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**Data Sheet**

August 13, 2026

HP / AGILENT

# HP / Agilent 83731B 20 GHz Synthesized Signal Generator

HP / Agilent 83731B Synthesized Signal Generator 1 GHz to 20 GHz The HP/Agilent 83731B is the 1 GHz to 20 GHz synthesized signal generator in the 8370B family. It provides the same pulse, linear AM, log AM, FM, and optional analog PM as the 83732B but starts at 1.0 GHz instead of 10 MHz. Resolution is 1 kHz (1 Hz Option 1E8). Minimum leveled power is -4 dBm, or -110 dBm with Option 1E1. 1 to 20 GHz receiver and component stimulus with modulation; radar/EW pulse; noise-figure source with 8970B; ATE replacing 8673-class generators. The HP/Agilent 83731B is the 1 GHz to 20 GHz synthesized signal generator in the 8370B family. It provides the same pulse, linear AM, log AM, FM, and optional analog PM as the 83732B but starts at 1.0 GHz instead of 10 MHz. Resolution is 1 kHz (1 Hz Option 1E8). Minimum leveled power is -4 dBm, or -110 dBm with Option 1E1. 1 to 20 GHz receiver and component stimulus with modulation; radar/EW pulse; noise-figure source with 8970B; ATE replacing 8673-class generators.



MODEL

**HP / Agilent  
83731B**

CALIBRATION

**Available on  
request**

CONDITION

**Used**

STATUS

**In stock**

RFQ / SKU

**83731B**

LISTING

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

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

## This unit

The HP/Agilent 83731B is a synthesized signal generator delivering precise signal generation from 1 GHz to 20 GHz, with optional extended coverage down to 0.01 GHz. Built for radar, electronic

warfare, and communication receiver testing, it combines high spectral purity, sophisticated modulation, and leveled output power control across its operating band. Technical Specifications

**Frequency & Output Power** Frequency range: 1.0 to 20 GHz (standard); 0.01 to 20 GHz (optional)  
Maximum leveled output power: +13 dBm (0.01–1 GHz), +11 dBm (1–18 GHz), +10 dBm (18–20 GHz)  
Minimum leveled output power: -4 dBm (standard); -110 dBm (with Option 1E1) Output level accuracy:  $\pm 1.3$  dB (10–50 MHz),  $\pm 1.0$  dB (50 MHz–20 GHz) Output level flatness:  $\pm 0.5$  dB (power  $\geq$  -90 dBm);  $\pm 0.7$  dB (power < -90 dBm) Level switching time: <17 ms (without attenuator range change) Output SWR: <2.0:1 (nominal) Spectral Purity Harmonics: < -55 dBc (at levels < +6 dBm) Spurious signals: < -60 dBc SSB phase noise floor: < -140 dBc/Hz Residual FM: < 15 Hz (1 GHz, 50 Hz–15 kHz bandwidth, Option 1E5) Pulse Modulation Rise/fall times: 3 MHz Pulse on/off ratio: > 80 dB Maximum leveled output power: -0.5 dB relative to CW Scan & Frequency Modulation Scan modulation depth: 60 dB log AM; 50 dB step response <5  $\mu$ s FM rates: 1 kHz to 1 MHz

**Key Features** Pulse modulation for radar and EW receiver simulation Scan modulation for antenna pattern testing Frequency modulation for communications data simulation Leveled output power across full frequency range Low phase noise performance with fast level switching

**Typical Applications** Radar receiver testing and characterization Electronic warfare receiver validation Communication system development and verification Research and manufacturing environments requiring precision signal generation

**Compatibility & Integration** The 83731B integrates with standard test equipment interfaces and supports extended power and low-noise options via configuration variants.

## Features & description

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From manufacturer datasheet

### Features

- 1.0 to 20 GHz span (use 83732B if 10 MHz start is required)
- Pulse on/off greater than 80 dB with 25 ns internal widths
- Linear AM 90 percent; log AM greater than 60 dB
- Optional Option 1E2 internal modulation generator and Option 800 analog PM
- SCPI plus 8673 command emulation
- Type-N precision RF, or 3.5 mm Option 1E9

## 83731B Characteristics / Specifications

| PARAMETER                                      | VALUE                                                           |
|------------------------------------------------|-----------------------------------------------------------------|
| Model                                          | 83731B                                                          |
| Manufacturer                                   | Hewlett Packard / Agilent / Keysight                            |
| Instrument Type                                | Synthesized signal generator                                    |
| Family                                         | 8370B                                                           |
| Alias                                          | HP 83731B; Agilent 83731B; Keysight 83731B                      |
| Frequency Range                                | 1.0 GHz to 20 GHz                                               |
| Frequency Resolution Standard                  | 1 kHz                                                           |
| Frequency Resolution Option 1E                 | 1 Hz                                                            |
| Standard Aging After 72 h                      | less than 1.0e-8 per day at 25 plus/minus 10 C                  |
| Frequency Switching Any Step                   | less than 50 ms to within 1 kHz                                 |
| Frequency Switching Under 1 GHz Step           | less than 35 ms to within 1 kHz (not across 10 GHz band switch) |
| Minimum Leveled Power                          | -4 dBm                                                          |
| Minimum Leveled Power Option 1E                | -110 dBm                                                        |
| Display Power Resolution                       | 0.01 dB                                                         |
| Max Leveled 1 to 18 GHz Standard               | +11 dBm                                                         |
| Max Leveled 1 to 18 GHz Option 1E              | +10 dBm                                                         |
| Max Leveled 18 to 20 GHz Standard              | +10 dBm                                                         |
| Max Leveled 18 to 20 GHz Option 1E             | +8 dBm                                                          |
| Power Accuracy 50 MHz to 20 GHz At Max Leveled | plus/minus 1.0 dB                                               |
| Flatness Power At Or Above minus 90 dBm        | plus/minus 0.5 dB                                               |
| Level Switching Time                           | less than 17 ms without attenuator range change                 |
| Output SWR Nominal                             | less than 2.0:1                                                 |
| Harmonics At Levels Below plus 6 dBm           | less than -55 dBc (83731B/83732B)                               |
| Nonharmonic Spurious At Or Above 3 kHz         | less than -60 dBc                                               |

| PARAMETER                                     | VALUE                                                              |
|-----------------------------------------------|--------------------------------------------------------------------|
| Subharmonics                                  | none                                                               |
| SSB Phase Noise 1 to 2 GHz at 10 kHz Offset   | -92 dBc/Hz                                                         |
| SSB Phase Noise 10 to 20 GHz at 10 kHz Offset | -76 dBc/Hz                                                         |
| Pulse On Off Ratio                            | greater than 80 dB                                                 |
| Internal Pulse Width                          | 25 ns to 419 ms                                                    |
| Internal Pulse PRI                            | 300 ns to 419 ms                                                   |
| Pulse Level Accuracy Relative To CW           | plus/minus 1.0 dB                                                  |
| Linear AM Maximum Depth                       | 90 percent                                                         |
| Linear AM Bandwidth 30 Percent                | DC to greater than 100 kHz                                         |
| Log AM Maximum Depth                          | greater than 60 dB                                                 |
| FM Max Deviation 2 to 20 GHz                  | 10 MHz peak                                                        |
| FM Rates                                      | 1 kHz to 1 MHz                                                     |
| Remote Interface                              | GPIO; SCPI IEEE 488.2; 8673 emulation                              |
| Mains                                         | 90 to 132 V 48 to 440 Hz; 198 to 264 V 48 to 66 Hz; 260 VA maximum |
| Size                                          | 133 mmHx 426 mmWx 498 mmDNet Weight: less than 16 kg (35 lb)       |
| Operating Temperature                         | 0 C to 55 C                                                        |
| Related 10 MHz Start                          | 83732B                                                             |
| Related CW Only                               | 83711B same span without modulation                                |
| Bandwidth                                     | 30 Percent: DC to greater than 100 kHz                             |

# General Specifications & Supplementary Characteristics

| PARAMETER             | VALUE                                                                                                                                                                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating temperature | 0 C to 55 C                                                                                                                                                                                                        |
| Operating Temperature | 0 C to 55 C                                                                                                                                                                                                        |
| Related 10 MHz Start  | 83732B                                                                                                                                                                                                             |
| Related CW Only       | 83711B same span without modulation Notes Specs from Agilent 83711B/83712B/83731B/83732B data sheet 5963-6615E. This file is the 1 GHz-start signal generator. Confirm Option 1E1/1E5/1E8/1E2/800/1E9 on the unit. |

# 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                                                             | 83731B                                                          |
| Manufacturer                                                      | Hewlett Packard / Agilent / Keysight                            |
| Instrument Type                                                   | Synthesized signal generator                                    |
| Family                                                            | 8370B                                                           |
| Alias                                                             | HP 83731B; Agilent 83731B; Keysight 83731B                      |
| Frequency Range                                                   | 1.0 GHz to 20 GHz                                               |
| Frequency Resolution Standard                                     | 1 kHz                                                           |
| Frequency Resolution Option 1E8                                   | 1 Hz                                                            |
| Option 1E5 Aging After 24 h: less than 1.5e-9 per day             |                                                                 |
| Specifications                                                    |                                                                 |
| PARAMETER                                                         | VALUE                                                           |
| Standard Aging After 72 h                                         | less than 1.0e-8 per day at 25 plus/minus 10 C                  |
| Frequency Switching Any Step                                      | less than 50 ms to within 1 kHz                                 |
| Frequency Switching Under 1 GHz Step                              | less than 35 ms to within 1 kHz (not across 10 GHz band switch) |
| Minimum Leveled Power                                             | -4 dBm                                                          |
| Minimum Leveled Power Option 1E1                                  | -110 dBm                                                        |
| Display Power Resolution                                          | 0.01 dB                                                         |
| Max Leveled 1 to 18 GHz Standard                                  | +11 dBm                                                         |
| Max Leveled 1 to 18 GHz Option 1E1: +10 dBm                       |                                                                 |
| Max Leveled 18 to 20 GHz Standard: +10 dBm                        |                                                                 |
| Max Leveled 18 to 20 GHz Option 1E1: +8 dBm                       |                                                                 |
| Power Accuracy 50 MHz to 20 GHz At Max Leveled: plus/minus 1.0 dB |                                                                 |
| Flatness Power At Or Above minus 90 dBm: plus/minus 0.5 dB        |                                                                 |
| Specifications                                                    |                                                                 |
| PARAMETER                                                         | VALUE                                                           |
| Level Switching Time                                              | less than 17 ms without attenuator range change                 |
| Output SWR Nominal                                                | less than 2.0:1                                                 |

| PARAMETER                              | VALUE                             |
|----------------------------------------|-----------------------------------|
| Harmonics At Levels Below plus 6 dBm   | less than -55 dBc (83731B/83732B) |
| Nonharmonic Spurious At Or Above 3 kHz | less than -60 dBc                 |
| Subharmonics                           | none                              |

SSB Phase Noise 1 to 2 GHz at 10 kHz Offset: -92 dBc/Hz  
SSB Phase Noise 10 to 20 GHz at 10 kHz Offset: -76 dBc/Hz

## Specifications

| PARAMETER                           | VALUE                                                              |
|-------------------------------------|--------------------------------------------------------------------|
| Pulse On Off Ratio                  | greater than 80 dB                                                 |
| Internal Pulse Width                | 25 ns to 419 ms                                                    |
| Internal Pulse PRI                  | 300 ns to 419 ms                                                   |
| Pulse Level Accuracy Relative To CW | plus/minus 1.0 dB                                                  |
| Linear AM Maximum Depth             | 90 percent                                                         |
| Linear AM Bandwidth 30 Percent      | DC to greater than 100 kHz                                         |
| Log AM Maximum Depth                | greater than 60 dB                                                 |
| FM Max Deviation 2 to 20 GHz        | 10 MHz peak                                                        |
| FM Rates                            | 1 kHz to 1 MHz                                                     |
| Remote Interface                    | GPIO; SCPI IEEE 488.2; 8673 emulation                              |
| Mains                               | 90 to 132 V 48 to 440 Hz; 198 to 264 V 48 to 66 Hz; 260 VA maximum |
| Size                                | 133 mmHx 426 mmWx 498 mmDNet Weight: less than 16 kg (35 lb)       |
| Operating Temperature               | 0 C to 55 C                                                        |
| Related 10 MHz Start                | 83732B                                                             |
| Related CW Only                     | 83711B same span without modulation                                |

### Notes

Specs from Agilent 83711B/83712B/83731B/83732B data sheet 5963-6615E. This file is the 1 GHz-start signal generator. Confirm Option 1E1/1E5/1E8/1E2/800/1E9 on the unit.



## Ordering Information

| OPTION     | DESCRIPTION |
|------------|-------------|
| Option 800 | analog PM   |

### Available from Aumictech

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

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

#### Aumictech

788 S 500 E, Pleasant Grove, UT 84062  
[sales@aumictech.com](mailto:sales@aumictech.com) · +1 (484) 841-9341  
<https://aumictechlabs.com>

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.