

TEKTRONIX

TDS310

The Tektronix TDS310 is a classic two-channel 50 MHz digital storage oscilloscope designed for benchtop and field service applications. Combining a responsive 200 MS/s real-time sample rate on both channels with a legacy 7-inch monochrome CRT raster display, it offers essential signal capture capabilities, automated waveform measurements, and robust trigger modes in a compact, portable format.

SPECIFICATIONS

General

Interfaces	GPIB, RS-232, Centronics parallel printer port (optional via Option 14)
Display	7-inch monochrome CRT raster display, 640 × 480 pixel resolution

Physical

Power Supply	90 to 250 V AC, 45 to 440 Hz, max 65 W
Operating Temperature	0 °C to +50 °C °C
Dimensions (W×H×D)	362 mm × 165 mm × 472 mm mm

Vertical System - Analog Channels

Analog Bandwidth (-3 dB)	50 MHz
Calculated Rise Time (10% to 90%)	≤ 7.0 ns
Number of Input Channels	2
Input Coupling	AC, DC, GND
Input Impedance	1 MΩ in parallel with 20 pF
Input Sensitivity Range	2 mV/div to 10 V/div (in 1-2-5 sequence)
Vertical Resolution	8 bits (1 part in 256)
Maximum Input Voltage	400 V (DC + Peak AC)
DC Gain Accuracy	±2%
Hardware Bandwidth Limits	20 MHz

Horizontal System

Timebase Range	10 ns/div to 5 s/div
Timebase Accuracy	±0.01% (100 ppm)
Horizontal Zoom	x10 magnification

Acquisition System

Maximum Real-Time Sample Rate	200 MS/s per channel simultaneously
Maximum Record Length (Memory Depth)	1,000 points per channel
Acquisition Modes	Sample, Envelope, Average
Number of Digitizers	2 independent digitizers (one per channel)

Trigger System

Trigger Sources	Channel 1, Channel 2, Line, External
Trigger Modes	Auto, Normal, Single Sequence
Trigger Types	Edge, Video (NTSC, PAL, SECAM)
External Trigger Input Impedance	1 M Ω in parallel with 20 pF

Waveform Measurements and Analysis

Automatic Measurements	Period, Frequency, +Width, -Width, Rise Time, Fall Time, Peak-to-Peak, Amplitude, High, Low, Max, Min, Mean, Cycle RMS
Waveform Math Operators	CH1 + CH2, CH1 - CH2, CH2 - CH1

Display and User Interface

Waveform Display Formats	Vector, Dot
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Environmental and Compliance

Operating Altitude	Up to 4,500 m (15,000 feet)
Operating Humidity	Up to 95% RH at or below +30 °C

Performance

Channel-to-Channel Isolation	$\geq 100:1$ at 50 MHz
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Triggering

Trigger Holdoff Range	250 ns to 10 s
Trigger Level Range (Internal)	± 12 divisions from screen center
Trigger Level Range (External)	± 4 V
Video Triggering Formats	NTSC, PAL, SECAM

Environmental

Non-Operating Temperature	-20 °C to +60 °C
Non-Operating Altitude	Up to 15,000 m (50,000 ft)
Non-Operating Humidity	Up to 90% RH ($\leq +40$ °C), up to 60% RH ($> +40$ °C to +60 °C)
Vibration (Operating)	0.31 g RMS, 5 Hz to 500 Hz, 10 min per axis
Vibration (Non-Operating)	2.46 g RMS, 5 Hz to 500 Hz, 10 min per axis
Shock (Operating)	50 g, 11 ms, half-sine

Power

Line Frequency Range	45 Hz to 440 Hz
Power Consumption	≤ 65 W (90 VA)

Display

Graticule	8 × 10 divisions (1 div = 1 cm)
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Acquisition

Peak Detect Minimum Pulse Width	10 ns
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Interfaces

Option 14 Video Output	VGA, female DB-15 connector, 31.5 kHz sync, 640 × 480
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Storage

Nonvolatile Setup Storage	10 front-panel setups
Nonvolatile Waveform Storage	2 reference waveforms

Connectivity

GPIO Interface (Option 14)	IEEE 488.2 compatible
RS-232 Interface (Option 14)	9-pin D-sub male, up to 19.2 kbps
Printer Port (Option 14)	DB-25 female, Centronics compatible
VGA Output (Option 14)	15-pin D-sub, 640 x 480 monochrome VGA

TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Electronic Design, Troubleshooting, General Purpose Test & 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.