MITEQ

UPCONVERTER	
Model Number	**Frequency (GHz)**
U-96-37991BHV	5.845–6.430 13.75–14.5

DOWNCONVERTER	
Model Number	**Frequency (GHz)**
D-96-37991BHV	3.4–4.2 10.7–12.75

HIGH-VALUE DUAL C- AND Ku-BAND COMMUNICATION CONVERTERS

125 kHz Step Size



FEATURES

- Local or remote control
- Output amplifier for increased dynamic range (upconverter)
- Low intermodulation distortion
- Low phase noise
- 32 programmable frequency and attenuation settings
- 30 dB level control
- IF signal monitor output
- Automatic 5 or 10 MHz external reference selection
- Low C-band second harmonic output (upconverter)

These frequency converters use an internal synthesizer to provide frequency tuning in 125 kHz step size. Level control is available via the front panel or the remote control interface.

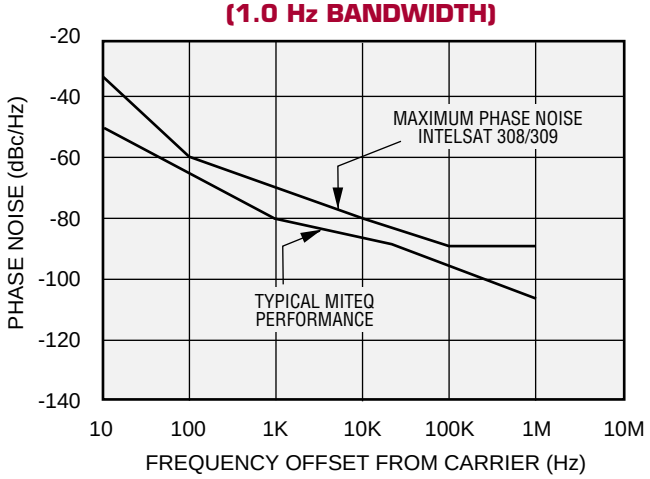
OPTIONS

- Higher stability reference
- Remote RS422, RS232, IEEE-488, or contact closure interface
- 140 MHz IF frequency
- Higher gain (downconverter)
- 50 ohm IF impedance

SPECIFICATIONS

Frequency sense	No inversion
IF characteristics	
Frequency	70 ±20 MHz (140 ±40 MHz available as an option)
Impedance	75 ohms (50 ohms optional)
Return loss	26 dB minimum
Signal monitor	-20 dBc nominal
RF characteristics	
Frequency	See table (cover)
Impedance	50 ohms
Return loss	20 dB minimum
Power output (1 dB compression)	+10 dBm minimum
Downconverter LO leakage	-80 dBm maximum at input port
Transfer characteristics	
Gain (minimum attenuation)	30 dB nominal (upconverter), 45 dB nominal (downconverter)
Image rejection	80 dB minimum
Level stability	±0.25 dB/day at constant temperature
Noise figure	18 dB typical, 25 dB maximum (upconverter), 12 dB typical, 15 dB maximum (downconverter)
Amplitude response	±0.25 dB/±20 MHz, ±0.20 dB/±18 MHz
Group delay (±18 MHz)	
Linear	0.03 ns/MHz maximum
Parabolic	0.01 ns/MHz^2 maximum
Ripple	1 ns peak-to-peak maximum
Intermodulation distortion (third order)	With two 0 dBm output signals, 40 dBc minimum
Spurious outputs	
Signal related	60 dBc minimum
Signal independent	-70 dBm maximum
Gain adjustment	30 dB in 0.2 dB steps
Frequency stability	±2 x 10^{-8}, 0 to +50°C (higher stability options available), ±5 x10^{-9}/day typical (fixed temperature after 24 hour on time)
Automatic reference configuration	External 5 or 10 MHz at +4 ±3 dBm. If external reference is below +1 dBm nominal, the converter will automatically lock to the internal reference.
Upconverter mute	60 dB minimum

TYPICAL PHASE NOISE CHARACTERISTICS (1.0 Hz BANDWIDTH)



OPTIONS

2. **A.** RF signal monitor (RF connector (SMA) with -20 dBc nominal level).

4. **A.** 140 MHz IF frequency.
Bandwidth: 80 MHz minimum
Flatness: 0.75 dB/76 MHz
Group delay (±36 MHz)
Linear: 0.025 ns/MHz
Parabolic: 0.0035 ns/MHz^2
Ripple: 1 ns peak-to-peak
IF return loss (140 ±40 MHz): 20 dB minimum
Gain slope: 0.04 dB/MHz maximum (10 MHz minimum)

10. Higher frequency stability reference.
A. ±1 x 10^{-8}, 0 to 50°C,
5 x 10^{-9}/day typical (fixed temperature after 24 hour on time).
B. ±5 x 10^{-9}, 0 to 50°C,
1 x 10^{-9}/day typical (fixed temperature after 24 hour on time).
C. ±2 x 10^{-9}, 0 to 50°C,
1 x 10^{-9}/day typical (fixed temperature after 24 hour on time).

15. 50 ohm IF impedance.

16. Higher gain option (downconverters only)
C. 55 dB nominal RF/IF gain.
Specification of signal independent spurious increases with increase in RF/IF gain (e.g., if without option, specification is -70 dBm maximum, an increase of 10 dB in gain will result in signal independent spurious of -60 dBm maximum).

17. Remote control.
A. RS422.
B. RS485 (supplied as standard).
C. RS232.
D. Contact closure selection of up to sixteen preprogrammed frequencies.
F. IEEE-488.

Notes: Missing option numbers are not applicable to this product.

For literature describing local control (front panel) and remote control (bus protocols), refer to MITEQ's Technical Note 25T009.

HIGH-VALUE DUAL C- AND Ku-BAND COMMUNICATION CONVERTERS

PRIMARY POWER REQUIREMENTS

Voltage	90–250 VAC
Frequency	47–63 Hz
Power consumption	120 W typical

SUMMARY ALARM

Contact closure/open for DC voltage
Contact closure/open for DC voltage and/or LO alarm

PHYSICAL

Weight	20 pounds nominal
Overall dimensions	19" x 1.75" x 22” maximum (chassis depth 20")
Rear panel connectors	
RF	SMA female
IF	BNC female
IF signal monitor	BNC female
External reference	BNC female
Remote interface	DEM-9S for RS485 and RS422, DB-25P for RS232, DB-25S for contact closure, IEEE-488 receptacle for GPIB
Summary alarm	DE-9P
Redundancy alarm	DE-9P
LO frequency/power monitor	SMA female

ENVIRONMENTAL

Operating	
Ambient temperature	0 to 50°C
Relative humidity	Up to 95% at 30°C
Atmospheric pressure	Up to 10,000 feet
Nonoperating	
Ambient temperature	-50 to +70°C
Relative humidity	Up to 95% at 40°C
Atmospheric pressure	Up to 40,000 feet
Shock and vibration	Normal handling by commercial carriers

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