

# Jersey Microwave

## L-Band Block Converters

### Features

- ✓ Excellent Frequency Stability
- ✓ Voltage Regulator & Delay Circuit Included
- ✓ Low Phase Noise
- ✓ Stable Gain Over Temperature
- ✓ High Reliability & Low Cost
- ✓ Low Power Consumption
- ✓ Intelsat/Eutelsat Compliant

### Options

- 5, 10 and 20 Watt versions available
- Locks To External 5, 10 or 50 MHz References
- Internal Reference – standard or high stability



### Description

The *Jersey Microwave* Block Converter series are specially designed to translate a block of L-Band frequencies into to either C-Band, X-Band or Ku-Band frequencies, or vice versa, for use in transmitting or receiving applications in Intelsat, Eutelsat, and other satellite communications systems.

Jersey Microwave components can be tailored to meet your company's specific needs.

### Electrical Specifications

#### CBUC & CBDC – Series

Designation	Input Frequency	Output Frequency	LO Frequency
CBUC-0914-1810	950 – 1550 MHz	5.85 – 6.45 GHz	4.90 GHz
CBDC-3642-1818	3.60 – 4.20 GHz	950 – 1550 MHz	5.15 GHz

#### XBUC & XBDC - Series

Designation	Input Frequency	Output Frequency	LO Frequency
XBUC-0914-1810	950 – 1450 MHz	7.90- 8.40 GHz	6.95 GHz
XBDC-7277-1818	7.25 – 7.75 GHz	950 – 1450 MHz	6.30 GHz

#### KBUC & KBDC - Series

Designation	Input Frequency	Output Frequency	LO Frequency
KBUC-0917-1808	950 – 1700 MHz	13.75 – 14.50 GHz	12.80 GHz
KBDC-1011-1818	10.95 – 11.55 GHz	950 – 1550 MHz	10.00 GHz
KBDC-1112-1818	11.55 – 12.15 GHz	950 – 1550 MHz	10.60 GHz
KBDC-1212-1818	12.15 – 12.75 GHz	950 – 1550 MHz	11.20 GHz

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## C-Band Specifications

PARAMETER	UP CONVERTER	DOWN CONVERTER
<b>IF Port Characteristics</b>		
	<b>Input</b>	<b>Output</b>
Frequency Range	950 – 1550 MHz	950 – 1550 MHz
Connectors / Impedance	SMA-Female / 50 Ω	
Return Loss	18 dB min.	
<b>RF Port Characteristics</b>		
	<b>Output</b>	<b>Input</b>
Frequency Range	5.85 – 6.45 GHz	3.60 – 4.20 GHz
Connectors / Impedance	SMA-Female / 50 Ω	
Return Loss	18 dB min.	
<b>LO Characteristics</b>		
Frequency	4.90 GHz	5.15 GHz
Reference Input	5 / 10 / 50 MHz	
Reference Input Level	0 dBm +/- 3 dB	
Reference Port: Connector / Impedance	SMA-Female / 50 Ω	
Return Loss	15 dB min.	
Frequency Stability: External	Same as the reference unit	
Internal	+/-2.5 ppm max. (+/-1.0 ppm max. option)	
Phase Lock Alarm: TTL	"H" = Locked / "L" = Unlocked	
Operating Temperature	-30° C to +60° C	
<b>Input to Output Performance</b>		
Transfer Type	Single Conversion	
Frequency Sense	No Spectral Inversion	
Gain	20 dB +/-2 dB	
Gain Flatness: Over RF Band	+/-1.00 dB max.	
Over any 40 MHz Segment	+/-0.25 dB max.	
Output Power Po (1dB)	+10 dBm min.	+18 dBm min.
IMD (two output carriers at -3 dBm per)	-40 dBc max.	-50 dBc max.
Gain vs. temperature		
At constant temperature	+/- 0.25 dB/day max.	
Over the operating temperature	+/- 1.5 dB max.	
Noise Figure	15 dB max.	
Spurious - In-band		
Signal Independent	-80 dBm max.	
Signal Dependent (@Po = 0 dBm)	-80 dBc max.	-70 dBc max.
LO Leakage	-75 dBm max.	
Image Rejection	N/A	-70 dBc max.
SSB Phase Noise*	<b>External Reference</b>	<b>Internal Reference</b>
10 Hz	REF – [20log(1/N) + 3 dB]	-45 dBc/Hz
100 Hz	REF – [20log(1/N) + 3 dB]	-75 dBc/Hz
1 KHz	REF – [20log(1/N) + 3 dB]	-90 dBc/Hz
10 KHz	REF – [20log(1/N) + 3 dB]	-100 dBc/Hz
100 KHz	REF – [20log(1/N) + 3 dB]	-105 dBc/Hz
1 MHz	-125 dBc/Hz typical / -120 dBc/Hz max.	
Supply Voltage	+15 Vdc@ 500 ma	
Connector:	Solder Feedthru.	
Operating Temperature Range	-30° to +60° C	
Package Size (L x W x H)	4.40" x 2.96" x 1.16"	4.30" x 3.30" x 1.16"

Note: Specifications are subject to change without notice

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## X-Band Specifications

PARAMETER	UP CONVERTER	DOWN CONVERTER
<b>IF Port Characteristics</b>		
	<b>Input</b>	<b>Output</b>
Frequency Range	950 – 1450 MHz	950 – 1450 MHz
Connectors / Impedance	SMA-Female / 50 Ω	
Return Loss	18 dB min.	
<b>RF Port Characteristics</b>		
	<b>Output</b>	<b>Input</b>
Frequency Range	7.90- 8.40 GHz	7.25 – 7.75 GHz
Connectors / Impedance	SMA-Female / 50 Ω	
Return Loss	18 dB min.	
<b>LO Characteristics</b>		
Frequency	6.95 GHz	6.30 GHz
Reference Input	5 / 10 / 50 MHz	
Reference Input Level	0 dBm +/- 3 dB	
Reference Port: Connector / Impedance	SMA-Female / 50 Ω	
Return Loss	15 dB min.	
Frequency Stability: External	Same as the reference unit	
Internal	+/-2.5 ppm max. (+/-1.0 ppm max. option)	
Phase Lock Alarm: TTL	"H" = Locked / " L " = Unlocked	
Operating Temperature	-30° C to +60° C	
<b>Input to Output Performance</b>		
Transfer Type	Single Conversion	
Frequency Sense	No Spectral Inversion	
Gain	20 dB +/-2 dB	
Gain Adjustment: L-Band Input Attenuation	10 dB +/- 1 dB	N/A
Control	TTL Input	N/A
Gain Flatness: Over RF Band	+/-1.00 dB max.	
Over any 40 MHz Segment	+/-0.25 dB max.	
Output Power Po (1dB)	+10 dBm min.	+18 dBm min.
IMD (two output carriers at -3 dBm per)	-40 dBc max.	-50 dBc max.
Gain vs. temperature		
At constant temperature	+/- 0.25 dB/day max.	
Over the operating temperature	+/- 1.5 dB max.	
Noise Figure	15 dB max.	
Spurious - In-band		
Signal Independent	-80 dBm max.	
Signal Dependent (@Po = 0 dBm)	-80 dBc max.	-70 dBc max.
LO Leakage	-75 dBm max.	-50 dBm max.
Image Rejection	N/A	-70 dBc max.
SSB Phase Noise*	<b>External Reference</b>	<b>Internal Reference</b>
10 Hz	REF – [20log(1/N) + 3 dB]	-45 dBc/Hz
100 Hz	REF – [20log(1/N) + 3 dB]	-70 dBc/Hz
1 KHz	REF – [20log(1/N) + 3 dB]	-90 dBc/Hz
10 KHz	REF – [20log(1/N) + 3 dB]	-100 dBc/Hz
100 KHz	REF – [20log(1/N) + 3 dB]	-105 dBc/Hz
1 MHz	-125 dBc/Hz typical / -120 dBc/Hz max.	
Supply Voltage	+15 Vdc@ 500 ma	
Connector:	Solder Feedthru.	
Operating Temperature Range	-30° to +60° C	
Package Size (L x W x H)	4.75" x 2.96" x 1.16"	3.95" x 2.96" x 1.16"

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## Ku-Band Specifications

PARAMETER	UP CONVERTER	DOWN CONVERTER
<b>IF Port Characteristics</b>	<b>Input</b>	<b>Output</b>
Frequency Range	950 – 1700 MHz	950 – 1550 MHz
Connectors / Impedance	SMA-Female / 50 $\Omega$	
Return Loss	18 dB min.	
<b>RF Port Characteristics</b>	<b>Output</b>	<b>Input</b>
Frequency Range	13.75 – 14.50 GHz	10.95 – 11.55 GHz 11.55 – 12.15 GHz 12.15 – 12.75 GHz
Connectors / Impedance	SMA-Female / 50 $\Omega$	
Return Loss	18 dB min.	
<b>LO Characteristics</b>		
Frequency	12.8 GHz	10.00 GHz / 10.60 GHz / 11.20 GHz
Reference Input	5 / 10 / 50 MHz	
Reference Input Level	0 dBm +/- 3 dB	
Reference Port: Connector / Impedance	SMA-Female / 50 $\Omega$	
Return Loss	15 dB min.	
Frequency Stability: External	Same as the reference unit	
Internal	+/-2.5 ppm max. (+/-1.0 ppm max. option)	
Phase Lock Alarm: TTL	"H" = Locked / "L" = Unlocked	
Operating Temperature	-30° C to +60° C	
<b>Input to Output Performance</b>		
Transfer Type	Single Conversion	
Frequency Sense	No Spectral Inversion	
Gain	20 dB +/-2 dB	
Gain Flatness: Over RF Band	+/-1.00 dB max.	
Over any 40 MHz Segment	+/-0.25 dB max.	
Output Power Po (1dB)	+10 dBm typical / +8 dB min.	+18 dBm min.
IMD (two output carriers at -3 dBm per)	-40 dBc max.	-50 dBc max.
Gain vs. temperature		
At constant temperature	+/- 0.25 dB/day max.	
Over the operating temperature	+/- 1.5 dB max.	
Noise Figure	15 dB max.	
Spurious - In-band		
Signal Independent	-80 dBm max.	
Signal Dependent (@Po = 0 dBm)	-80 dBc max.	
LO Leakage	-75 dBm max.	-50 dBm max.
Image Rejection	N/A	-70 dBc max.
SSB Phase Noise*	<b>External Reference</b>	<b>Internal Reference</b>
10 Hz	REF – [20log(1/N) + 3 dB]	-40 dBc/Hz
100 Hz	REF – [20log(1/N) + 3 dB]	-70 dBc/Hz
1 KHz	REF – [20log(1/N) + 3 dB]	-85 dBc/Hz
10 KHz	REF – [20log(1/N) + 3 dB]	-95 dBc/Hz
100 KHz	REF – [20log(1/N) + 3 dB]	-100 dBc/Hz
1 MHz	-125 dBc/Hz typical / -120 dBc/Hz max.	
Supply Voltage	+15 Vdc@ 500 ma	
Connector:	Solder Feedthru.	
Operating Temperature Range	-30° to +60° C	
Package Size (L x W x H)	4.75" x 2.96" x 1.16"	3.85" x 2.90" x 1.16"

Note: Specifications are subject to change without notice