IBD(Ka) series

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

High Grade Single & Multi-Channel DownConverter Products;

IBD1770	Ka-Band (17.70-18.70GHz) to L-Band (950-1950MHz)
IBD1820	Ka-Band (18.20-19.20GHz) to L-Band (950-1950MHz)
IBD1870	Ka-Band (18.70-19.70GHz) to L-Band (950-1950MHz)
IBD1890	Ka-Band (18.90-19.60GHz) to L-Band (950-1650MHz)
IBD1920	Ka-Band (19.20-20.20GHz) to L-Band (950-1950MHz)
IBD1950	Ka-Band (19.50-20.20GHz) to L-Band (950-1650MHz)
IBD1970	Ka-Band (19.70-20.20GHz) to L-Band (950-1450MHz)
IBD2020	Ka-Band (20.20-21.20GHz) to L-Band (950-1950MHz)
IBD2140	Ka-Band (21.40-22.00GHz) to L-Band (950-1550MHz)
IBD2950	Ka-Band (29.50-30.00GHz) to L-Band (950-1450MHz)

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

IBD(Ka) series - Typical Specification

SHF Input

Frequency

IBD1770	17.7-18.7GHz
IBD1820	18.2-19.2GHz
IBD1870	18.7-19.7GHz
IBD1890	18.9-19.6GHz
IBD1920	19.2-20.2GHz
IBD1950	19.5-20.2GHz
IBD1970	19.7-20.2GHz
IBD2020	20.2-21.2GHz
IBD2140	21.4-22.0GHz
IBD2950	29.5-30.0GHz

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 (typical with good phase noise ext. 10MHz ref)
-35dBc/Hz at 10Hz
-70dBc/Hz at 100Hz
-90dBc/Hz at 1kHz
-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)

6) Fibre optic L-band interface connection

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 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