



**ZBUC L-band Block Up Converter**

**Paradise Datacom's** modular ZBUC L-Band Block Up Converter module is an ideal companion product for any microwave power amplifier system requiring L-Band input.

This full- featured converter is housed in a compact enclosure and can be integrated into any of Paradise Datacom's SSPAs to accommodate L Band input operation. The new generation of Block Up Converters is loaded with features not normally found in L-Band BUCs.

The converter's embedded controller enables remote communication via the IF input with the Paradise Datacom's Evolution Series L-Band Modem so that a SSPA-BUC outdoor unit can have complete monitor and control functionality from the modem's IF output.

This converter can automatically detect and phase lock to external reference frequencies of 5, 10, 20, 25, and 50 MHz over a wide range of reference power levels. An optional internal reference oscillator is also available.

#### FEATURES

- FSK Monitor & Control via the IF input
- Multiple reference frequency operation
- Integrates into Compact Outdoor Amplifier or Rack Mount Amplifier

#### OPTIONS

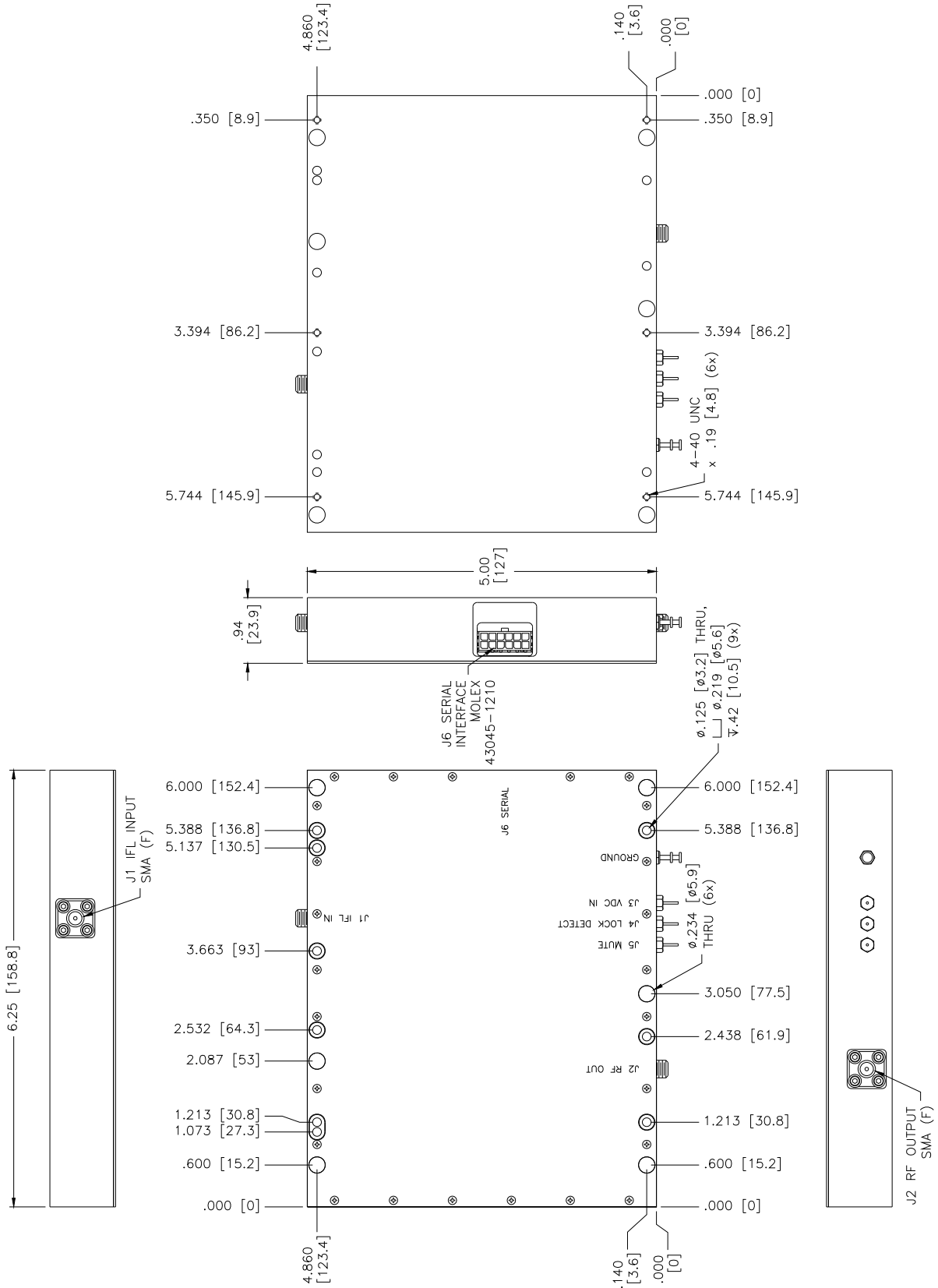
- High stability internal 10 MHz reference with auto-detection and switch-over to an applied External Reference input

**Specifications**

PARAMETER	NOTES	LIMITS	UNITS
Gain	See Table on Page 4	0-4	dB
Gain Flatness	standard bands	± 0.5	dB
	extended bands	± 0.65	dB
Gain Slope	per 40 MHz	± 0.15	dB
Gain variation vs. Temperature	-30 to +60 °C baseplate	0 ± 2.5	dB
Output Power	P <sub>1dB</sub> minimum	0	dBm
Intermodulation Distortion	3dB back off relative to P <sub>1dB</sub>	-25	dBc
Spurious	In-Band Signal Related (C-/Ku-Band)	-50	dBc
	(Extended C-Band)	-40	dBc
	Close to Carrier Spurious (≤ 20 MHz)	-65	dBc
	Local Oscillator	-70	dBm
	Non-Signal Related	-50	dBm
Harmonics	2 <sup>nd</sup> harmonic measured at P <sub>1dB</sub>	-40	dBc
Output Spectrum	Low side Local Oscillator	Non Inverted	
Input Return Loss		15	dB
Output Return Loss		12	dB
Noise Figure		20	dB
Group Delay (per 40 MHz segment)	Linear	0.01	ns/MHz
	Parabolic	0.003	ns/MHz <sup>2</sup>
	Ripple	1.0	ns p-p
Reference Input Frequency	Diplexed on L-Band Input Connector	5, 10, 20, 25, 50 MHz	MHz
Reference Input Power	Diplexed on L-Band Input Connector	-10 to +5	dBm
Input Voltage		+12 to +15	VDC
Input Current	Without internal reference	750	mA
	With internal reference	1000	mA
FSK Communication <sup>1</sup> Diplexed on L-Band Input	Center Frequency	650	KHz
	Deviation	±60	KHz
	Locking Range	±32.5	KHz
	Input Power Range	-15 to -5	dBm
	Start Tone Time	10	msec
Alarm Output	Open Collector Output	High = Fault	
Internal Reference Option <sup>2</sup>	Reference Frequency	10	MHz
	Freq. Stability over -40 to +90 °C	< ±1 • 10 <sup>-8</sup>	
	Aging per day	< ±1 • 10 <sup>-9</sup>	
	Aging per year	< ±5 • 10 <sup>-8</sup>	
	Frequency Accuracy	±1 • 10 <sup>-8</sup>	
	Warm up time	20 minutes	< ±1 • 10 <sup>-8</sup>

<sup>1</sup> FSK Communication protocol, document # 201410

<sup>2</sup> Internal reference option units will automatically detect and switch to an applied external reference.



**Frequency Bands**

Band	Frequency Plan*	IF Input	LO Frequency	RF Output	Gain Change
C	Standard C-Band	950 - 1525 MHz	4.900 GHz	5.850 - 6.425 GHz	0-4 dB
C	Extended C-Band 1	950 - 1825 MHz	4.900 GHz	5.850 - 6.725 GHz	0-4 dB
C	Palapa Band	950 - 1250 MHz	5.475 GHz	6.425 - 6.725 GHz	0-4 dB
C	Insat Band	950 - 1250 MHz	5.775 GHz	6.725 - 7.025 GHz	0-4 dB
C	Extended C-Band 2	950 - 1675 MHz	4.800 GHz	5.750 - 6.475 GHz	0-4 dB
X	Standard X-Band	950 - 1450 MHz	6.950 GHz	7.900 - 8.400 GHz	0-2 dB
Ku	Standard Ku-Band	950 - 1450 MHz	13.050 GHz	14.00 - 14.50 GHz	0-2 dB
Ku	Extended Ku-Band	950 - 1700 MHz	12.800 GHz	13.75 - 14.50 GHz	0-2 dB

\* Custom frequency plans available upon request.

**Local Oscillator Phase Noise**

Offset	Guaranteed Max.	C-Band <i>Typical</i>	X-Band <i>Typical</i>	Ku-Band <i>Typical</i>	Units
10 Hz	-30	-60	-60	-50	dBc/Hz
100 Hz	-60	-80	-75	-65	dBc/Hz
1 KHz	-70	-80	-75	-72	dBc/Hz
10 KHz	-80	-85	-100	-90	dBc/Hz
100 KHz	-90	-120	-110	-110	dBc/Hz
1 MHz	-90	-125	-122	-120	dBc/Hz

**Part Number Configuration**
