

- Preselected mixers to eliminate signal identification
- State-of-the-art technology
- Easier automated measurements
- Low conversion loss
- Individually amplitude calibrated
- No bias or tuning adjustments
- High 100 mW safe input level



HP 11970, 11974 Series Mixers

HP 11974 Series Preselected Millimeter Mixers

Eliminate the need for signal identification at millimeter frequencies. The HP 11974 series mixers are preselected from 26.5 to 75 GHz for faster, easier testing of millimeter devices and systems. Preselection reduces mixer overload from broadband signals and reduces radiation of local oscillator harmonics back to the device-under-test. Equipment operators can quickly locate true signals, and software development for automated measurements is greatly simplified.

These mixers feature advanced barium-ferrite technology and come with a standalone power supply. They are particularly useful for broadband millimeter signal analysis, millimeter electromagnetic-interference (EMI) measurements, and unattended monitoring of millimeter signals.

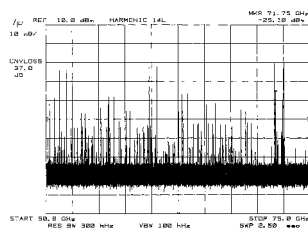
HP 11974 series preselected mixers are available in four bands

HP model	Frequency range (GHz)	Sensitivity ¹ (displayed avg. noise level/10 Hz) (dBm)	Calibration accuracy ¹ (dB)	Image rejection ¹ (dB)	1 dB Gain compression (dBm)
11974A	26.5 to 40	-111	< ±2.3	-54	+6
11974Q	33 to 50	-106	< ±2.3	-50	+0
11974U	40 to 60	-109	< ±2.6	-50	+0
11974V	50 to 75	-100	< ±4.5	-40	+3

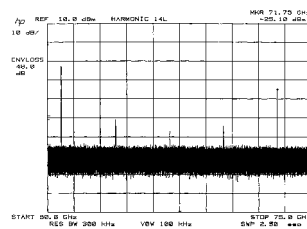
¹ Specifications apply when connected to the HP 8566B or 70000 series spectrum analyzers.

Compatibility

Upgrade kits are available to assure the compatibility of HP 8566A/B spectrum analyzers and the HP 70907A external mixer interface module. Consult your HP sales representative to determine requirements. All HP 8560 E-series spectrum analyzers and the HP 70907B external mixer interface modules are fully compatible with the HP 11974 series.



50 to 75 GHz Sweep Without Preselection



50 to 75 GHz Sweep Using HP 11974 Series Mixer

HP 11970 Series Harmonic Mixers

The HP 11970 series waveguide mixers are general-purpose harmonic mixers. They employ a dual-diode design to achieve flat-frequency response and low conversion loss. These are achieved without external dc bias or tuning stubs. Manual operation and computer-controlled hardware operation are simplified because mixer bias and tuning adjustments are not required.

HP 11970 series harmonic mixers are available in six bands

HP model	Frequency range (GHz)	LO harm number	Conversion loss (dB)	Noise level (dB) 1 kHz RBW	Freq. ¹ response (dB)	Gain compression (dBm)
11970K	18 to 26.5	6+	24	-105	± 1.9	-3
11970A	26.5 to 40	8+	26	-102	± 1.9	-5
11970Q	33 to 50	10+	28	-101	± 1.9	-7
11970U	40 to 60	10+	28	-101	± 1.9	-7
11970V	50 to 75	14+	40	-92	± 2.1	-3
11970W	75 to 110	18+	47	-85	± 3.0	-1

¹ Frequency response of the mixers is reduced by 1 dB for LO range of 14 to 18 dBm.

Compatibility

The HP 11970 series mixers extend the frequency range of the HP 8560 E-series portable spectrum analyzers, of the HP 8566B spectrum analyzer (used with the HP 11975A amplifier) and of the HP 70000 modular measurement system (used with the HP 70907A/B external mixer interface modules).

HP 11970 and 11974 Series Specifications

- IF Range:** dc to 1.3 GHz
- LO Amplitude Range:** +14 dB to +16 dB; +16 dB optimum
- Calibration Accuracy:** +2 dB for HP 11970 series with optimum LO amplitude
- Typical RF Input SWR:** < 2.2:1, < 3.0:1 for HP 11974 series
- Bias Requirements:** None
- Typical Odd-Order Harmonic Suppression:** > 20 dB (does not apply to HP 11974 series)
- Maximum CW RF Input Level:** +20 dBm (100 mW), +25 dBm for HP 11974 series
- Maximum Peak Pulse Power:** 24 dBm (250 mW) with < 1 μs pulse (avg. power = +20 dBm)
- Bandwidth:** 100 MHz minimum (HP 11974 series only)
- Environmental:** Meets MIL-T-28800, Type III, Class 3, Style C
- IF/LO Connectors:** SMA (female)
- TUNE IN Connector:** BNC
- LO Range:** 3 to 6.1 GHz

Key Literature

- HP 11970 Series Technical Data, p/n 5954-2714
- HP 11974 Series Technical Data, p/n 5952-2748

Ordering Information

- HP 11974A 26.5 to 40 GHz Preselected Mixer
- HP 11974Q 33 to 50 GHz Preselected Mixer
- HP 11974U 40 to 60 GHz Preselected Mixer
- HP 11974V 50 to 75 GHz Preselected Mixer
- Opt 003 Delete Power Supply (HP 11974 series only)
- HP 11970K 18 to 26.5 GHz Mixer
- HP 11970A 26.5 to 40 GHz Mixer
- HP 11970Q 33 to 50 GHz Mixer
- HP 11970U 40 to 60 GHz Mixer
- HP 11970V 50 to 75 GHz Mixer
- HP 11970W 75 to 110 GHz Mixer
- HP 11970
- Opt 009 Mixer Connection Set adds three 1-m low-loss SMA cables, wrench, Allen driver for any HP 11970 series mixer
- HP 11975A 2 to 8 GHz Amplifier
- HP 281A/B Coaxial to Waveguide Adapters
- R281A 26.5 to 40 GHz, 2.4 mm (f)
- R281B 26.5 to 40 GHz, 2.4 mm (m)
- Q281A 33 to 50 GHz, 2.4 mm (f)
- Q281B 33 to 50 GHz, 2.4 mm (m)