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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent / Keysight 8640B Signal generator, -0.5 to 512 MHz

HP Agilent Keysight 8640B AM FM Signal Generator 500 kHz to 512 MHz The HP/Agilent 8640B is a cavity-tuned AM/FM signal generator covering 500 kHz to 512 MHz (450 kHz to 550 MHz with band overrange), extendable to 1024 MHz with Option 002 internal doubler. OEM 8640A/8640B catalog specifications list plus 19 to minus 145 dBm leveled output, calibrated AM/FM/pulse, and a built-in 550 MHz counter with phase-lock synchronizer on the 8640B. HF VHF UHF receiver RF and IF tests, narrowband FM and crystal-controlled receiver work in phase-locked mode, and two-tone measurements with two 8640B units locked together. The HP/Agilent 8640B is a cavity-tuned AM/FM signal generator covering 500 kHz to 512 MHz (450 kHz to 550 MHz with band overrange), extendable to 1024 MHz with Option 002 internal doubler. OEM 8640A/8640B catalog specifications list plus 19 to minus 145 dBm leveled output, calibrated AM/FM/pulse, and a built-in 550 MHz counter with phase-lock synchronizer on the 8640B. HF VHF UHF receiver RF and IF tests, narrowband FM and crystal-controlled receiver work in phase-locked mode, and two-tone measurements with two 8640B units locked together.



MODEL

**Agilent / Keysight
8640B**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

8640B

LISTING

<https://aumictechlabs.com/products/8640b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Agilent/Keysight 8640B is a phase-locked signal generator delivering continuous RF coverage from 0.5 MHz to 512 MHz with optional extension to 1024 MHz. It combines exceptional spectral purity with flexible modulation, making it ideal for receiver testing, component characterization, and RF system development.

Technical Specifications

Frequency Performance
Frequency range: 0.5 MHz to 512 MHz (0.5 MHz to 1024 MHz with Option 002)
Frequency extension to 10 kHz available with HP 11710B Down Converter
Frequency resolution: 1.0 Hz
Frequency stability (after 2-hour warm-up, locked): <0.05 ppm/hr
Restabilization time after frequency change: 1 min to within 0.1 ppm
Output Power
Output power range: +19 dBm to -145 dBm (2 V to 0.013 μ V into 50 Ω)
Output level flatness: ± 0.5 dB across full frequency range
Output impedance: 50 Ω

Spectral Purity
Harmonic spurious signals: -100 dBc
520 MHz Non-harmonic spurious signals: -100 dBc
SSB phase noise: >130 dB/Hz at 20 kHz offset (230-450 MHz); >122 dB/Hz at 550 MHz; floor better than -140 dB/Hz

Modulation
Modulation types: AM, FM, Pulse
Modulation capability: Independent or simultaneous AM/FM
Internal audio oscillator (Option 001): 20 Hz to 600 kHz
AM rates: 20 Hz to 3 dB bandwidth (external AC); DC to 3 dB bandwidth (external DC)
FM deviation: Maximum 1% of lowest frequency in each nominal band

Key Features
Phase-locked design for frequency stability and precision control
Built-in counter and phase-lock synchronizer
Low SSB phase noise suitable for sensitive receiver development
Flat output response: ± 0.5 dB across operating range
1.0 Hz frequency resolution for fine-tuning applications

Typical Applications
Receiver sensitivity and selectivity testing
RF component characterization
Modulation performance evaluation
Phase noise measurements
Signal fidelity assessment in communication systems

Compatibility & Integration
Option 002 extends frequency coverage to 1024 MHz. Option 001 adds internal audio oscillator functionality. HP 11710B Down Converter accessory enables extension to 10 kHz.

Features & description

From manufacturer datasheet

Built-in 6 digit counter for output display and external count to 550 MHz

Internal pushbutton synchronizer locks RF to the crystal timebase Optional 20 Hz to 600 kHz variable audio oscillator Option 001 Optional 50 watt reverse power protection Option 003 Technical Specifications Instrument Type: Cavity tuned AM FM signal generator with phase lock counter Series Family: HP Agilent 8640A/8640B Frequency Range Nominal: 500 kHz to 512 MHz in 10 octave ranges Frequency Range Option 002: 512 MHz to 1024 MHz internal doubler Band Overrange: approximately 10 percent below and 7 percent above nominal bands (example 450 kHz to 550 MHz on the top fundamental band) Fine Tuning Unlocked: greater than 1000 ppm total range Fine Tuning Locked Mode: greater than plus or minus 20 ppm via internal timebase vernier Locked Stability After 2 Hour Warmup: less than 0.05 ppm per hour Unlocked Stability After 2 Hour Warmup: less than 10 ppm per 10 minutes Output Range 0.5 to 512 MHz: plus 19 dBm to minus 145 dBm into 50 ohm Output Range Option 002 512 to 1024 MHz: plus 13 dBm to minus 145 dBm class (reduced with Option 003 combinations per catalog table) Level Flatness 0.5 to 64 MHz: plus or minus 0.5 dB referred to 50 MHz on 1 V range top 10 dB of vernier Level Flatness 64 to 512 MHz: plus or minus 1.0 dB

8640B Characteristics / Specifications

PARAMETER	VALUE
Instrument Type	Cavity tuned AM FM signal generator with phase lock counter
Series Family	HP Agilent 8640A/8640B
Frequency Range Nominal	500 kHz to 512 MHz in 10 octave ranges
Frequency Range Option 0	512 MHz to 1024 MHz internal doubler
Band Overrange	approximately 10 percent below and 7 percent above nominal bands (example 450 kHz to 550 MHz on the top fundamental band)
Fine Tuning Unlocked	greater than 1000 ppm total range
Fine Tuning Locked Mode	greater than plus or minus 20 ppm via internal timebase vernier
Locked Stability After 2 Hour Warmup	less than 0.05 ppm per hour
Unlocked Stability After 2 Hour Warmup	less than 10 ppm per 10 minutes
Output Range 0.5 to 512 MHz	plus 19 dBm to minus 145 dBm into 50 ohm
Output Range Option 002 512 to 1024 MHz	plus 13 dBm to minus 145 dBm class (reduced with Option 003 combinations per catalog table)
Level Flatness 0.5 to 64 MHz	plus or minus 0.5 dB referred to 50 MHz on 1 V range top 10 dB of vernier
Level Flatness 64 to 512 MHz	plus or minus 1.0 dB
Harmonics 0.5 to 512 MHz	greater than 30 dB below fundamental at 1 V plus 10 dBm range and below
Harmonics 512 to 1024 MHz Option 0	greater than 12 dB below fundamental
SSB Phase Noise 20 kHz Offset 230 to 450 MHz	less than minus 130 dBc
SSB Phase Noise 20 kHz Offset at 550 MHz	minus 122 dBc class
Broadband Noise Floor	better than 140 dB/Hz on divided ranges
Residual AM 0.3 to 3 kHz	greater than 85 dBc averaged rms
Residual FM 0.5 to 512 MHz	less than 5 Hz rms 0.3 to 3 kHz post detection BW
Residual FM 512 to 1024 MHz	less than 10 Hz rms 0.3 to 3 kHz post detection BW
AM Depth 0.5 to 512 MHz	0 to 100 percent at plus 13 dBm and below

PARAMETER	VALUE
AM 3 dB Bandwidth 8 to 512 MHz 0 to 50 percent AM	60 kHz
Internal Modulation Tones	400 Hz and 1 kHz plus or minus 3 percent
FM Maximum Peak Deviation 256 to 512 MHz	2560 kHz
FM 3 dB Bandwidth	20 Hz to 250 kHz ac; dc to 250 kHz external dc (locked mode FM above 50 Hz only)
Pulse On Off Ratio 32 to 512 MHz	greater than 40 dB at max vernier; greater than 60 dB 512 to 1024 MHz
Counter External Input	1 Hz to 550 MHz, greater than or equal to 100 mV rms into 50 ohm
Internal Reference Aging	less than 0.05 ppm per hour; less than 2 ppm per 90 days after 2 h warmup at 25 C
External Reference Input	5 MHz, nominally greater than 0.5 V p-p into greater than 1 kohm
Operating Temperature	0 C to 55 C
Line Power	100 or 120 V 48 to 440 Hz or 220 or 240 V 48 to 66 Hz; 175 VA max (190 VA with Option 002)
Net Weight	20.8 kg (46 lb)
Dimensions HxWxD	140 mm x 425 mm x 476 mm
Output Impedance	50 ohm
Bandwidth	8 to 512 MHz 0 to 50 percent AM: 60 kHz

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	0 C to 55 C
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Line Power	100 or 120 V 48 to 440 Hz or 220 or 240 V 48 to 66 Hz; 175 VA max (190 VA with Option 002)
Net Weight	20.8 kg (46 lb)
Dimensions HxWxD	140 mm x 425 mm x 476 mm
Output Impedance	50 ohm Notes Numeric rows from HP 8640A/8640B catalog specification pages (Helmut Singer reprint of HP 8640A/8640B Signal Generators). 11710B down converter extends coverage toward 10 kHz. Option 004 avionics applies to 8640B only.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

specifications list plus 19 to minus 145 dBm leveled output, calibrated AM/FM/pulse, and a built-in 550 MHz counter with phase-lock synchronizer on the 8640B.

Applications

HF VHF UHF receiver RF and IF tests, narrowband FM and crystal-controlled receiver work in phase-locked mode, and two-tone measurements with two 8640B units locked together.

Key Features

Cavity oscillator spectral purity with phase lock that preserves unlocked FM capability

Built-in 6 digit counter for output display and external count to 550 MHz

Internal pushbutton synchronizer locks RF to the crystal timebase

Optional 20 Hz to 600 kHz variable audio oscillator Option 001

Optional 50 watt reverse power protection Option 003

Technical Specifications

Technical Specifications

PARAMETER	VALUE
Instrument Type	Cavity tuned AM FM signal generator with phase lock counter
Series Family	HP Agilent 8640A/8640B
Frequency Range Nominal	500 kHz to 512 MHz in 10 octave ranges
Frequency Range Option 002	512 MHz to 1024 MHz internal doubler
Band Overrange	approximately 10 percent below and 7 percent above nominal bands (example 450 kHz to 550 MHz on the top fundamental band)
Fine Tuning Unlocked	greater than 1000 ppm total range
Fine Tuning Locked Mode	greater than plus or minus 20 ppm via internal timebase vernier
Locked Stability After 2 Hour Warmup	less than 0.05 ppm per hour
Unlocked Stability After 2 Hour Warmup	less than 10 ppm per 10 minutes
Output Range 0.5 to 512 MHz	plus 19 dBm to minus 145 dBm into 50 ohm

Output Range Option 002 512 to 1024 MHz: plus 13 dBm to minus 145 dBm class (reduced with Option 003 combinations per catalog table)

Specifications

PARAMETER	VALUE
Level Flatness 0.5 to 64 MHz	plus or minus 0.5 dB referred to 50 MHz on 1 V range top 10 dB of vernier
Level Flatness 64 to 512 MHz	plus or minus 1.0 dB
Harmonics 0.5 to 512 MHz	greater than 30 dB below fundamental at 1 V plus 10 dBm range and below
Harmonics 512 to 1024 MHz Option 002	greater than 12 dB below fundamental

SSB Phase Noise 20 kHz Offset 230 to 450 MHz: less than minus 130 dBc
SSB Phase Noise 20 kHz Offset at 550 MHz: minus 122 dBc class

Specifications

PARAMETER	VALUE
Broadband Noise Floor	better than 140 dB/Hz on divided ranges
Residual AM 0.3 to 3 kHz	greater than 85 dBc averaged rms
Residual FM 0.5 to 512 MHz	less than 5 Hz rms 0.3 to 3 kHz post detection BW
Residual FM 512 to 1024 MHz	less than 10 Hz rms 0.3 to 3 kHz post detection BW
AM Depth 0.5 to 512 MHz	0 to 100 percent at plus 13 dBm and below

AM 3 dB Bandwidth 8 to 512 MHz 0 to 50 percent AM: 60 kHz
Internal Modulation Tones: 400 Hz and 1 kHz plus or minus 3 percent
FM Maximum Peak Deviation 256 to 512 MHz: 2560 kHz
FM 3 dB Bandwidth: 20 Hz to 250 kHz ac; dc to 250 kHz external dc (locked mode FM above 50 Hz only)
Pulse On Off Ratio 32 to 512 MHz: greater than 40 dB at max vernier; greater than 60 dB 512 to 1024 MHz

Specifications

PARAMETER	VALUE
Counter External Input	1 Hz to 550 MHz, greater than or equal to 100 mV rms into 50 ohm
Internal Reference Aging	less than 0.05 ppm per hour; less than 2 ppm per 90 days after 2 h warmup at 25 C
External Reference Input	5 MHz, nominally greater than 0.5 V p-p into greater than 1 kohm
Operating Temperature	0 C to 55 C
Line Power	100 or 120 V 48 to 440 Hz or 220 or 240 V 48 to 66 Hz; 175 VA max (190 VA with Option 002)
Net Weight	20.8 kg (46 lb)
Dimensions HxWxD	140 mm x 425 mm x 476 mm
Output Impedance	50 ohm

Notes
Numeric rows from HP 8640A/8640B catalog specification pages (Helmut Singer reprint of HP 8640A/8640B Signal Generators). 11710B down converter extends coverage toward 10 kHz. Option 004 avionics applies to 8640B only.

Ordering Information

OPTION	DESCRIPTION
Option 002	internal doubler. OEM 8640A/8640B catalog specifications list plus 19 to minus 145 dBm leveled output, calibrated AM/FM/pulse, and a built-in 550 MHz counter with
Option 001	Optional 50 watt reverse power protection Option 003
Option 004	avionics applies to 8640B only.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.