V-BAND UPCONVERTER

SPECIFICATION

RF Frequency (GHz)	IF Frequency (GHz)	Translation Frequency	Model Number
47.2 to 48.2 (RF_1)	1.45 to 2.45 (IF_1)	45.75 (LO1)	UPB4-W-49.3
48.2 to 49.2 (RF_2)	1.45 to 2.45 (IF_2)	46.75 (LO2)	
49.2 to 50.2 (RF_3)	1.45 to 2.45 (IF_3)	47.75 (LO3)	
50.4 to 51.4 (RF_4)	1.45 to 2.45 (IF_4)	48.95 (LO4)	

FUNCTIONAL	
Input Characteristics	
Return Loss (50 ohms)	18 dB minimum
Output Characteristics	
Return Loss	12 dB minimum
Power Output (P1dB)	9 dBm minimum
Signal Monitor	-20 dBc nominal
Transfer Characeristics	
Gain	33 dB, ±3 dB at 23°C
Gain Adjustment	30 dB minimum in 0.2 dB steps 25 dB on common RF ouptut 5 dB on each independant input channel
Gain Stability	±0.25 dB/day maximum at constant temperature, ±3 dB/ -20°C to +50°C
Amplitude Response	±0.5 dB/40 MHz maximum, ±1 dB/1 GHz band
Image Rejection	80 dB minimum
Noise Figure at Minimum Attenuation	18.5 dB maximum each band independently at 23°C
Group Delay	1.5 ns peak-to-peak maximum across any 500 MHz band
Intermodulation Distortion (Third-Order)	With two in-band signals at 0 dBm output, third order intermodulation products are less than 34 dBc minimum at minimum attenuation
Spurious Outputs	
Signal-Related (In-Band)	65 dBc minimum up to 0 dBm output
Signal-Independent	-70 dBm maximum including LO leakage
Phase Noise	See table below

MODEL	10	100	1K	10K	100K	300K	1M	10M
V-Band	-33	-63	-79	-84	-85	-87	-91	-109

Frequency Stability	±5 x 10^{-8}, -40°C to +60°C (higher stability options available), 5 x 10^{-9}/day typical (fixed temperature after 24 hours on time)
Automatic Reference Configuration	External 5 MHz or 10 MHz, +4 ±3 dBm. If external reference is below +1 dBm nominal, the converter will lock to the internal reference.
Remote Interface	10/100 Base-T Ethernet interface providing Web-browser based configuration, SNMP 1.0 configuration, alarm reporting via SNMP trap, telnet access, password protection and selectable RS-485/ RS-422. Refer to Narda-MITEQ Multi-Channel Technical Note for details.
Indicator and Alarms	
LO Out-of-Lock	RED LED (front panel), Amber LED (for logged alarms), Summary alarm indicates: LO out-of-lock or DC voltage alarm
Power ON Indicator	Green LED (front panel)
Summary Alarm	Contact closure status for DC voltage and local oscillators, external mute input

Note: All specifications at maximum gain and 23°C unless otherwise noted.

This Narda-MITEQ series of outdoor, antenna-mounted block upconverter is designed to cover simultaneously multiple wide bandwidth satellite transponders by accepting four independent IF inputs which are up converted into one wideband RF output.

A strong set of monitor and control functions support powerful remote control. A contact closure summary alarm is provided for fault monitoring. A continuously updated log of time-stamped records of activity is also provided.

AVAILABLE OPTIONS	
Missing option numbers are not applicable for this product.	
Option 1A - High-Performance Stability	
Gain Stability	±0.25 dB/day maximum at constant temperature, ±2 dB peak-to-peak maximum/-40°C to +60°C ±1 dB peak-to-peak maximum/20°C to 35°C
Option 1B - High Performance Spurious Outputs	
Spurious Outputs (In-Band)	
Signal-Related	65 dBc minimum up to 0 dBm output
Signal-Independent	-75 dBm maximum
Noise Spectral Density	-83.5 dBm/4 kHz maximum
AM/PM Conversion (at 0 dB outut)	0.265°/dB maximum
Option 1C	
High Performance Phase Noise (dBc/Hz maximum)	

	OFFSET (Hz)							
MODEL	10	100	1K	10K	100K	300K	1M	10M
V-Band	-35	-74	-94	-105	-108	-109	-123	-130

PRIMARY POWER REQUIREMENTS	
Voltage	100 VAC to 240 VAC (-10%, +6%)
Frequency	47 Hz to 63 Hz
Consumption	85 W typical
PHYSICAL	
Weight	45 lb. [5.46 kg] nominal, 50 lb. [6.07 kg] maximum
Front Panel Connectors	
L-Band	N female
External Reference Input	SMA female with termination
Status/Control Interface	MS3116F14-18S for summary alarm, RS-422/RS-485 and redundancy
Remote Interface	RJ-45 female for Ethernet, RS-422/RS-485 available on status connector
Primary Power Input	FCI clipper series CL1M1102
RF-Band	WR-22 standard
RF-Band Monitor	1.85 mm female-compatible
ENVIRONMENTAL	
Enclosure Rating	IP64
Operating	
Ambient Temperature	-40°C to +50°C
Atmospheric Pressure	Up to 10,000 feet
Non-Operating	
Ambient Temperature	-50°C to +70°C
Atmospheric Pressure	Up to 40,000 feet
Shock and Vibration	Normal handling by commercial carriers

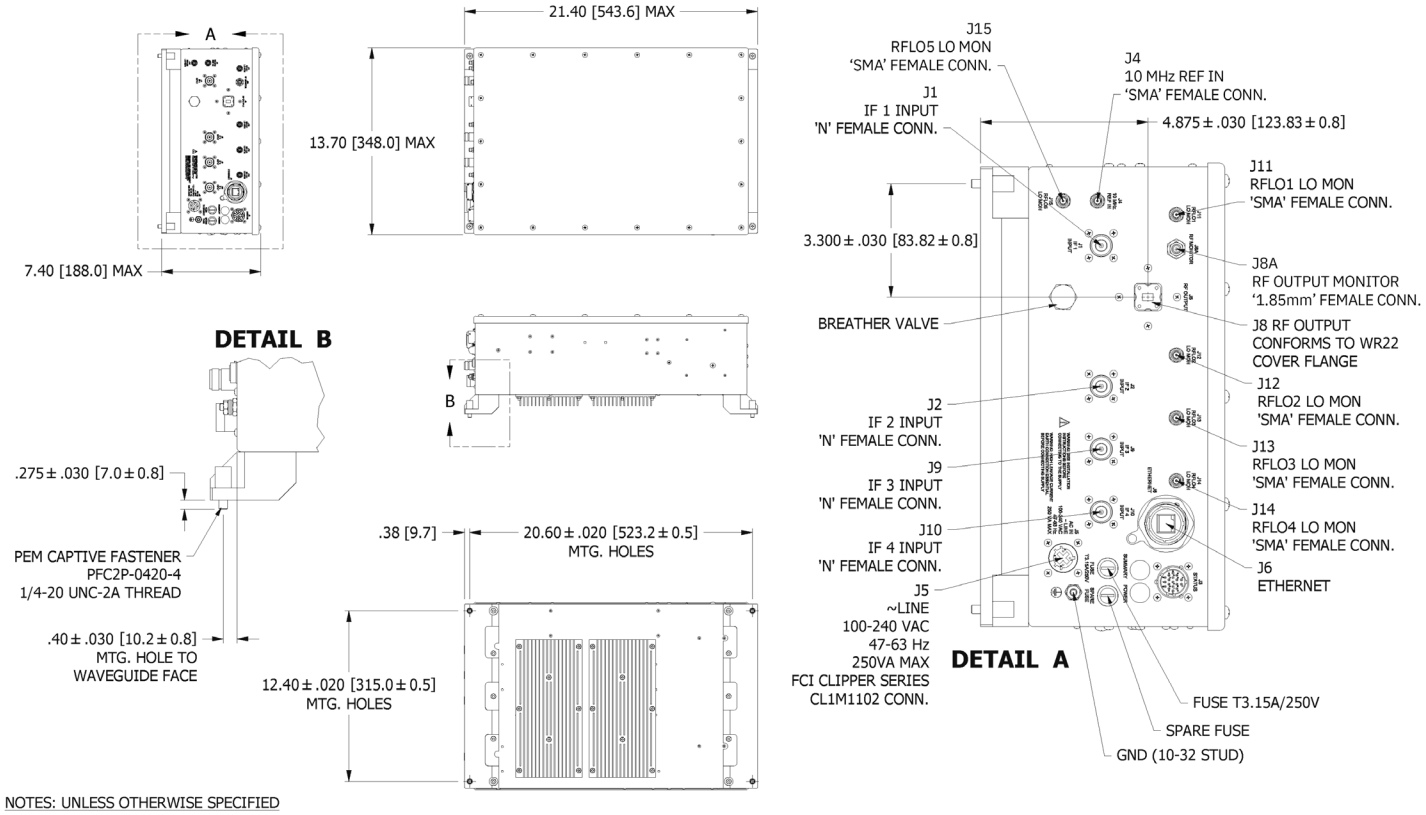
KEY FEATURES

- Weather resistant enclosure
- Automatic 5/10 MHz internal/ external reference selection
- 10/100 Base-T Ethernet and RS-485/RS-422 remote control
- Superior phase noise below IESS-308/309 specification
- 30 dB gain control
- 32 memory locations
- High-frequency stability
- Summary alarm
- Redundant AC power supply with power factor correction
- CE mark

OPTIONS

- Option 1A – High performance stability
- Option 1B – High performance spurious outputs
- Option 1C – High performance phase noise (dBc/Hz maximum)

OUTLINE DIAGRAM



NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS SHOWN IN BRACKETS [ ] ARE IN MILLIMETERS.

V-BAND FREQUENCY CONVERTER

V-Band Upconverters

Narda-MITEQ is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains.

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