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Function Generator
Model 3312A

- Two Function Generators In One Instrument
- AM-FM, sweep, trigger, gate and burst

Test Equipment Depot
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Melrose, MA 02176-6024
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800-517-8431
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Description

Hewlett-Packard's 3312 A Function Generator combines two separate, independent function generators with a modulator section in one compact instrument.

The main generator can—via pushbutton control—be triggered by the modulation generator to provide sweep functions, AM, FM or tone burst.

Ten V p-p into 50Ω provides adequate power for most applications. The output attenuator has a range of more than 10,000:1 so clean low-level signals from 10 V to 1 mV p-p into 50Ω can be obtained. The main generator includes dc offset up to 10 volts p-p into 50Ω.

Hewlett-Packard's 3312A is an effective low cost solution for generating a multitude of functions.

Specifications

Output waveforms: sine, square, triangle, ± ramp, pulse, AM, FM, sweep, triggered and gated.

Frequency Characteristics

Range: 0.1 Hz to 13 MHz in 8 decades ranges.
Dial accuracy: ±5% of full scale.
Square wave rise or fall time (10% to 90%): <20 nsec.
Aberrations: <10%.
Triangle linearity error: <1% at 100 Hz.
Variable symmetry: 80:20:80 to 1 MHz.
Sine wave distortion: <0.5% (−46dB) THD from 10 Hz to 50 kHz. (10 kHz range maximum). >30 dB below fundamental from 50 kHz to 13 MHz.

Output Characteristics

Impedance: 50Ω ± 10%.
Level: 20 V p-p into open circuit, >10 V p-p into 50Ω at 1 kHz.
Level flatness (sine wave): <±3% from 10 Hz to 100 kHz at full rated output (1 kHz reference). <±10% from 100 kHz to 10 MHz.
Attenuator: 1:1, 10:1, 100:1, 1000:1 and >10:1 continuous control.
Attenuator error: <5%.
Sync output: impedance: 50Ω ±10%, >1 V p-p square wave into open circuit. Duty cycle varies with symmetry control.
DC offset: Variable up to ± 10 volts. Instantaneous ac voltage + Vdc offset cannot exceed ± 10 V (open circuit) or ± 5 V (terminated 50 ohm).

Modulation Characteristics

Types: internal AM, FM, sweep, trigger, gate or burst; external AM, FM, sweep, trigger, gate or burst.
Waveforms: sine, square, triangle, ramp or variable symmetry pulse.
Frequency range: 0.01 Hz to 10 kHz.
Output level: >1.0 V p-p into 10 kΩ.

Amplitude Modulation

Depth: 0 to 100%.
Modulation frequency: 0.01 Hz to 10 kHz (internal). DC to >1 MHz (external).
Carrier 3 dB bandwidth: <100 Hz to >5 MHz.
Carrier envelope distortion: <2% at 70% sine wave modulation with f_c = 1 MHz, f_m = 1 kHz.
External sensitivity: <10 V p-p for 100% modulation.

Frequency Modulation

Deviation: 0 to ±5% (internal).
Modulation frequency: internal: 0.01 Hz to 10 kHz; external: DC to >50 kHz.
Distortion: <−35 dB at f_c = 10 MHz, f_m = 1 kHz, 10% modulation.

Sweep Characteristics

Sweep width: >100:1 on any range.
Sweep rate: 0.01 Hz to 10 kHz, 90:10 ramp, and 0 Hz Range (provides manual setting of "Sweep Start" without modulation generator oscillating).
Sweep mode: repetitive linear sweep between start and stop frequency settings. Retrace time can be increased with symmetry control.
Ramp output: 0 to >−4 p-p into 5 kΩ.

Gate Characteristics:

Start/stop phase range: +90° to −80°.
Frequency range: 0.1 Hz to 1 MHz (useful to 10 MHz).
Gating signal frequency range (external): DC to 1 MHz, TTL compatible.

External Frequency Control

Range: 1000: 1 on any range.
Input requirement: with dial set at 10, 0 to −2 V ±20% will linearly decrease frequency >1000:1. An ac voltage will FM the frequency about a dial setting within the limits (0.1 < f < 10) x range setting.
Linearity: the frequency versus voltage curve will be linear within 0.5% over a 100:1 frequency range.
Input impedance: 2.8 kΩ ±5%.

General

Operating temperature: 0°C to +55°C; specifications apply from 0°C to 40°C.
Storage temperature: −40°C to +75°C.
Power: 100 V, 120 V, 220 V, 240 V +5%, −10%, switchable; 48 Hz to 440 Hz; ≤25 VA.
Size: 102 mm H x 213 mm W x 377 mm D (4" x 8.4 x 14.8").
Weight: net, 3.8 kg (8.4 lb). Shipping, 5.9 kg (13 lb).

3312A Function Generator **$975**

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