

KEYSIGHT TECHNOLOGIES (AGILENT HP)

33622A

The Keysight 33622A is a 120 MHz, 2-channel Trueform arbitrary waveform generator (AWG). Leveraging Keysight's Trueform technology, it offers true point-by-point arbitrary waveform generation without the skipped points or aliasing typical of older DDS generators. It delivers a 1 GSa/s sample rate, 14-bit vertical resolution, and exceptionally low jitter (< 1 ps) for precise signal generation across a variety of test and measurement applications.

SPECIFICATIONS

General

Interfaces	USB 2.0 (Host and Device), LAN (LXI Core), GPIB (optional)
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Physical

Operating Temperature	0 to +55 °C
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Basic Characteristics

Number of Channels	2
Maximum Frequency	120 MHz
Sample Rate	1 GSa/s
Vertical Resolution	14 bits
Standard Waveforms	Sine, Square, Ramp, Pulse, Triangle, Gaussian Noise, PRBS, DC
Arbitrary Waveform Memory	4 MSa/channel (standard); 64 MSa/channel (optional)

Frequency Characteristics

Sine Frequency Range	1 µHz to 120 MHz
Square Frequency Range	1 µHz to 120 MHz
Pulse Frequency Range	1 µHz to 120 MHz
Frequency Resolution	1 µHz
Initial Frequency Accuracy	± (1 ppm + 15 pHz)

Amplitude and Output Characteristics

Output Impedance	50 Ω or High-Z
Amplitude Range (50 Ohms)	1 mVpp to 10 Vpp
Amplitude Range (High-Z)	1 mVpp to 20 Vpp
DC Offset Range (50 Ohms)	± 5 Vpk
DC Offset Range (High-Z)	± 10 Vpk
Isolation / Float Voltage	± 42 Vpk to earth ground
Output Protection	Overload automatically disables main output

Pulse and Square Characteristics

Edge Jitter (RMS)	< 1 ps
Rise/Fall Time	2.9 ns (minimum, variable)

Arbitrary Waveform Characteristics

Waveform Length	32 Sa to 4 MSa (64 MSa optional)
Sample Rate Range	1 μ Sa/s to 1 GSa/s

Modulation

Supported Modulation Types	AM, FM, PM, FSK, BPSK, PWM, Sum (carrier + modulation)
AM Modulation Depth	0.0% to 120.0%
PM Phase Deviation	0 to 360 degrees
FSK Hop Frequency Range	1 μ Hz to 120 MHz
Modulation Source	Internal, External, or Channel-to-Channel

Sweep

Sweep Direction	Up or Down
Sweep Time	1 ms to 3600 s

Burst

Burst Types	Counted, Gated
Burst Count	1 to 10^8 cycles, or Infinite
Start Phase	-360° to +360°

Software and Control

Command Set	SCPI-1999, IEEE-488.2
Supported Instrument Drivers	IVI-COM, IVI-C, LabVIEW

Environmental and Compliance

Warm-up Time	1 hour
Recommended Calibration Interval	1 year

Inputs & Outputs

External Modulation Input Impedance	5 k Ω
External Modulation Input Voltage	± 5 V full scale
External Reference Input Frequency	10 MHz
Trigger Output Impedance	50 Ω , nominal
Sync Output Impedance	50 Ω , nominal

Waveform Characteristics

PRBS Polynomials	PN7, PN9, PN11, PN15, PN21, PN23
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Environmental

Storage Temperature	-40 °C to +70 °C
Operating Altitude	Up to 3,000 meters

Arbitrary Waveform

Arbitrary Waveform Sequencing	Up to 512 steps
Optional Arbitrary Waveform Memory	64 MSa per channel (requires Option MEM)

TECHNOLOGY

Trueform (Point-by-Point Arbitrary Waveform Generation)

APPLICATIONS

Test and Measurement, General Electronics Test, Mixed-Signal Design Verification, Clock Generation

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