

FUNCTION GENERATORS & WAVEFORM SYNTHESIZERS

Two-Channel Synthesizer, DC to 13 MHz

HP 3325B, 3326A

495

Frequency sweep

Sweep time

Linear: 0.01 s to 1000s

Logarithmic: 1 s to 1000s single, 0.1 s to 1000s continuous

Discrete sweep

Number of segments: 100 maximum

Time/Segment: 0.01 s to 1000s, 0.01 s resolution

Maximum sweep width: Full frequency range of the main signal output for the waveform in use, except minimum log start frequency is 1 Hz.

Phase continuity: Sweep is phase continuous over the full frequency range of the main output.

Modulation source

Frequency range: Sine 0.1 Hz to 10 kHz, square 0.1 Hz to 2 kHz

Frequency accuracy: 0.1%, typical

Impedance: Drives 10 k Ω or greater load

Sinewave purity: -34 dBc or better, typical

Waveforms: Sine, square, arbitrary

Auxiliary inputs and outputs

Auxiliary frequency output: 21 MHz to 60.999 999 999 MHz, under range coverage to 19.000 000 001 MHz, frequency selection from front panel; 0 dBm; output impedance 50 Ω .

Sync output: Square wave with V (high) \geq 1.2 V, V (low) \geq 0.2 V into 50 Ω . Frequency range is the same as main signal for front panel sync and dc to 60 MHz for rear panel sync.

X-Axis drive: 0 to $>$ +10 V dc linear ramp proportional to sweep frequency, linearity, 10-90%, \pm 0.1% of final value

MATE/CIIL Compatibility

For MATE system applications, Option H05 provides internal CIIL compatibility.

Option 001 high stability frequency reference

Aging rate: $\pm 5 \times 10^{-8}$ /week (72 hr warm up); $\pm 1 \times 10^{-7}$ /month (after 15 days continuous operation).

Ambient stability: $\pm 5 \times 10^{-8}$ (0 $^{\circ}$ C to +55 $^{\circ}$ C)

Warm-up time: Reference will be within $\pm 1 \times 10^{-7}$ of final value 15 minutes after turn-on for an off time of less than 24 hours.

Option 002 high voltage output

Frequency range: 1 μ Hz to 1 MHz

Amplitude

Range: 4.00 mVpp to 40.00 Vpp (\geq 500 Ω , \leq 500 pF load)

Accuracy: \pm 2% of full output for each range at 2 kHz

Output impedance: $<$ 2 Ω at dc, $<$ 10 Ω at 1 MHz

dc offset range: 4 times the specified range of the standard instrument.

General

Operating environment

Temperature: 0 $^{\circ}$ C to 55 $^{\circ}$ C

Relative humidity: 95%, 0 $^{\circ}$ C to 40 $^{\circ}$ C

Altitude: \leq 15,000 ft

Power: 100, 120, 220, 240 V, +5%, -10%, 48 to 66 Hz; 90 VA, 120 VA with all options; 10 VA standby

Weight: 9 kg (20 lb) net; 14.5 kg (32 lb) shipping

Size: 132.6 mm H \times 425.5 mm W \times 497.8 mm D (5.25 in \times 16.75 in \times 19.63 in)

Ordering Information*

HP 3325B Frequency Synthesizer

Opt 001: High Stability Frequency Reference

Opt 002: High Voltage Output

Opt H05: Internal MATE Programming

Opt W30: Extended Repair Service. See page 671.

Price

\$4,800

+ \$805

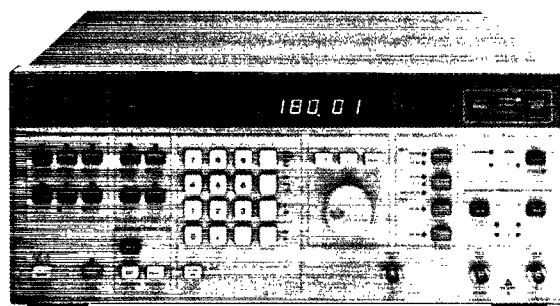
+ \$270

(call HP)

+ \$115

*HP-IB cable not supplied.

☎ For off-the-shelf shipment, call 800-452-4844.



HP 3326A



HP 3326A Two-Channel Synthesizer

The HP 3326A Two-Channel Synthesizer combines two independent synthesizers, flexible modulation, and control circuitry into a single, powerful package. This instrument provides precise phase offset, two-tone sweep, fast frequency switching, internal amplitude and phase modulation, and pulse signals for bench or systems use.

With multiple channels and modes, the HP 3326A does the job of several sources. An internal switch selected signal combiner sums both source outputs into a single ultra-low IMD signal source. Phase continuous sweeps are available in linear and multielement discrete modes. DC offset is available in all modes, and all outputs are floating. Frequency resolution is 11 digits, with flexible triggering for frequency, amplitude, and phase changes and sweeps.

Specifications Summary

For complete specifications, refer to the HP 3326A data sheet.

Frequency (waveforms are sine, square, pulse, and dc)

Range: 0 Hz to 13 MHz

Resolution: 1 μ Hz below 100 kHz, 1 mHz at and above 100kHz.

Stability: $\pm 5 \times 10^{-6}$ /year, 20 $^{\circ}$ C to 30 $^{\circ}$ C

Output amplitude (sine mode)

Range: 1 mVpp to 10 Vpp in 8 ranges without DC offset

Accuracy: Relative to programmed value after self-calibration

	0.001 Hz	100 KHz	1 MHz	13 MHz
+23.98 dBm	± 0.1 dB	± 0.3 dB	± 0.6 dB	± 0.6 dB
+3.98 dBm	± 0.2 dB	± 0.5 dB	± 0.8 dB	± 0.8 dB
-36.02 dBm	± 0.2 dB	± 0.5 dB	± 1.0 dB	
-56.02 dBm				

Phase offset (channel A vs B in two-phase mode)

Range/Resolution: ± 720 degrees range, 0.01 degree resolution

Accuracy: After self-calibration, for equal-level sinewaves 1 V to 10

0.1 Hz	10 Hz	100 kHz	1 MHz	13 MHz
± 0.5	± 0.2	± 0.3	± 2.0	

Frequency sweep

Sweep types: Linear, discrete (2 to 63 discrete elements)

Sweep time: 5 ms to 1000 s, linear or per element

Option 001 High Stability Frequency Reference

Stability: $\pm 5 \times 10^{-8}$ /week after 72 hours continuous operation.

$\pm 1 \times 10^{-7}$ /month after 15 days continuous operation.

Option 002 High Voltage Output

Frequency range: dc to 1 MHz

Amplitude range: 4 mV to 40 Vpp into $>$ 1k Ω , $<$ 200 pF load

dc offset: ± 20 V, independent of amplitude range. dc + ac peak must not exceed 20V

General

Power: 100, 120, 220, 240 V, +5%, -10%, 48 to 66 Hz; 290 VA max

Weight: Net, 2 kg (60 lb); shipping, 37 kg (81 lb)

Size: 177 mm H \times 425.5 mm W \times 497.8 mm D (7 in \times 16 $\frac{1}{4}$ in \times 19 $\frac{1}{2}$ in)

Ordering Information

HP 3326A Two-Channel Synthesizer

Opt 001 High Stability Frequency Reference

Opt 002 High Voltage Output

Opt 003 Rear Terminal Outputs (Rear only)

Opt W30 Extended Repair Service. See page 671.

Price

\$11,100

+ \$690

+ \$315

\$0

+ \$250