

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8662A

The Keysight Agilent HP 8662A is a high-performance synthesized RF signal generator designed for applications requiring exceptional spectral purity and low phase noise, such as radar, satellite communications, and phase noise metrology. Operating from 10 kHz to 1280 MHz, it delivers a resolution of 0.1 Hz, robust AM/FM capabilities, and versatile sweep modes, making it a legendary reference standard in laboratory environments.

SPECIFICATIONS

Frequency

Minimum Frequency	10 kHz Hz
Maximum Frequency	1280 MHz Hz
Frequency Resolution	0.1 Hz
Frequency Band Generation	10 kHz to 130 MHz (Heterodyne), 130 to 320 MHz (Divided), 320 to 640 MHz (Fundamental), 640 to 1280 MHz (Doubled)

Output

Maximum Output Power	+13 dBm dBm
Output Power Range	+13 to -139.9 dBm
Phase Noise	<-147 dBc/Hz @ 10 kHz offset

Modulation

Modulation	AM, FM
Sweep Modes	Digital step sweep, Phase-continuous sweep
Internal Modulation Output Level	1 Vrms $\pm$ 5% into 600 Ω
Internal Modulation Oscillator Distortion	< 0.15% (for 400 Hz and 1 kHz)
Residual FM (300 Hz - 3 kHz BW, 640 - 1280 MHz)	< 0.4 Hz rms

General

Reference Oscillator	Internal 10 MHz quartz oscillator
Interfaces	HP-IB (IEEE-488)
Display	LED
RFI Compliance	MIL-STD-461A (methods CE03 and RE02), FTZ 1115
Cooling Method	Forced air from rear panel fan

Physical

Power Supply	100 / 120 / 220 / 240 V AC ($\pm$ 10%), 48 to 66 Hz
Dimensions (W×H×D)	425 mm x 177 mm x 572 mm mm
Weight	30 kg kg

Frequency Specifications

Frequency Range	10 kHz to 1280 MHz
Internal Reference Frequency	10 MHz
Reference Oscillator Aging Rate	$<5 \times 10^{-10}$ per day
Reference Oscillator Temperature Stability	$<7 \times 10^{-9}$ from 0 to 55 °C
External Reference Input Frequency	5 or 10 MHz
External Reference Input Level	>0.15 Vrms into 50 ohms
Reference Output Frequency	10 MHz
Reference Output Level	>0 dBm into 50 ohms
Frequency Switching Time	<50 ms to within 100 Hz of final frequency

Spectral Purity

SSB Phase Noise (10 Hz offset)	<-97 dBc/Hz (at 640 MHz carrier)
SSB Phase Noise (10 kHz offset)	<-147 dBc/Hz
Harmonics	<-30 dBc
Non-harmonic Spurious	<-84 dBc
Residual AM	$<0.01\%$ rms (300 Hz to 3 kHz bandwidth, AM off)
Subharmonics	None (for <640 MHz), <-50 dBc (for 640 to 1280 MHz)

Output Power & Amplitude

Amplitude Range	+13 dBm to -139.9 dBm
Amplitude Resolution	0.1 dB
Absolute Level Accuracy	± 1.0 dB (+13 to -120 dBm)
Flatness	± 0.5 dB
Output Impedance	50 ohms
Output SWR	<1.5

Frequency Modulation (FM)

FM Maximum Deviation	Up to 200 kHz (carrier frequency dependent)
FM Distortion	$<1\%$ at 100 kHz deviation
FM Frequency Response (3 dB Bandwidth)	DC to 100 kHz (DC coupled), 20 Hz to 100 kHz (AC coupled)
FM External Sensitivity	1 Vpeak for selected deviation
FM Input Impedance	600 ohms

Amplitude Modulation (AM)

AM Depth Range	0% to 95%
AM Distortion	$<1\%$ at 30% depth, $<3\%$ at 90% depth
AM Frequency Response (3 dB Bandwidth)	DC to 40 kHz (DC coupled), 20 Hz to 40 kHz (AC coupled)
AM External Sensitivity	1 Vpeak for selected depth
AM Input Impedance	600 ohms

Internal Modulation Source

Internal Fixed Modulation Frequencies	400 Hz and 1 kHz
Internal Variable Oscillator Frequency Range	0.1 Hz to 99.9 kHz
Internal Oscillator Resolution	0.1 Hz (0.1 to 999.9 Hz), 1 Hz (1.000 to 9.999 kHz), 10 Hz (10.00 to 99.90 kHz)
Internal Oscillator Frequency Accuracy	Same as internal reference

Sweep Modes

Sweep Types	Digital step sweep, Phase-continuous sweep
Digital Step Sweep Parameters	Start frequency, stop frequency, step size, step time
Phase-Continuous Sweep Span	Up to 100 kHz (carrier frequency dependent)

Connectivity & Remote Control

Remote Control Interface	HP-IB (IEEE-488)
RF Output Connector	Type N female (front panel, rear panel optional)
External AM Input Connector	BNC female (front panel, rear panel optional)
External FM Input Connector	BNC female (front panel, rear panel optional)
External Reference Input Connector	BNC female (rear panel)
Reference Output Connector	BNC female (rear panel)

Physical & Power Specifications

Operating Voltage	100, 120, 220, 240 VAC (+5%, -10%)
Line Frequency	48 to 66 Hz
Power Consumption	300 VA maximum
Dimensions (H x W x D)	177 mm x 425 mm x 572 mm

Environmental & Compliance

Operating Temperature Range	0 °C to +55 °C
Storage Temperature Range	-55 °C to +75 °C

Options & Accessories

Option 001	Rear panel RF output and modulation inputs
Option 002	MATE capability

Phase

Phase Adjustment Range	±360°
Phase Adjustment Resolution	1°

Inputs & Outputs

Internal Modulation Output Connector	BNC female (front panel)
Sweep Output Connector	BNC female (rear panel)
Sweep Output Voltage Range	0 to 10 V

Phase Noise

SSB Phase Noise (100 Hz offset)	-115 dBc/Hz
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Performance

RF System Leakage	< 1.0 μ V induced in a 1-inch, 2-turn loop 1 inch from any surface with RF output terminated in 50 Ω
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Interfaces

GPIB Capabilities	SH1, AH1, T6, TE0, L4, LE0, SR1, RL1, PP0, DC1, DT0, C0, E1
HP-IB Address Selection	Rear panel DIP switches

Memory

Save/Recall Registers	9 registers
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Connectivity

Command Set	Device-specific HP-IB commands (pre-SCPI)
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Options

Option 908	Rack Flange Kit
Option 913	Rack Flange Kit for instruments with front handles

Environmental

Maximum Operating Altitude	4,600 m (15,000 ft)
Maximum Storage Altitude	15,200 m (50,000 ft)
Operating Humidity Range	Up to 95% RH (at +40 °C)

TECHNOLOGY

Synthesized RF Signal Generator

APPLICATIONS

Phase noise measurement, radar testing, satellite communications
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Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.