



Dual-Band V-Band Block Upconverter for Satellite Earth Stations

MODEL: UC-47A251A4DU-1023



INTERFACE

L-BAND INPUT CHARACTERISTICS, 2 PORTS: †

Frequency	Band 1	1000 to 3100 MHz
	Band 2	1000 to 3100 MHz
Return Loss (50 Ohm)		14 dB Minimum
Input Power Damage Level		+5 dBm per input

V-BAND OUTPUT CHARACTERISTICS, 1 PORT: †

Frequency	Band 1	47.20 to 49.30 GHz
	Band 2	49.30 to 51.40 GHz
Return Loss (WR-22)		16 dB Minimum
Power at 1 dB Gain Comp.		+10 dBm Minimum
3 rd Order Intercept Point		+18 dBm Minimum

EXTERNAL REFERENCE INPUT:

Frequency	10 MHz
Power Level	0 to +10 dBm
Input SSB Phase Noise	-117 dBc/Hz @ 10 Hz, -140 dBc/Hz @ 100 Hz, -150 dBc/Hz @ 1 kHz, -160 dBc/Hz @ ≥ 10 kHz

REMOTE MONITOR AND CONTROL:

Format / Protocol	ITS Doc. ICD TBD and Internal Web Server
Interface	10/100 Base-T Ethernet

SUMMARY ALARM:

Interface	Type-C Contact Closure
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AC POWER SUPPLY INPUT:

Voltage	90 to 264 V _{AC}
Frequency	47 to 63 Hz
Power Consumption	100 W Maximum

CONNECTORS:

L-Band Input, 2 Ports	Type N Female, 50 Ohm
V-Band Output	WR-22 (UG-599/U) Grooved
External Reference	SMA Female
Monitor & Control	Optical Cable Corporation P/N: ECRK0102U00

Summary Alarm	Amphenol P/N: PT07E8-3P-027
AC Power Input	Binder USA P/N: 09-4223-00-04
Ground Lug	#10-32 UNF Set Screw with Nut

LED STATUS INDICATOR:

Powered and without Fault	GREEN
Powered and with Fault	RED

Specifications are Subject to Change without Notice

PERFORMANCE

TRANSFER CHARACTERISTICS:

Conversion Type	Single Conversion
Frequency Sense	No Inversion
Fixed Gain	+23 ± 3 dB
Gain Stability @ Constant Temperature	≤ ±0.5 dB over 24 hrs
Gain Stability over Temp.	≤ ±2 dB
Gain Flatness	≤ ±0.5 dB ptp over any 250 MHz ≤ ±0.25 dB ptp over any 20 MHz
Noise Figure	14 dB Maximum
Group Delay Variation (Design to meet)	≤ 5 ns ptp over any 160 MHz ≤ 1 ns ptp over any 20 MHz
Output Mute	60 dB Minimum ‡
Output Spurious, Signal Related & In-band @ up to 0 dBm Output	-40 dBc Maximum
Output Spurious, Signal Independent and LO Leakage	-50 dBm Maximum
Output SSB Phase Noise	-35 dBc/Hz @ 10 Hz, -65 dBc/Hz @ 100 Hz, -75 dBc/Hz @ 1 kHz, -85 dBc/Hz @ 10 kHz, -95 dBc/Hz @ 100 kHz, -105 dBc/Hz @ 1 MHz, -115 dBc/Hz @ ≥ 10 MHz

INTERNAL REFERENCE CHARACTERISTICS:

The converter automatically operates from its internal reference when the external reference is not present.

Frequency Stability	±5 × 10 ⁻⁸ over -30 to +50 °C ±5 × 10 ⁻⁹ / day @ constant temperature
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MECHANICAL

The converter is supplied in an outdoor enclosure to be installed in a temperature controlled antenna hub.

Dimensions	15.5" × 8.5" × 5.0" excluding connector and mounting tab protrusions
Weight	26 lbs Approx.
Air Leak Rate	< 10 cm ³ / min pressurized @ 1 psig through WG port
Finish	Electroless Nickel Plating per MIL-C-26074, Class 4

ENVIRONMENTAL

OPERATING:

Temperature	-30 to +50 °C
Humidity	30% to 95% Non-condensing
Altitude	Up to 10,000 Feet AMSL

NON-OPERATING:

Temperature	-40 to +65 °C
Altitude	Up to 50,000 Feet AMSL
Shock and Vibration	As encountered in normal commercial transportation

† All frequency bands are operational simultaneously.

‡ Individual mute controls per band.

Errors & Omissions Excepted

Response, Innovation, Craftsmanship

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