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Data Sheet

August 13, 2026

HP / AGILENT

HP / Agilent 83731A Synthesized Signal Generator, 1-20 GHz

HP 83731A Synthesized Signal Generator 1 to 20 GHz The HP 83731A is the 1 to 20 GHz synthesized signal generator in the 837xxA family (companion 83732A starts at 10 MHz). It combines fundamental oscillators and switched filters for harmonics less than -55 dBc, no subharmonics, and non-harmonic spurious less than -60 dBc, with pulse, log AM, and FM for radar/EW and communications receiver test. Frequency resolution is 1 kHz (1 Hz with Option 1E8). 1 to 20 GHz receiver and EW pulse testing; scan modulation (pulse + log AM); noise-figure LO with 8970B; mm-wave drive via 83550-series modules with suitable amplification. The HP 83731A is the 1 to 20 GHz synthesized signal generator in the 837xxA family (companion 83732A starts at 10 MHz). It combines fundamental oscillators and switched filters for harmonics less than -55 dBc, no subharmonics, and non-harmonic spurious less than -60 dBc, with pulse, log AM, and FM for radar/EW and communications receiver test. Frequency resolution is 1 kHz (1 Hz with Option 1E8). 1 to 20 GHz receiver and EW pulse testing; scan modulation (pulse + log AM); noise-figure LO with 8970B; mm-wave drive via 83550-series modules with suitable amplification.



MODEL

**HP / Agilent
83731A**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

83731A

LISTING

<https://aumictechlabs.com/products/83731a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The HP/Agilent 83731A is a synthesized signal generator delivering precise microwave signal generation across 1 GHz to 20 GHz. Built for aerospace, defense, and telecommunications testing, this instrument combines wide frequency coverage with fast switching, exceptional spectral purity, and flexible modulation modes to characterize complex RF and microwave components and systems.

Technical Specifications

Frequency Generation
Frequency range: 1 GHz to 20 GHz
Frequency resolution: 1 kHz standard; Option 1E8 provides 1 Hz resolution
Switching time: +14 dBm across 1–20 GHz With Option 1E1 (90 dB step attenuator): +13 dBm (0.01–1 GHz), +11 dBm (1–18 GHz), +10 dBm (18–20 GHz)
Level resolution: 0.01 dB
Level accuracy: ± 1.0 dB typical across frequency and power range
User level correction available for distant test port compensation

Spectral Performance
Harmonics: < -55 dBc
Subharmonics: Eliminated
Spurious signals: < -60 dBc
Phase noise: -103 dBc/Hz @ 10 kHz (500 MHz), -91 dBc/Hz @ 10 kHz (2 GHz), -73 dBc/Hz @ 10 kHz (18 GHz); floor 80 dB, rise/fall 3 MHz, delay -419 to $+419$ ms (free-run) or 225 ns–419 ms (triggered)
FM: Rates 1 kHz to >1 MHz; deviation 10 MHz pk (2–20 GHz), 5 MHz pk (1–2 GHz); modulation index >300
AM (logarithmic): Depth >60 dB, sensitivity -10 dB/V, step response <5 μ s for 50 dB step
Analog modulation standard
Broadband Noise Improved low broadband noise performance; suitable as local oscillator for HP 8970B noise figure meter.

Key Features
Internal multimode pulse generator with triggered, doublet, and gated burst support
Minimum pulse parameter resolution: 25 ns
FM and AM fully independent of pulse modulation
AM depth and bandwidth available at any pulse rate or width

Typical Applications
Aerospace and defense component characterization
Telecommunications system testing
Microwave component and subsystem validation
Noise figure measurement and LO applications

Compatibility & Integration
HP-IB programmability for all front panel functions
SCPI compliant; IEEE 488.2-1987 compatible
External reference input supported

Features & description

From manufacturer datasheet

Features

- 1 to 20 GHz synthesized signal generator (modulation equipped)
- Harmonics less than -55 dBc; subharmonics none; spurious less than -60 dBc
- Pulse on/off greater than 80 dB; rise/fall less than 10 ns; widths less than 25 ns
- Log AM greater than 60 dB depth; FM to 10 MHz peak deviation
- Option 1E1 step attenuator; 1E5 timebase; 1E8 1 Hz resolution

83731A Characteristics / Specifications

PARAMETER	VALUE
Model	83731A
Manufacturer	Hewlett Packard / Agilent
Instrument Type	Synthesized signal generator
Frequency Range	1 to 20 GHz
Frequency Resolution Standard	1 kHz
Frequency Resolution Option 1E	1 Hz
Max Leveled Power 1 to 18 GHz With Option 1E	+10 dBm
Max Leveled Power 18 to 20 GHz With Option 1E	+8 dBm
Typical Available Power Class	greater than +14 dBm
Power Display Resolution	0.01 dB
Power Accuracy All Levels	plus/minus 2.3 dB (10 to 50 MHz on family); plus/minus 2 dB (50 MHz to 20 GHz)
Flatness	plus/minus 0.5 dB
Harmonics	less than -55 dBc
Subharmonics	none
Nonharmonic Spurious Above 3 kHz	less than -60 dBc
SSB Phase Noise At 2 GHz 10 kHz Offset	-91 dBc/Hz
SSB Phase Noise At 18 GHz 10 kHz Offset	-73 dBc/Hz
SSB Phase Noise At 500 MHz 10 kHz Offset Family	-103 dBc/Hz
Pulse On Off Ratio	greater than 80 dB
Pulse Rise Fall	less than 10 ns
Minimum Pulse Width	less than 25 ns
Log AM Depth	greater than 60 dB
FM Peak Deviation	10 MHz

PARAMETER	VALUE
Remote Interface	HP-IB; SCPI
Related 10 MHz Start	83732A
Related CW Only Sibling	83711A
Alias	HP 83731A; Agilent 83731A

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	
Specifications	
PARAMETER	VALUE
Model	83731A
Manufacturer	Hewlett Packard / Agilent
Instrument Type	Synthesized signal generator
Frequency Range	1 to 20 GHz
Frequency Resolution Standard	1 kHz
Frequency Resolution Option 1E8	1 Hz
Max Levelled Power 1 to 18 GHz With Option 1E1: +10 dBm Max Levelled Power 18 to 20 GHz With Option 1E1: +8 dBm	
Specifications	
PARAMETER	VALUE
Typical Available Power Class	greater than +14 dBm
Power Display Resolution	0.01 dB
Power Accuracy All Levels	plus/minus 2.3 dB (10 to 50 MHz on family); plus/minus 2 dB (50 MHz to 20 GHz)
Flatness	plus/minus 0.5 dB
Harmonics	less than -55 dBc
Subharmonics	none
Nonharmonic Spurious Above 3 kHz	less than -60 dBc
SSB Phase Noise At 2 GHz 10 kHz Offset: -91 dBc/Hz SSB Phase Noise At 18 GHz 10 kHz Offset: -73 dBc/Hz SSB Phase Noise At 500 MHz 10 kHz Offset Family: -103 dBc/Hz	
Specifications	
PARAMETER	VALUE
Pulse On Off Ratio	greater than 80 dB
Pulse Rise Fall	less than 10 ns
Minimum Pulse Width	less than 25 ns
Log AM Depth	greater than 60 dB

PARAMETER	VALUE
FM Peak Deviation	10 MHz
Remote Interface	HP-IB; SCPI
Related 10 MHz Start	83732A
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Alias	HP 83731A; Agilent 83731A

Notes
Specs from HP 83731A/83732A catalog data sheet 5091-4318E summary. Do not mix later 83731B minimum leveled -4 dBm / Option 1E1 -110 dBm rows without confirmingAversusBhardware.

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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NIST-traceable calibration · SAM registered ·
30-day returns
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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.