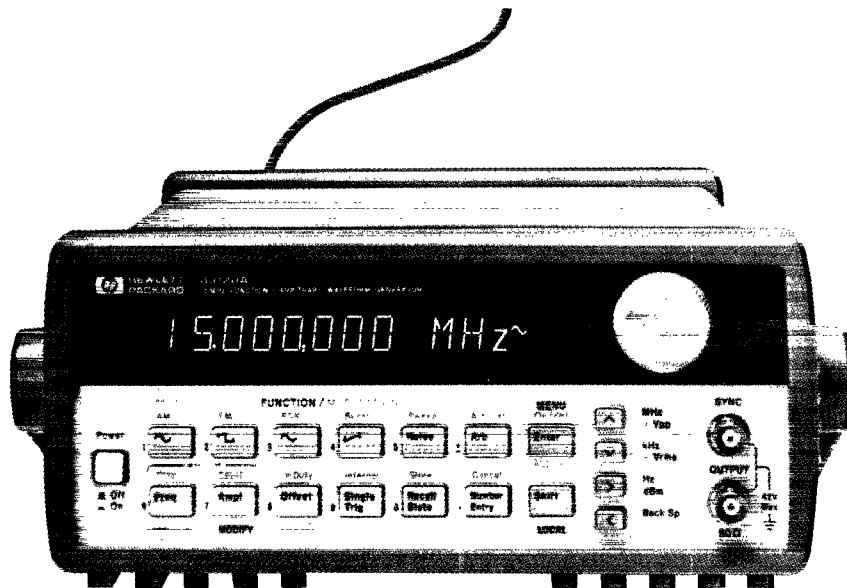


### Functionality Plus DDS Precision

The HP 33120A uses the latest Direct Digital Synthesis techniques to bring you a full-featured 15 MHz function generator that also has arbitrary waveform capability built in. The HP 33120A offers both linear and log sweep; internal AM, FM, FSK, and burst modulation; and a 12-bit, 40 MSA/s, 16k deep arb generator. Fully programmable, the HP 33120A includes both HP-IB and RS-232 interfaces standard. An optional software package, the HP 34811A BenchLink/Arb, facilitates creating, modifying, and downloading arbitrary waveforms to the HP 33120A.

### Synthesized Arbitrary Waveforms

The HP 8770A, in conjunction with the WGL Toolbox Software, is a complete system for generating complex arbitrary waveforms with synthesizer accuracy in both the time and frequency domains.



HP 33120A's functions and arbitrary waveforms are accurate and convenient to set up. Also, available software makes it easy to download modeled or captured waveforms.

### Synthesized Function Generator Specifications

	HP 3324A	HP 3325B
<b>Sinewave</b>		
Min. frequency	1 mHz	1 $\mu$ Hz
Max. frequency	21 MHz	21 MHz
<b>Freq. stability</b>	$10^{-7}$ /month	$4 \times 10^{-7}$ /month
<b>Freq. resolution</b>	1 mHz	1 $\mu$ Hz
<b>Waveforms</b>		
Square	1 mHz to 11 MHz	1 $\mu$ Hz to 11 MHz
Triangle	1 mHz to 11 kHz	1 $\mu$ Hz to 11 kHz
Ramp	1 mHz to 11 kHz	1 $\mu$ Hz to 11 kHz
Pulse		
<b>Modulation</b>		
AM		int/ext
FM		
PM		int/ext
PWM		
<b>Sweep</b>		
Lin.	int	int
Log.	int	int
Discrete	int	int
VCO		
<b>Level range (50 <math>\Omega</math>)</b>	10 V p-p	10 V p-p
<b>Level resolution</b>	4 digits	4 digits
<b>Level accuracy (<math>\pm</math> dB)</b>	0.9	0.1
<b>dc offset (50 <math>\Omega</math>)</b>	$\pm$ 5 V	$\pm$ 5 V
<b>Output impedance (<math>\Omega</math>)</b>	50	50
<b>Spurious</b>	-55 dBc	-70 dBc
<b>Phase noise</b>	-50 dBc	-60 dBc
<b>Notes</b>	60 MHz TTL clock, multi-interval and multi-marker sweep	Modulation source can be used separately
<b>Catalog page</b>	447	448

### Multifunction Synthesized Waveforms

The HP 8904A creates complex signals from six simple waveforms. The instrument offers standard functions, dc, and noise. Option 001 adds three modulation channels, and Option 002 adds a second independent synthesizer output. Modulation capabilities include AM, FM, PM, DSB, and pulse. These features address VOR, FM, communications signalling, and stereo applications.

### Analog Waveforms Plus Digital Signals

HP 8175A's Option 002 offers two arbitrary waveforms that can be generated simultaneously with the standard instrument's 24 digital channels. Analog and digital channels can be doubled by master-slaving.

### Functions with Synthesizer Stability

The HP 3324A and 3325B provide standard functions with synthesizer stability. In addition to the usual sweep modes, they also offer sequences so that, for example, acceleration profiles can be modeled. Any number of channels can be set up by master-slaving, and options for the HP 3324A allow multi-phase signals to be set up with 0.1 degree resolution automatically, deskewed at the device.