

TEKTRONIX

TDS524A

The Tektronix TDS524A is a 500 MHz, 2-channel digital storage oscilloscope designed for high-performance waveform acquisition and analysis. Featuring standard Option 1M (50,000 points record length) and an integrated 3.5-inch floppy disk drive, it offers powerful triggering options, high-resolution vertical modes up to 12 bits, and comprehensive automatic measurements.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2)
Display	7-inch NuColor liquid-crystal color shutter display

Physical

Power Supply	90 to 250 V AC RMS, 45 Hz to 440 Hz, <300 W
Operating Temperature	0 to +50 °C °C
Dimensions (W×H×D)	445 mm × 193 mm × 434 mm mm
Weight	14.1 kg kg

Vertical System

Analog Bandwidth	500 MHz
Number of Channels	2 plus 2 AUX channels
Vertical Resolution	8 bits (>12 bits with HiRes; >11 bits with averaging)
Input Impedance	1 MΩ in parallel with 10 pF, or 50 Ω
Input Coupling	AC, DC, GND
Input Sensitivity Range	1 mV/div to 10 V/div
DC Gain Accuracy	±1.5% (10 mV/div to 10 V/div); ±2.5% (1 mV/div to 9.9 mV/div)
Maximum Input Voltage (1 MΩ)	400 V (DC + peak AC) at 10 kHz or less
Maximum Input Voltage (50 Ω)	5 V RMS
Offset Range (1 mV/div to 99.5 mV/div)	±1 V
Offset Range (100 mV/div to 995 mV/div)	±10 V
Offset Range (1 V/div to 10 V/div)	±100 V
Position Range	±5 divisions
Hardware Bandwidth Limits	20 MHz, 100 MHz
Input Capacitance	10 pF ±3 pF
Channel-to-Channel Deskew Range	±25 ns

Horizontal System

Maximum Real-Time Sampling Rate	500 MS/s
Maximum Record Length	50,000 points per channel
Time Base Range	500 ps/div to 10 s/div
Time Base Accuracy	±25 ppm

Trigger System

Trigger Sources	CH 1, CH 2, AUX 1, AUX 2, Line
Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, HF Reject, LF Reject, Noise Reject
Trigger Holdoff Range	250 ns to 12 s
Edge Triggering	Rising or falling slope on any channel or auxiliary input
Pulse Width Triggering	Trigger on positive or negative pulses from 2 ns to 1 s
Runt Triggering	Trigger on a pulse that crosses one threshold but fails to cross a second before crossing the first again
Setup/Hold Triggering	Trigger on violations of setup or hold times

Acquisition System

Acquisition Modes	Sample, Envelope, Average, High Resolution (HiRes)
High Resolution Mode (HiRes)	Improves vertical resolution on low-frequency signals (e.g., 12 bits at 50 µs/div and slower)

Waveform Measurements and Analysis

Automatic Measurements	Period, Frequency, Rise Time, Fall Time, +Width, -Width, +Duty Cycle, -Duty Cycle, +Overshoot, -Overshoot, Peak-to-Peak, Amplitude, High, Low, Max, Min, Mean, Cycle Mean, RMS, Cycle RMS, Area, Cycle Area, Delay, Phase
Basic Math Functions	Add, subtract, multiply
Fast Fourier Transform (FFT)	Spectral magnitude with Hanning, Hamming, Blackman-Harris, Rectangular, Kaiser-Bessel windows (with Option 2F)

Display and User Interface

Color Grading / Intensity Modulation	Variable persistence monochrome display
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Processor and Storage

Removable Storage Options	3.5-inch 1.44 MB floppy disk drive
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Environmental Specifications

Storage Temperature Range	-22 to +60 °C
Operating Humidity Range	Up to 95% RH at or below +30 °C; up to 45% RH up to +50 °C
Operating Altitude	Up to 4,572 m (15,000 ft)
Non-Operating Altitude	Up to 12,190 m (40,000 ft)

Physical Characteristics

Form Factor	Benchtop
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Auxiliary Ports

Probe Compensator Output Amplitude	0.5 V (into $\geq 1\text{ M}\Omega$)
Probe Compensator Output Frequency	1 kHz

Storage & File System

Internal Setup Storage Capacity	10 setups
Internal Reference Waveform Storage	4 waveforms
Floppy Disk Drive Format	3.5 in, 1.44 MB or 720 KB

General Specs

Warm-up Time	20 minutes
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Inputs & Outputs

External Video Output	15-pin D-sub (VGA) connector
Probe Interface	TekProbe BNC (with power and encoding pins)
Trigger Output	TTL compatible, 50 Ω output impedance

Accessories

Standard Probes Included	2 $\times$ P6139A (10 $\times$ passive, 500 MHz)
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Compliance & Safety

Safety Certifications	UL 1244, CSA C22.2 No. 231, EN 61010-1
EMC Compliance	FCC Part 15 Class A, EN 55011 Class A

Environmental

Vibration (Operating)	0.31 g RMS, 5 Hz to 500 Hz
Vibration (Non-Operating)	2.46 g RMS, 5 Hz to 500 Hz
Shock (Non-Operating)	50 g (half-sine, 11 ms duration)

TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Electronic design, debug, and test

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