

“SMART” POWER XBUCS HIGH POWER BLOCK UP CONVERTERS



The **Jersey Microwave** “Smart” Power XBUC series is an X-Band full RF sub-system provided in a more compact package as compared to standard Block Up Converter sub-systems with high output power (up to 80 Watts Psat). The “Smart” Power BUC is supplied with the intelligence to accomplish all monitoring and control functions (RS-485) and the unit’s cooling management. The design incorporates JM’s “Smart” BUC module, M&C circuitry, Power Supply, Ethernet connectivity and a custom SSPA (GaN technology). JM’s cooling approach has a unique “Smart” technique to maintain a low temperature rise (Patent Pending). The “Smart” Power KBUCs are specially designed to translate a block of L-Band frequencies into to X-band frequencies for transmitting applications in satellite communications systems.

Features/Options

- Fully Integrated M&C**
- 25 dB Gain Control at L-Band
@ 0.1 dB Steps**
- IF Band Slope Equalizer**
- Internal/External
Auto Switchover**
- Internal Reference with
Electronic tuning**
- Mute Control**
- Summary Alarm**
- Monitor/Alarm**
- IF Input / RF Output Power
Monitor**
- LO Lock Alarm**
- Temperature Monitor**
- Thermostatically Controlled
Cooling System**
- Reference Input Detector**
- Continuous verification of
performance with alarm history**
- User defined Start-up/Shut-
down of control functions**

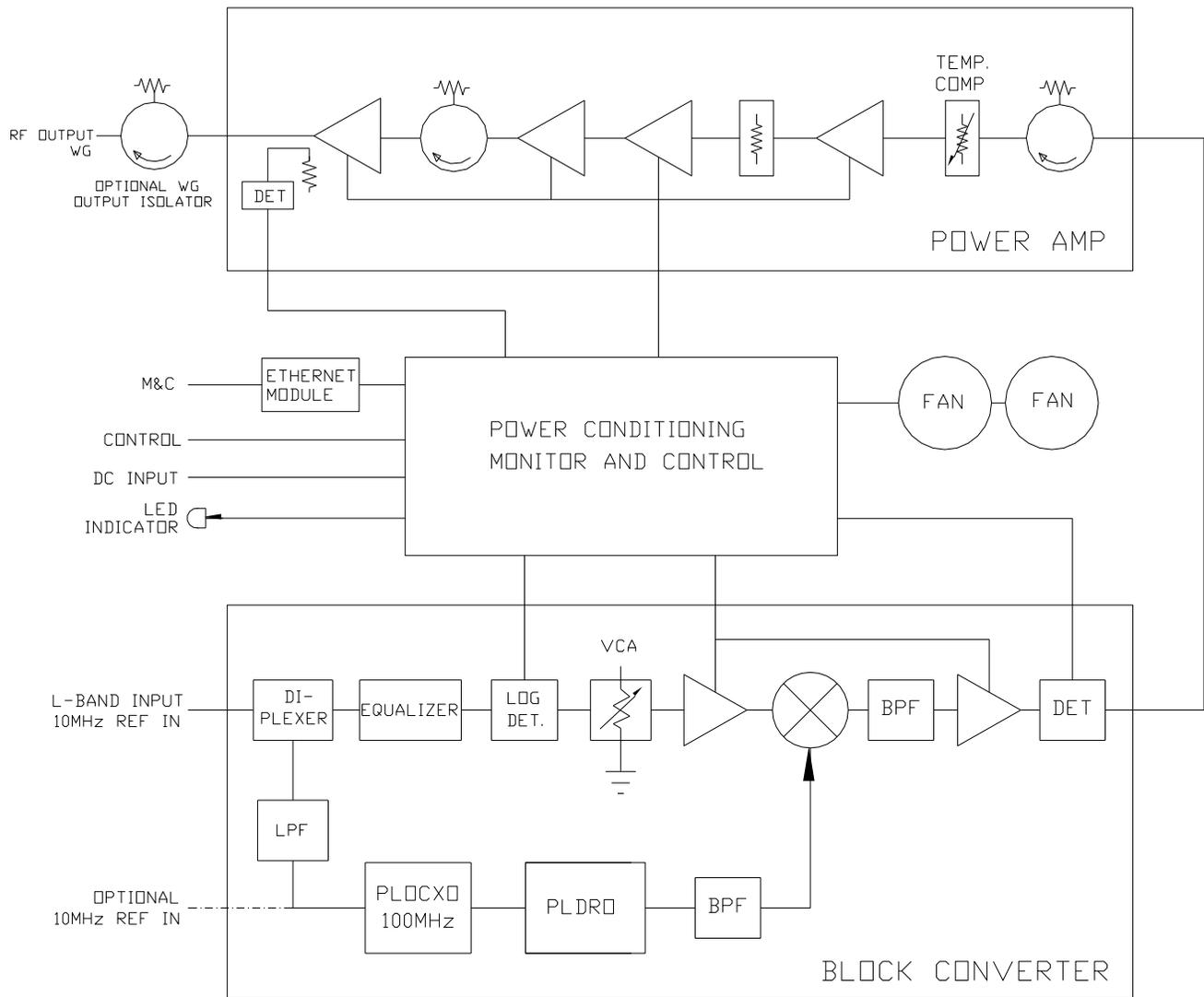
Standard Frequency Bands

X-Band Block Up Converter “Smart Power BUC” series

Model Number	Input Frequency	Output Frequency	LO Frequency	Output Power
XBUC-790840-6043	950 – 1450 MHz	7900 – 8400 MHz	6950 MHz	+43 dBm Psat
XBUC-790840-6046	950 – 1450 MHz	7900 – 8400 MHz	6950 MHz	+46 dBm Psat
XBUC-790840-6049	950 – 1450 MHz	7900 – 8400 MHz	6950 MHz	+49 dBm Psat

Custom bands and custom specifications can be provided.

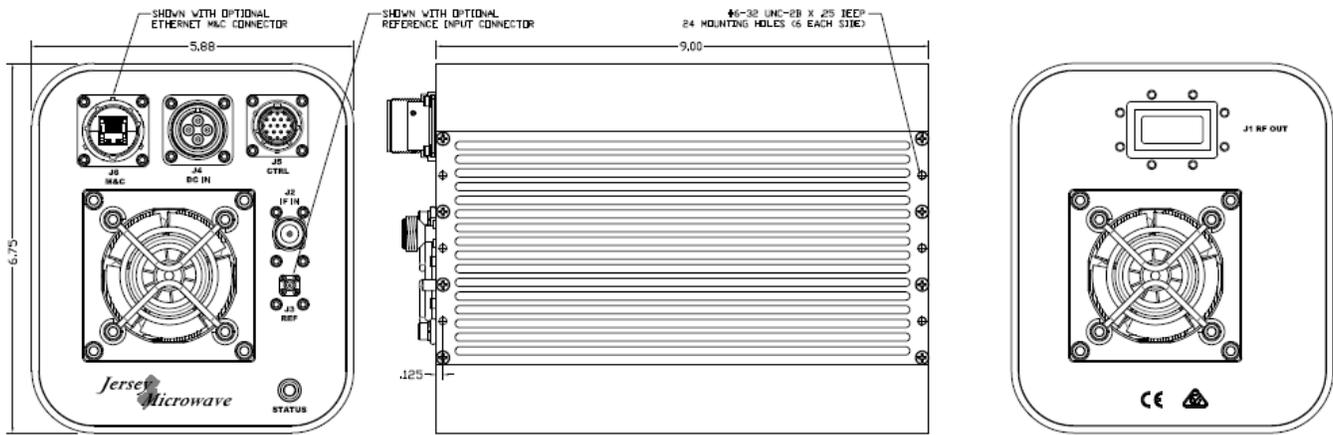
“SMART POWER BUC” BLOCK DIAGRAM



ELECTRICAL SPECIFICATIONS	20W	40W	80W
Saturated Output Power	+43 dBm	+46 dBm	+49 dBm
Linear Output Power	+39 dBm	+42 dBm	+45 dBm
IF Input Frequency	950 - 1450 MHz		
RF Output Frequency	7900 - 8400 MHz		
Internal LO Frequency	6950 MHz		
IF/RF Gain	60 - 65 dB		
Gain Flatness	Over 500 MHz : $\leq \pm 1.25$ dB peak-to-peak		
	Over any 40 MHz segment: $\leq \pm 0.35$ dB peak-to-peak		
Gain versus temperature (-30° to +60°C)	$\leq \pm 2.0$ dB peak-to-peak		
Gain Control Adjustment	Range: 30 dB, Step size: 0.1 dB		
Group Delay	≤ 2.0 nsec peak-to-peak over 500 MHz		
AM/PM Conversion	2°/dB at Linear Power		
Spectral Regrowth	-30 dBc @P _{LINEAR}		
In-Band Spurious @Rated Output Power	Signal Independent: ≤ -60 dBm		
	Signal Dependent: ≤ -60 dBc		
LO Leakage @ RF Output	≤ -25 dBm		
Output Noise Density	Tx Band: ≤ -94 dBm/Hz		
	Rx Band: ≤ -100 dBm/Hz		
External Reference Frequency	10.00 MHz via L-Band Input		
External Reference Input Level	-5 to +5 dBm		
Internal Reference (Optional)	10.00 MHz OCXO		
	Frequency Stability: ± 1.0 ppm		
	Frequency Accuracy between INT/EXT Reference: ≤ 10 KHz		
Output SSB Phase Noise			
10 Hz	-45 dBc/Hz		
100 Hz	-70 dBc/Hz		
1 KHz	-90 dBc/Hz		
10 KHz	-105 dBc/Hz		
100 KHz	-110 dBc/Hz		
1 MHz	-125 dBc/Hz		
IF / RF Connector	N-Female / WR112		
Input Voltage	+18 to +36 VDC or +36 to +76 VDC		
Power Consumption	110W	220W	420W
Environment			
Operating Temperature	-40°C to +60°C		
Non-Operating	-40°C to +70°C		
Humidity	Up to 100% Condensing		
Shock & Vibration	Normal Transportation		
Altitude	10,000 Ft AMSL		
Cooling	Forced Air		
Dimensions (Inches)	8.13" x 5.50" x 5.21"		9.00" x 6.75" x 5.88"
Weight	8.0 lbs		12 lbs

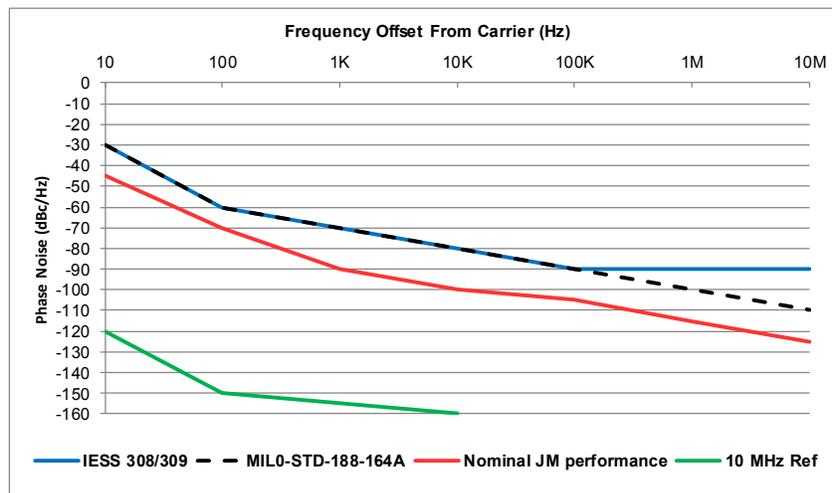
Note - Specifications may change without notice, please consult the factory for your specific needs.

Standard Mechanical Outlines



Note: Dimensions are in inches.

Phase Noise Characteristics (1.0 Hz Bandwidth)



DS-502-01