

TEKTRONIX

TDS224

The Tektronix TDS224 is a legacy 100 MHz, 4-channel digital storage oscilloscope featuring a real-time sample rate of 1 GS/s on all channels, dual timebase capabilities, and a lightweight, compact form factor.

SPECIFICATIONS

General

Interfaces	Optional RS-232, GPIB, and Centronics Parallel via TDS2CM or TDS2MM extension modules
Display	Backlit monochrome LCD, 320 × 240 pixels with contrast control
Warm-up Time	20 minutes

Physical

Power Supply	90 to 250 VAC, 45 to 440 Hz
Operating Temperature	0 to +50 °C °C
Dimensions (W×H×D)	304.8 mm × 151.4 mm × 120.7 mm mm

Vertical System

Analog Bandwidth (-3 dB)	100 MHz
Calculated Rise Time (10% to 90%)	3.5 ns
Number of Input Channels	4
Input Impedance	1 MΩ 20 pF
Input Coupling	AC, DC, GND
Input Sensitivity Range	2 mV/div to 5 V/div
Vertical Resolution (ADC)	8 bits
DC Gain Accuracy	±3%
Maximum Input Voltage	300 V RMS CAT II
Hardware Bandwidth Limits	20 MHz
Channel-to-Channel Isolation	≥ 100:1 at 50 MHz
Vertical Position Range	±10 div
Probe Attenuation Factor Settings	1x, 10x, 100x, 1000x
Waveform Inversion	CH1, CH2, CH3, and CH4
Input Capacitance	20 pF ± 3 pF
AC Coupling Low Frequency Limit	≤10 Hz at BNC (≤1 Hz with 10X passive probe)

Horizontal System

Maximum Real-Time Sampling Rate	1.0 GS/s (on all channels)
Maximum Record Length (Points per Channel)	2.5k points
Time Base Range	5 ns/div to 5 s/div
Time Base Accuracy	±100 ppm
Dual Timebase	Yes
X-Y Phase Difference	±3° at 100 kHz
Delta Time Measurement Accuracy	±(1 Sample Interval + 100 ppm × reading + 0.6 ns)

Trigger System

Trigger Sources	CH1, CH2, CH3, CH4, AC Line
Trigger Modes	Auto, Normal, Single Sweep
Trigger Coupling	AC, DC, Noise Reject, HF Reject, LF Reject
Edge Triggering	Rising or falling slope
Video Triggering	NTSC, PAL, SECAM; Field 1, Field 2, Any Line
Edge Trigger Sensitivity (DC Coupled)	0.35 div from DC to 10 MHz, 1.0 div from 10 MHz to 100 MHz
Trigger Level Range	±8 divisions from screen center
Video Trigger Sensitivity	2 divisions of composite video (typical)

Acquisition System

Acquisition Modes	Sample, Peak Detect, Average
Peak Detect Mode Min Pulse Width	100 ns
Averaging Factor Range	4 to 128 (4, 16, 64, 128)

Waveform Measurements and Analysis

Automatic Measurements	Period, Frequency, Cycle RMS, Mean, Peak-to-Peak
Basic Math Functions	CH1+CH2, CH1-CH2, CH3+CH4, CH3-CH4

Connectivity and Ports

Probe Calibration Output	5 V at 1 kHz
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Processor and Storage

Setup Memory Capacity	10 front-panel setups
Reference Waveform Memory	2 reference waveforms

Environmental Specifications

Storage Temperature Range	-20 °C to +60 °C
Operating Humidity Range	Up to 90% RH at or below +30 °C; up to 60% RH up to +50 °C
Operating Altitude	Up to 2,000 m

Physical Characteristics

Form Factor	Benchtop
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Compliance and Standards

Safety Certifications	UL3111-1, CSA1010.1, EN61010-1
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Expansion & Options

Optional Extension Modules	TDS2CM (GPIB/RS-232/Centronics), TDS2MM (FFT/Measurements/GPIB/RS-232/Centronics)
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Environmental

Pollution Degree	Pollution Degree 2
Cooling Method	Natural convection (no fan)

Display System

Graticule	8 × 10 divisions
Display Contrast	Temperature-compensated with manual adjustment

Measurements

Cursor Measurements	Voltage difference (ΔV), Time difference (Δt), and Frequency ($1/\Delta t$)
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Power System

Power Consumption	Less than 20 W
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Compliance

EMC Compliance	Meets Directive 89/336/EEC, EN 55011 Class A, EN 50082-1, FCC Part 15 Subpart B Class A
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Optional Extension Modules

TDS2MM Module Added Features	FFT (Rectangular, Hanning, Flat Top), Rise Time, Fall Time, Positive Width, Negative Width measurements
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TECHNOLOGY

Digital Storage

APPLICATIONS

Electronic Design, Troubleshooting, Education, and Quality Control

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