

TEKTRONIX

AFG320

The Tektronix AFG320 is a 2-channel Arbitrary Function Generator offering versatile waveform generation, sweeping, modulation, and burst capabilities. Supporting standard waveforms up to 16 MHz alongside user-definable arbitrary waveforms at 12-bit vertical resolution, it is designed for benchtop testing, circuit design, and educational lab applications.

SPECIFICATIONS

General

Interfaces	GPIO (IEEE-488.2), RS-232-C
Display	Backlit LCD, 40-character, 2-line
Warm-up Time	20 minutes
User Setup Storage	4 instrument configurations
Cooling	Convection

Physical

Power Supply	90 to 250 V AC, 48 to 63 Hz, 45 W max
Operating Temperature	0 to 50 °C
Dimensions (W×H×D)	310 x 99 x 395 mm
Weight	4.5 kg

Channel Characteristics

Number of Channels	2
Operating Modes	Continuous, Sweep, Burst, Modulation
Channel-to-Channel Phase Control	-360° to +360°
Channel-to-Channel Phase Resolution	1°
Channel-to-Channel Coupling	Independent, Track

Waveform Generation

Standard Waveforms	Sine, Square, Triangle, Ramp, Noise
Arbitrary Waveform Types	USR1 (Sin(x)/x), USR2 (Double Exponential Pulse), USR3 (Damped Sine Wave), USR4 (NRZ Random Signal), User-Defined
Sampling Rate	16 MS/s
Vertical Resolution	12 bits
Minimum Arbitrary Waveform Length	10 points
Maximum Arbitrary Waveform Length	16,384 points
Non-Volatile Memory Capacity	Four 16k-point waveforms

Frequency Specifications

Sine Frequency Range	10 mHz to 16 MHz
Square Frequency Range	10 mHz to 16 MHz
Ramp/Triangle Frequency Range	10 mHz to 100 kHz
Noise Bandwidth	1.6 MHz
Arbitrary Waveform Frequency Range	10 mHz to 1.6 MHz
Frequency Resolution	10 mHz or 4 digits
Frequency Accuracy	±50 ppm (±0.005%)

Sine Wave Distortion and Purity

Harmonic Distortion (< 20 kHz)	≤ -65 dBc
Harmonic Distortion (20 kHz to 100 kHz)	≤ -60 dBc
Harmonic Distortion (100 kHz to 1 MHz)	≤ -45 dBc
Harmonic Distortion (1 MHz to 16 MHz)	≤ -35 dBc
Spurious Noise (Non-Harmonic, < 1 MHz)	≤ -65 dBc
Spurious Noise (Non-Harmonic, 1 MHz to 16 MHz)	≤ -55 dBc

Pulse & Square Wave Characteristics

Rise/Fall Time	≤ 20 ns
Overshoot	≤ 5% (at maximum output)
Duty Cycle Range (≤ 100 kHz)	1% to 99%

Amplitude and Output Characteristics

Amplitude Range (into 50 Ω)	50 mVp-p to 10 Vp-p
Amplitude Range (into Open Circuit)	100 mVp-p to 20 Vp-p
Amplitude Accuracy (at 1 kHz, 5 Vp-p)	±(1% of setting + 5 mV)
Amplitude Resolution	3 digits (1 mV or 0.1 dB)
Amplitude Units	Vp-p, Vrms, dBm
DC Offset Range (into 50 Ω)	±5 V
DC Offset Range (into Open Circuit)	±10 V
Output Impedance	50 Ω
Main Output Connector Type	BNC

Modulation, Sweep, and Burst

Modulation Types	AM, FM, FSK, PSK
Internal Modulation Sources	Sine, Square, Triangle, Ramp, Noise
AM Modulation Depth	0% to 100%
FM Deviation Range	10 mHz to 8 MHz
FSK/PSK Keying Rates	10 mHz to 50 kHz
Sweep Type	Linear, Logarithmic
Sweep Time Range	1 ms to 100 s
Burst Count Range	1 to 60,000 cycles, or Infinite
Trigger Sources	Internal, External, Manual

Clock, Trigger, and Synchronization

Internal Timebase Reference Accuracy	±50 ppm
External Reference Input Frequency Range	10 MHz
External Reference Output Frequency	10 MHz
Trigger Input Voltage Level	TTL compatible
Trigger Input Minimum Pulse Width	100 ns
Sync Output Impedance	50 Ω

Connectivity and Programming

RS-232 Interface	9-pin D-sub, up to 19.2 kbps
Programming Command Language	SCPI-compatible
PC Software Support	ArbLink

Physical and Environmental

Storage Temperature Range	-20 °C to +60 °C
Operating Humidity Range	20% to 80% R.H. (non-condensing, up to +40 °C)
Power Consumption	60 W maximum

Amplitude

Amplitude Flatness (< 100 kHz)	±0.1 dB
Amplitude Flatness (100 kHz to 1 MHz)	±0.15 dB
Amplitude Flatness (1 MHz to 16 MHz)	±0.3 dB

Sine Wave Characteristics

Total Harmonic Distortion (THD)	≤ 0.2% (10 Hz to 20 kHz, 1 Vp-p)
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Square Wave Characteristics

Duty Cycle Range (100 kHz to 1 MHz)	40.0% to 60.0%
Duty Cycle Range (1 MHz to 16 MHz)	50.0% (fixed)

Environmental

Operating Altitude	Up to 3,000 m (10,000 ft)
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Auxiliary Inputs/Outputs

External Reference Input Impedance	1 k Ω (AC coupled)
External Reference Output Impedance	50 Ω (AC coupled)
External Modulation Input Impedance	10 k Ω
External Modulation Input Range	± 5 V full scale
External Modulation Bandwidth	DC to 10 kHz

Compliance

Safety Certifications	UL3111-1, CAN/CSA-C22.2 No. 1010.1, EN 61010-1
EMC Certifications	EN 55011 Class A, EN 50082-1, FCC Part 15 Subpart B Class A

Inputs & Outputs

Trigger Input Impedance	10 k Ω
Trigger Input Threshold	1.4 V (TTL level)
Output Terminal Grounding	BNC shields connected to chassis ground

Performance

User Waveform Storage	4 waveforms (up to 16,384 points each)
Sweep Spacing	Linear or Logarithmic

TECHNOLOGY

Arbitrary Waveform Generator

APPLICATIONS

Electronic Test and Measurement

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.