

KA-BAND TRI-BAND FREQUENCY BLOCK UP CONVERTERS MILITARY / COMMERCIAL

27.0 - 31.0 GHz



Jersey Microwave has taken their standard field proven line of single band L to Ka-Band high performance Frequency Block Converters and re-designed them to handle multiple bands within one outdoor enclosure.

Using high performance integrated Phase Locked oscillators and block converters the Jersey TBUC Series covers multiple Ka frequency bands and can accommodate custom specifications. The unit can switch from the Military (30-31 GHz) band to any commercial band within 27.0 to 30 GHz (≤2500 MHz BW). Up Converter units have superior phase noise (10-20 dB better than MIL-STD-188-164A) and are Phase Locked to 10 MHz, they have 20 dB gain, +15 dBm output (P1dB) and are AC powered (DC as an option) via the weatherized connectors. Higher output powers are available (up to 16 Watts P_{SAT}).

Jersey Microwave's "Wideband" solutions allows three independent L-Band inputs to convert and combine to one wideband Ka-Band output (<4500 MHz).

Features/Options

Low Phase Noise exceeds IES308/309 & MIL-STD-188-164A

Redundancy

Auto-switchover of 5/10 MHz external reference or manually selectable internal reference

Electronic Adjustment of Internal Reference

90-260 VAC or 24-32 VDC

Ethernet Capability

RS-422/RS-485

Higher Output Power

Gain Control

Custom Frequencies

Monitor Ports

Mute Control

Independent Contact Closure Summary Alarm

Slope Equalizer

Standard Frequency Bands

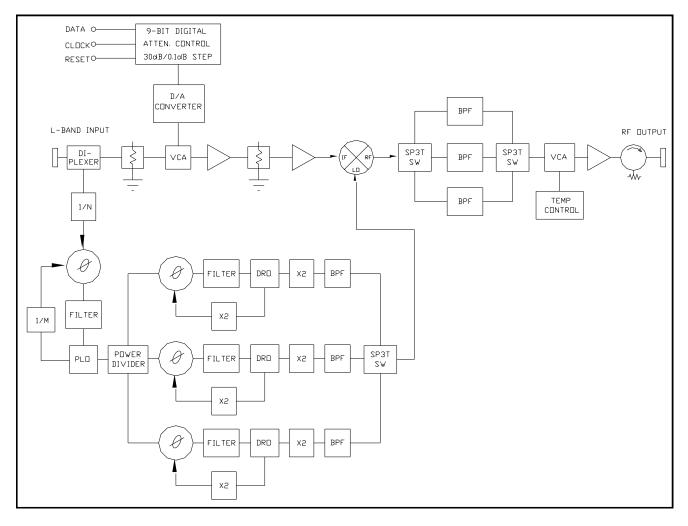
Tri-Band Model Numbers

Model Number	Input Frequency	Output Frequency	LO Frequency
TBUC-280310-2015-ODU	1000-2000 MHz	a) 28.00-29.00 GHz b) 29.00-30.00 GHz c) 30.00-31.00 GHz	27.00 GHz 28.00 GHz 29.00 GHz
TBUC-295310-2015-ODU	950-1450 MHz	a) 29.50 -30.00 GHz b) 30.00-30.50 GHz c) 30.50-31.00 GHz	28.55 GHz 29.05 GHz 29.55 GHz
TBUC-275300-2015-ODU	950-1850 MHz	a) 27.50-28.40 GHz b) 28.40-29.30 GHz c) 29.30-30.00 GHz	26.55 GHz 27.45 GHz 28.35 GHz

Note - Jersey Microwave can combine alternate Ka-Band segments from 27.0-31.0 GHz. If you do not see the combination you desire above, please contact us.

Custom bands and custom specifications can be provided.

Tri-Band Block Diagram





Gain @ minimum attenuation	Electrical Specification	Band #1 or Band #2 or Band #3			
Over RF Band	Gain @ minimum attenuation	20 dB ±2 dB			
Dever any 125 MHz Segment					
Over any 40 MHz Segment					
### ##################################					
Step Size (Digital 9-bit)		±0.35 dB / day max. at constant temperature ±1.25 dB over -20°C to +60°C			
Output Power Po (1dB) +15 dBm min. OIP3 (With two output carriers @ 0 dBm total output power) -40 dBc max. Output Spurious (In-Band): - Signal Dependent (Po = 0 dBm) - Signal Independent - LO Leakage @ RF -70 dBm max. - 70 dBm max. LIF + LO @ 0 dBm -60 dBc max. Output Noise Density -130 dBm/Hz max. Return Loss: - Input - Output 18 dB min. - 18 dB min. Reference Input Frequency 10 MHz Reference Input Frequency 0 dBm to ±10 dBm Frequency Stability Internal Reference option (after 72 hours of operation) ± 2 x 10° per day @ fixed temperature (45 x 10° over temperature - 40°C to + 70°C Frequency Stability (external reference) Same as reference Type / Frequency Sense Single Conversion / No Inversion Power Requirements Voltage Standard 90 - 260 VAC, Single Phase Frequency 47 - 63 Hz Power 40 Watts max. DC Voltage (Option) 20 - 48VDC Mechanical Configuration Weight 15 lbs. max. RF Connectors N Female Reference Connector SMA Female AC Power Connector PT07C12-3P (027)	Gain Control (at L-Band Input)	30 dB			
OIP3	Step Size (Digital 9-bit)	0.1 dB			
With two output carriers @ 0 dBm total output power) Cutput Spurious (In-Band):	Output Power Po (1dB)	+15 dBm min.			
- Signal Dependent (Po = 0 dBm) - Signal Independent - LO Leakage @ RF 2IF + LO @ 0 dBm -60 dBc max. Output Noise Density -130 dBm/Hz max. Return Loss: - Input - Output Reference Input Frequency - Input - OdBm to ±10 dBm - Reference Input Level - OdBm to ±10 dBm - Frequency Stability Internal Reference option (after 72 hours of operation) - Frequency Stability (external reference) - Same as reference - Type / Frequency Sense - Single Conversion / No Inversion Power Requirements Voltage Standard - Over Requirements - Voltage (Option) - Dever Adv Watts max DC Voltage (Option) - Mechanical Configuration - Weight - Reference Connector - Reference - Refer		-40 dBc max.			
Output Noise Density Return Loss: - Input - Output - Output - Output - Output Reference Input Frequency Reference Input Level Frequency Stability Internal Reference option (after 72 hours of operation) - Output Frequency - Same as reference Type / Frequency Stability (external reference) - Same as reference - Type / Frequency Sense - Single Conversion / No Inversion Power Requirements Voltage Standard - Output Type / Frequency - Frequency Sense - Single Conversion / No Inversion Power Requirements Voltage Standard - Output Type / Frequency - Frequ	- Signal Dependent (Po = 0 dBm) - Signal Independent	-70 dBm max.			
Return Loss: - Input - Output - Reference Input Frequency - Reference Input Level - O dBm to ±10 dBm - O dBm to ±10 dBm - O dBm to ±10 dBm - Frequency Stability Internal Reference option (after 72 hours of operation) - Erequency Stability (external reference) - Frequency Stability (external reference) - Same as reference - Type / Frequency Sense - Single Conversion / No Inversion - Power Requirements - Voltage Standard - Power Requirements - Voltage Standard - Power - 40 Watts max DC Voltage (Option) - 20 - 48VDC - Mechanical Configuration - Weight - 15 lbs. max RF Connectors - WR-28 Flat - IF Connectors - N Female - Reference Connector - SMA Female - AC Power Connector - PT07C12-3P (027) - M & C Control Connector - PT02E-12-10P (025)	2IF + LO @ 0 dBm	-60 dBc max.			
- Input - Output - Output - Output - Output - Output Reference Input Frequency Reference Input Level Reference Input Level O dBm to ±10 dBm Frequency Stability Internal Reference option (after 72 hours of operation) Frequency Stability (external reference) Frequency Stability (external reference) Same as reference Type / Frequency Sense Single Conversion / No Inversion Power Requirements Voltage Standard Power Frequency 47 - 63 Hz Power 40 Watts max. DC Voltage (Option) Mechanical Configuration Weight 15 lbs. max. RF Connectors WR-28 Flat IF Connectors N Female Reference Connector SMA Female AC Power Connector PT07C12-3P (027) M & C Control Connector PT02E-12-10P (025)	Output Noise Density	-130 dBm/Hz max.			
Reference Input Level 0 dBm to ±10 dBm Frequency Stability Internal Reference option (after 72 hours of operation) ±2 x 10 ⁻⁹ per day @ fixed temperature 40°C to + 70°C Frequency Stability (external reference) Same as reference Type / Frequency Sense Single Conversion / No Inversion Power Requirements Voltage Standard 90 - 260 VAC, Single Phase Frequency 47 - 63 Hz Power 40 Watts max. DC Voltage (Option) 20 - 48VDC Mechanical Configuration Weight 15 lbs. max. RF Connectors WR-28 Flat IF Connectors N Female Reference Connector SMA Female AC Power Connector PT07C12-3P (027) M & C Control Connector PT02E-12-10P (025)	- Input				
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(after 72 hours of operation)±5 x 10** over temperature -40°C to + 70°CFrequency Stability (external reference)Same as referenceType / Frequency SenseSingle Conversion / No InversionPower RequirementsVoltage Standard90 - 260 VAC, Single PhaseFrequency47 - 63 HzPower40 Watts max.DC Voltage (Option)20 - 48VDCMechanical ConfigurationMechanical ConfigurationWeight15 lbs. max.RF ConnectorsWR-28 FlatIF ConnectorsN FemaleReference ConnectorSMA FemaleAC Power ConnectorPT07C12-3P (027)M & C Control ConnectorPT02E-12-10P (025)	Reference Input Level				
Type / Frequency Sense Power Requirements Voltage Standard 90 - 260 VAC, Single Phase Frequency 47 - 63 Hz Power 40 Watts max. DC Voltage (Option) Mechanical Configuration Weight 15 lbs. max. RF Connectors WR-28 Flat IF Connectors N Female Reference Connector SMA Female AC Power Connector PT07C12-3P (027) M & C Control Connector PT02E-12-10P (025)		± 2 x 10 ⁻⁹ per day @ fixed temperature ±5 x 10 ⁻⁸ over temperature -40°C to + 70°C			
Power Requirements	Frequency Stability (external reference)	Same as reference			
Voltage Standard 90 - 260 VAC, Single Phase Frequency 47 - 63 Hz Power 40 Watts max. DC Voltage (Option) 20 - 48VDC Mechanical Configuration Weight 15 lbs. max. RF Connectors WR-28 Flat IF Connectors N Female Reference Connector SMA Female AC Power Connector PT07C12-3P (027) M & C Control Connector PT02E-12-10P (025)	Type / Frequency Sense	Single Conversion / No Inversion			
Frequency 47 - 63 Hz Power 40 Watts max. DC Voltage (Option) 20 - 48VDC Mechanical Configuration Weight 15 lbs. max. RF Connectors WR-28 Flat IF Connectors N Female Reference Connector SMA Female AC Power Connector PT07C12-3P (027) M & C Control Connector PT02E-12-10P (025)					
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Mechanical Configuration Weight 15 lbs. max. RF Connectors WR-28 Flat IF Connectors N Female Reference Connector SMA Female AC Power Connector PT07C12-3P (027) M & C Control Connector PT02E-12-10P (025)	Power	40 Watts max.			
Weight 15 lbs. max. RF Connectors WR-28 Flat IF Connectors N Female Reference Connector SMA Female AC Power Connector PT07C12-3P (027) M & C Control Connector PT02E-12-10P (025)	DC Voltage (Option)	20 - 48VDC			
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IF Connectors N Female Reference Connector SMA Female AC Power Connector PT07C12-3P (027) M & C Control Connector PT02E-12-10P (025)	Weight	15 lbs. max.			
Reference Connector SMA Female AC Power Connector PT07C12-3P (027) M & C Control Connector PT02E-12-10P (025)	RF Connectors	WR-28 Flat			
AC Power Connector PT07C12-3P (027) M & C Control Connector PT02E-12-10P (025)	IF Connectors	N Female			
M & C Control Connector PT02E-12-10P (025)	Reference Connector	SMA Female			
	AC Power Connector	PT07C12-3P (027)			
	M & C Control Connector	PT02E-12-10P (025)			
Ethernet (Option) RJ45 Female (RJF2SA1B)	Ethernet (Option)	RJ45 Female (RJF2SA1B)			
Environmental					
Operating Temperature -40°C to +70°C	Operating Temperature	-40°C to +70°C			
Non-Operating Temperature -40°C to +85°C	Non-Operating Temperature	-40°C to +85°C			
Operating Altitude Up to 10,000 feet	Operating Altitude	Up to 10,000 feet			
Non-Operating Altitude Up to 50,000 feet	Non-Operating Altitude	Up to 50,000 feet			
Humidity Up to 100% Condensation	Humidity	Up to 100% Condensation			
Vibration Normal Commercial Carrier Handling	Vibration	Normal Commercial Carrier Handling			

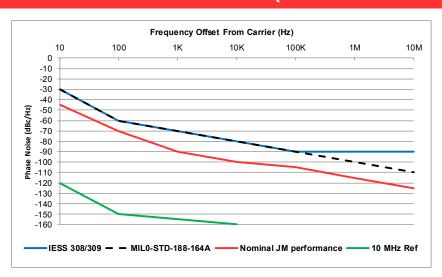
 $\label{lem:note_note} \textbf{Note - Specifications may change without notice, please consult the factory for your specific needs.}$



Standard Mechanical Outlines BREATHER ф 4X #10-32UNC-2B SOCKET CAPTIVE FASTENER --13.00-**((** ((**4** [H]

Note: Dimensions are in inches.

Phase Noise Characteristics (1.0 Hz Bandwidth)



DS-107-04

