

70 and 140 MHz IF to IF Frequency Converters



This line of frequency converters are designed to provide a means of IF to IF frequency conversion. The converters can be used for applications with incompatible IF frequencies. For example, if a 70 MHz modulator has to be interfaced with a 140 MHz IF frequency upconverter, these converters can be used to provide the required frequency. These converters can also be used to provide IF frequency agility to modulators that have fixed outputs. The converters are supplied as combined up/downconverters with shared local oscillators, or as individual upconverters or downconverters.

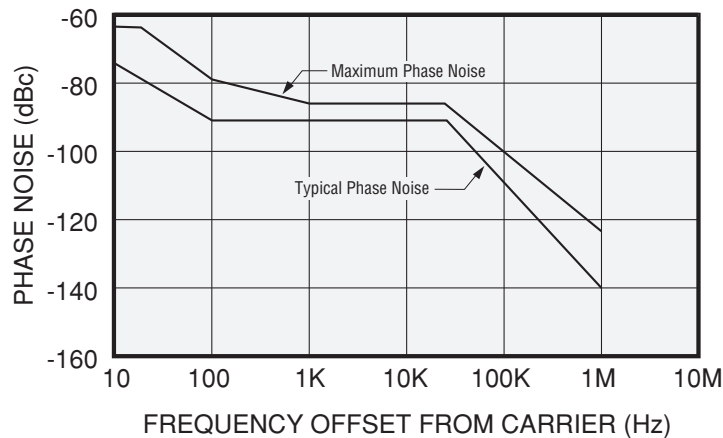
Input Frequency (MHz)	Output Frequency (MHz)	Bandwidth Frequency (MHz)	Model Number	Description
Fixed Tuned Converters				
70	140	40	U/D-70/140-40	Combined Up/ Downconverter
140	70	40		
70	140	40	U-70/140-40	Upconverter
140	70	40	D-140/70-40	Downconverter
70	140	54	U/D-70/140-54	Combined Up/ Downconverter
140	70	54		
70	140	54	U-70/140-54	Upconverter
140	70	54	D-140/70-54	Downconverter
Synthesized, 1 MHz Step Size Converters				
70	100–180	40	U/D-70/140-40-1M	Combined Up/ Downconverter
100–180	70	40		
70	100–180	40	U-70/140-40-1M	Upconverter
100–180	70	40	D-140/70-40-1M	Downconverter
70	100–180	54	U/D-70/140-54-1M	Combined Up/ Downconverter
100–180	70	54		
70	100–180	54	U-70/140-54-1M	Upconverter
100–180	70	54	D-140/70-54-1M	Downconverter
70	50–90	10*	U/D-70/70-10-1M	Combined Up/ Downconverter
50–90	70	10*		
70	50–90	10*	U-70/70-10-1M	Upconverter
50–90	70	10*	D-70/70-10-1M	Downconverter

*Note: The bandwidth specified is only applicable to the guaranteed specifications.
There are no bandwidth limitations within ± 20 MHz of center frequency.

Specifications	Upconverter
Input frequency	See table
Output frequency	See table
Bandwidth	See table
Gain	0 ±2 dB
Gain flatness	±0.25 dB, ±20 MHz (70/140 and 140/70 MHz converters), 0.3 dB, ±5 MHz (70/70 MHz converters)
Noise figure	20 dB maximum
Group delay	2.0 ns peak-to-peak, ±20 MHz (70/140 and 140/70 MHz converters), 1.2 ns peak-to-peak, ±5 MHz (70/70 MHz converters)
Spurious (inband, -20 dBm maximum input)	
Signal related	60 dBc minimum
Signal independent	-70 dBm maximum
Second harmonic (inband, 54 MHz bandwidth)	-50 dBc minimum at -20 dBm maximum input
Power output (1 dB compression)	0 dBm minimum
Return loss	20 dB minimum/75 ohms
Intermodulation distortion	Third order intermodulation products -60 dBc minimum with two carriers at -20 dBm output
Frequency stability	±2 Hz, 0 to 50°C, ±5 Hz/day typical (fixed temperature after 24 hour on time)
Gain stability	±0.25 dB maximum/24 hours at constant temperature
External reference input	5 MHz or 10 MHz, +4 ±3 dBm. Unit will automatically switch to the internal reference for external reference input levels below +1 dBm nominal.

Phase Noise Specifications

**TYPICAL PHASE NOISE CHARACTERISTICS
(1.0 Hz BANDWIDTH)**



70 to 140 MHz IF to IF Frequency Converters

Option

15. 50 ohm IF impedance.

$\pm 5 \times 10^{-9}$, -40 to +60°C,
1 x 10⁻⁹/day typical (fixed temperature after 24 hour on time).

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

General Specifications

Power Requirements

Voltage 90–250 VAC
Frequency 47–63 Hz
Power consumption 150 W typical

Summary Alarm

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

Physical

Weight 30 (13.6kg) pounds nominal
Overall dimensions 19" [482.6mm] x 3.5" [88.9mm] panel x 22" [558.8mm] maximum
(chassis depth 20" [508mm])
IF connectors BNC female
Summary alarm DE-9P
Redundancy alarm DE-9P
Test points LO frequency/power (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



100 Davids Drive, Hauppauge, NY 11788
TEL.: +1-631-436-7400 • FAX: +1-631-436-7431
www.miteq.com