka) series** is offered.

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
- Fully compatible with **RCU100/ RCU200 & RCUH100/ RCUH200 series** 1+1/ 2+1 redundancy controllers and **RCU1001(Ka) series** for N+1 redundancy units
- Available in dual, triple & quad-channel versions
- Full alarm monitoring

IBD(Ka) series - Typical Specification

SHF Input

Connector	K-Type (f), 50Ω 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 1950MHz, 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

Manual L-Band Attenuation (Option 10a)

Attenuation range	30dB nominal
Control	Continuously variable from front panel
	Note: Can degrade gain flatness performance

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
Harmonics	Better than -50dBc
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)

Connector	
Option 2a;	L-Band monitor, SMA (f), 50Ω on rear panel
Option 2b;	L-Band monitor, SMA (f), 50Ω on front panel
	Note: For other connector types 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	5×10^{-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 connectors
	Note: For multi-channel versions, a longer ~534mm (21") chassis may be provided, depending upon options selected.
Construction	Aluminium chassis
Weight	3.5-6kgs (8-13lbs) 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.
Option 7;	Redundant PSU; provides a 1+1 redundant power supply configuration with separate prime power inputs

Control System Interface

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
10a)	Manual variable attenuator, 0-30dB, at L-band

Notes: Other 'IBU' options do not apply to these products.
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. IBD(Ka)series-120626.
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