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.

Find Your Fit in the HP Family

Besides producing sine waves accurate in frequency and amplitude, function generators and waveform synthesizers are versatile signal sources that can produce some or all of the following waveforms: square, triangle, ramp and pulse. Tuning is continuous over wide bands, and many models can modulate these waveforms and sweep them across a range of frequencies. Some function generators and all waveform synthesizers use frequency synthesis techniques to generate their outputs. Applications for these general purpose signal sources are diverse. Examples include speed sensor characterization, communications receiver design and test, and earthquake testing.

Some waveform synthesizers can also produce arbitrary waveforms, programmable at the front panel or on a PC and downloaded. This capability allows creating signals that mimic noise, vibration, control pulses, whatever signal is needed for realistic tests. A typical use for arbitrary waveforms is to simulate specific ECG waveforms to verify that an electronic hospital patient monitor responds in the proper manner.

From complex signals to simple waveforms, there is an HP generator that is right for the job. See the table and the individual product pages for more detail.

HP 33120A

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, 16,000 point deep arb generator. Option 001 phase lock/timebase increases the HP 33120A frequency stability and allows multiple HP 33120A's to produce precise phase-offset signals. Fully programmable, the HP 33120A includes both GPIB and RS-232 interfaces standard. An optional software package, the HP 34811A BenchLink/Arb, facilitates creating, modifying, and downloading arbitrary waveform to the HP 33120A.

HP 3325B

The HP 3325B offers true synthesizer performance for demanding applications. Frequency range of the sinewave output is 1µHz to 20.999 MHz with resolution of 1µHz. A sync/Trigger output provides TTL-compatible signals with µHz resolution from DC to 60 MHz. Sinewave distortion is better than -65 dBc to 50 kHz.

The HP 3325B is also a high-performance function generator, providing a variety of waveforms with synthesizer accuracy and precision. Squarewaves are available to 10.999 MHz, with 20 ns rise and fall times. Triangles and positive and negative ramps are provided with 0.05% linearity up to 10.999 kHz. All waveforms can be DC and phase offset to match the requirements of the circuit under test.

The HP 3325B is fully programmable through GPIB and RS-232, making it a natural choice for automated test systems. Both interfaces and all inputs and outputs are floating (isolated from chassis ground) to minimize ground loops and offer maximum flexibility in configuring a solution to your measurement needs.

HP 8904A

The HP 8904A creates complex signals from six simple waveforms. The instrument offers standard functions, dc, and noise. Option 001 adds three more internal sources (total of four) which can be digitally summed together. Option 001 also adds AM, FM, PM, DSBSC, and pulse modulation using these three internal sources. In addition, Option 001 adds sequencing capabilities. These features address VOR, FM Stereo, and communications signaling applications. Option 002 adds a second independent synthesizer output. Option 005 allows multiple units to be phase synchronized to create complex waveforms with high timing accuracy.

Function and Arbitrary Waveform Generator Specifications

	HP 33120A	HP 3325B	HP 8904A
Sine wave			
Min. frequency	dc	1 µHz	dc
Max. frequency	15 MHz	21 MHz	600 kHz
Waveforms			
Square	100 µHz to 15 MHz	1 µHz to 11 Mhz	0.1 Hz to 50 kHz
Triangle	100 µHz to 100 kHz	1 µHz to 11 kHz	0.1 Hz to 50 kHz
Ramp	100 µHz to 100 kHz	1 µHz to 11 kHz	0.1 Hz to 50 kHz
Arbitrary	16,000 points	--	--
Modes			
Trigger	int./ext.		Creates signals from six
Gate	int./ext.		basic waveforms
Counted burst	1 to 50,000 or ∞		
Modulation			
AM	int./ext., and Arbitrary	int./ext.	int.
FM	int., including Arbitrary	--	int.
PM	--	int./ext.	int.
Sweep			
Lin.	int.	int.	int.
Log.	int.	int.	none
VCO	--	int.	int.
Output (into 50 Ω)			
Amplitude (p-p)	10 V	10 V	10 V
DC offset (±)	5 V	5 V	5 V
Output Impedance Ω	50	50	50
Programmability	GPIB and RS-232	GPIB	GPIB
Notes	12 bit, 40 MSa/s ARB, also has FSK, SCPI commands, 3-year warranty	Also has PWM. Modulation source can be used separately	4 internal channels; one is modulated or sequenced
Catalog page	155		153