

TEKTRONIX

AFG3252

The Tektronix AFG3252 is a dual-channel 240 MHz Arbitrary/Function Generator from the AFG3000 Series, featuring a high 2 GS/s sample rate, 14-bit vertical resolution, and a stable ± 1 ppm/year internal time base. Built to deliver exceptional performance and versatile waveform generation, it features a 5.6-inch color display and integrates seamlessly with ArbExpress software for intuitive waveform editing and creation.

SPECIFICATIONS

General

Interfaces	USB Host (front panel), USB Device (rear panel), LAN (10Base-T/100Base-TX), GPIB
Display	5.6 in (142 mm) Color TFT LCD, 320 × 240 resolution

Physical

Power Supply	100 to 240 V AC, 50 to 60 Hz, or 115 V AC, 360 to 440 Hz; < 120 W consumption
Operating Temperature	0 to +50 °C °C
Dimensions (W×H×D)	329.6 mm × 156.3 mm × 168.0 mm mm
Weight	4.5 kg kg

Core Specifications

Number of Channels	2
Max Frequency (Sine)	240 MHz
Max Frequency (Square)	120 MHz
Max Frequency (Pulse)	120 MHz
Max Frequency (Ramp)	2.4 MHz
Sampling Rate	2.0 GS/s
Vertical Resolution	14 bits
Frequency Accuracy	± 1 ppm / year

Standard Waveform Characteristics

Waveform Types	Sine, Square, Pulse, Ramp, Noise, DC, Sinc, Exponential Rise, Exponential Decay, Gaussian, Lorentz, Haversine, Arbitrary
Sine Total Harmonic Distortion	< 0.2% (10 Hz to 20 kHz, 1 Vp-p)
Square/Pulse Rise/Fall Time	≤ 2.5 ns
Square/Pulse Overshoot	< 5%
Pulse Width Range	4.00 ns to 999.99 s
Ramp Linearity	$\leq 0.1\%$ (at 10% to 90% amplitude, 1 kHz)

Arbitrary Waveform Characteristics

Waveform Editing Software Support	ArbExpress
Modulation, Sweep, and Burst	
Modulation Types	AM, FM, PM, FSK, PWM, Sweep, Burst
Internal Modulation Source Frequency	2 mHz to 50.00 kHz
Sweep Type	Linear, Logarithmic
Sweep Time Range	1 ms to 300 s
Sweep Trigger Sources	Internal, External, Manual
Burst Count Range	1 to 1,000,000 cycles, or Infinite
Burst Types	Triggered, Gated
Inputs and Outputs	
Main Output Connectors	BNC (front panel)
Output Impedance	50 Ω
Amplitude Range (into 50 Ω , ≤ 200 MHz)	50 mVp-p to 5 Vp-p
Amplitude Range (into 50 Ω , > 200 MHz to 240 MHz)	50 mVp-p to 4 Vp-p
Amplitude Range (into Open Circuit, ≤ 200 MHz)	100 mVp-p to 10 Vp-p
Amplitude Range (into Open Circuit, > 200 MHz to 240 MHz)	100 mVp-p to 8 Vp-p
Amplitude Accuracy	$\pm(1\%$ of setting + 1 mV) at 1 kHz, 50 Ω , no DC offset
DC Offset Range (into 50 Ω , ≤ 200 MHz)	± 2.5 Vpk (limit: $ \text{Voffset} + \text{Vp-p}/2 \leq 2.5$ V)
DC Offset Accuracy	$\pm(1\%$ of setting + 5 mV + 0.5% of amplitude)
Trigger/Gate/Burst Input	TTL compatible, minimum pulse width 100 ns
Trigger Output	TTL compatible, impedance 50 Ω
System Connectivity and Control	
Programming Language	SCPI-compliant
Display and User Interface	
Menu Languages	English, French, German, Japanese, Korean, Simplified Chinese, Traditional Chinese, Russian
Environmental and Safety	
Storage Temperature Range	-30 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$
Operating Humidity Range	0 to 40 $^{\circ}\text{C}$: $\leq 80\%$ RH; 40 to 50 $^{\circ}\text{C}$: $\leq 60\%$ RH
Operating Altitude	Up to 3,000 m (10,000 feet)
Warm-up Time	20 minutes
Safety Certification Standards	UL 61010-1, CAN/CSA-C22.2 No. 61010-1, EN 61010-1, IEC 61010-1
EMC Compliance Standards	EN 61326-1, EN 61000-3-2, EN 61000-3-3

Frequency

Noise Bandwidth (-3 dB)	240 MHz
Maximum Frequency (Arbitrary)	120 MHz
Pulse Period Range	8.33 ns to 1000 s

Performance

Pulse Jitter (RMS)	<100 ps (typical)
Amplitude Resolution	0.1 mVp-p, 0.1 mVrms, 1 mV, 0.1 dBm or 4 digits
Phase Resolution	0.01°
DC Offset Range (into Open Circuit, ≤200 MHz)	±5 V
DC Offset Range (into 50 Ω, >200 MHz to 240 MHz)	±1 V
DC Offset Range (into Open Circuit, >200 MHz to 240 MHz)	±2 V

Inputs & Outputs

External Reference Input Impedance	1 kΩ (typical)
External Reference Input Frequency	10 MHz
Reference Output Impedance	50 Ω
Reference Output Amplitude	1.2 Vp-p into 50 Ω
External Add Input Impedance	50 Ω
External Trigger Input Level	TTL compatible
External Trigger Input Impedance	10 kΩ
Trigger Output Level	TTL compatible (into >1 kΩ)
Trigger Output Impedance	50 Ω

Modulation

AM Modulation Depth Range	0.0% to 120.0%
FSK Key Rate Range	2 mHz to 1 MHz
PWM Deviation Range	0.0% to 50.0% of pulse period
AM Modulation Source Frequency Range (Internal)	2 mHz to 50.00 kHz
PWM Frequency Range (Internal)	2 mHz to 50.00 kHz

Sweep & Trigger

Internal Trigger Rate Range	1.0 μs to 500.0 s
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Power

Maximum Power Consumption	120 W
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Waveform Characteristics

Noise Waveform Maximum Frequency	240 MHz
Sine Waveform Flatness (<5 MHz, 1 Vp-p)	±0.15 dB
Sine Waveform Flatness (5 MHz to 25 MHz, 1 Vp-p)	±0.3 dB
Sine Waveform Flatness (25 MHz to 100 MHz, 1 Vp-p)	±0.5 dB

Frequency Characteristics

Internal Reference Temperature Stability	±1 ppm (0 °C to 50 °C)
Internal Reference Aging Stability	±1 ppm per year

Main Outputs

Output Short-Circuit Protection	Continuous
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TECHNOLOGY

Arbitrary Function Generator

APPLICATIONS

Electronic Design and Test, Sensor Simulation, Functional Test, Education and Training

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