IBD(A) series

Single-Range, Single & Multi-Channel, Rack Mount, Block DownConverters

High Grade Single & Multi-Channel DownConverter Products;

IBD340, IBD342 (Dual), IBD344 (Quad)	C-Band (3.40-4.20GHz) to L-Band (950-1750MHz) Non-inverted spectrum
IBD420, IBD422 (Dual), IBD424 (Quad)	C-Band (3.40-4.20GHz) to L-Band (1750-950MHz) Inverted spectrum
IBD450, IBD452 (Dual), IBD454 (Quad)	INSAT C-Band (4.50-4.80GHz) to L-Band (950-1250MHz)
IBD725	X-Band (7.25-7.75GHz) to L-Band (950-1450MHz)
IBD1070	Ku-Band (10.70-11.70GHz) to L-Band (950-1950MHz)
IBD1095	Ku-Band (10.95-11.70GHz) to L-Band (950-1700MHz)
IBD1120	Ku-Band (11.20-11.70GHz) to L-Band (950-1450MHz)
IBD1145	Ku-Band (11.45-11.95GHz) to L-Band (950-1450MHz)
IBD1170	Ku-Band (11.70-12.20GHz) to L-Band (950-1450MHz)
IBD1171	Ku-Band (11.70-12.75GHz) to L-Band (950-2000MHz)
IBD1225	Ku-Band (12.25-12.75GHz) to L-Band (950-1450MHz)

For other 'non-standard' frequency requirements or multi-channel units, please contact the factory.
For multiple-range Block DownConverters please see IBD(B) series datasheet.
For equivalent units with full user interface, remote control and digital attenuation, please see IBDH(A) series datasheet.
For equivalent remote mount units, please see PBD(A) series datasheet.

The 19 inch 1U rack mounted **IBD(A) series** of Block Frequency DownConverter 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 DownConverter.

The **IBD(A) 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 converters are single stage converters apart from the **IBD340** which is a dual stage unit.

Peak Features

- High stability, low ripple and excellent phase noise, using PDRO technology
- 10MHz External Reference option 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 series** for N+1 redundancy units
- L-Band monitor & Fibre Optic L-Band interface options available
- Available in Dual, Triple & Quad-Channel versions

IBD(A) series - Typical Specification

SHF Input

Frequency		
	*IBD340, IBD342 (Dual), IBD344 (Quad)	3.40-4.20GHz
	**IBD420, IBD422 (Dual), IBD424 (Quad)	3.40-4.20GHz
	IBD450, IBD452 (Dual), IBD454 (Quad)	4.50-4.80GHz
	IBD725	7.25-7.75GHz
	IBD1070	10.70-11.70GHz
	IBD1095	10.95-11.70GHz
	IBD1120	11.20-11.70GHz
	IBD1145	11.45-11.95GHz
	IBD1170	11.70-12.20GHz
	IBD1171	11.70-12.75GHz
	IBD1225	12.25-12.75GHz
Connector		50Ω, SMA (f)
	Option 1a;	50Ω, N-Type (f)
Note; for multi-channel version, multiple connectors are provided		
Return loss		>18dB

L-Band Output

Frequency	950 up to 2000MHz, depending on model
**Spectrum Sense	Non-inverting apart from IBD420, 422, 424
Connector	50Ω, SMA (f)
Option 1b;	50Ω, N-Type (f)
Option 3;	75Ω, BNC (f)
Note; for multi-channel version, multiple connectors are provided	
Return loss	>15dB
1dB GCP	+8dBm

Transfer Characteristics

*Conversion gain	30dB ±1dB at band centre
	20dB ±1dB at band centre (IBD340, 342, 344)
Option 4b;	40dB ±1dB, 30dB ±1dB (IBD340, 342, 344)
Gain stability	±0.5dB from 0 to 50°C
Gain flatness	±1dB full band (±1.5dB for bandwidths >800MHz)
	±0.5dB across any 40MHz in band
LO Frequency	dependant on model

Manual Attenuation (Option 10)

Attenuation range	30dB nominal
Control	Continuously variable from front panel.

Typical RF Performance

LO Phase noise	-55dBc/Hz at 10Hz
(typical with good	-75dBc/Hz at 100Hz
phase noise	-92dBc/Hz at 1kHz
ext. 10MHz ref)	-100dBc/Hz at 10kHz
	-107dBc/Hz at 100kHz
	-125dBc/Hz at 1MHz
Harmonics	Better than -50dBc
**Spurious	<-80dBm (in-band non-carrier related)
	<-75dBc (in-band carrier related)
Note; IBD340/ 2/ 4 & IBD420/ 2/ 4 specified at input of -40dBm	
3rd Order Intercept	>+18dBm
LO leakage	<-80dBm (always out of band)
Channel Isolation	-65dBc (for multi-channel versions only)

SHF & L-Band Monitor (Option 2)

Connector	
Option 2a;	L-Band monitor, 50Ω, SMA (f) on rear panel
Option 2b;	L-Band monitor, 50Ω, SMA (f) on front panel
Option 2c;	SHF monitor, 50Ω, SMA (f) on rear panel
Option 2d;	SHF monitor, 50Ω, SMA (f) on front panel
Note; for other connector types please consult the factory	
Level	-20dBc ±3dB

Internal Reference Stability

Stability	<1 x 10^{-10} per second
Temp Stability	<±5 x 10^{-8} (0 to +50°C)
Ageing	<±5 x 10^{-9} per day

High stability (Option 8)

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

External Reference Input

Frequency	10MHz (5MHz factory settable)
Connector	50Ω, BNC (f)
Level	0dBm ±3dB
Required phase noise	better than 50dBc/Hz of output Phase Noise
Locking delay	<2 mins to stabilise from cold

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 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

Alarms	LO lock fail
	PSU fail

Options

1a)	N-Type (f) SHF Interface connection
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)
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)	Extra 10db increase in gain, to +40dB (+30dB for IBD340)
6)	Fibre optic L-band interface connection
8)	High stability internal reference option
10a)	Manual Variable Attenuator, 0-30dB, at L-band
10b)	Manual Variable Attenuator, 0-30dB, at SHF

Notes; the addition of options can modify the typical specification, for details please consult the factory

PEAK COMMUNICATIONS

Rear panel View

Peak Communications reserves the right to alter the specifications of this equipment without prior notice. IBD(A)series-061211
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