

TEKTRONIX

TDS520

The Tektronix TDS520 is a classic 500 MHz, 2-channel digitizing oscilloscope designed for precision laboratory measurements and debugging. It features a real-time sample rate of 500 MS/s, 8-bit vertical resolution, and a high-resolution monochrome raster CRT display. Standard features include GPIB connectivity, advanced triggering capabilities, and automatic waveform measurements.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2) standard; RS-232 and Centronics printer interfaces available via Option 13
Display	7-inch diagonal monochrome raster-scan CRT

Physical

Power Supply	90 to 250 V AC RMS, 45 to 440 Hz, <300 W power consumption
Operating Temperature	0 to +50 °C °C
Dimensions (W×H×D)	445 mm × 193 mm × 437 mm mm
Weight	12.3 kg kg
Rackmount Option	Option 1R (converts instrument to 5U rackmount)

Vertical System

Analog Bandwidth	500 MHz
Number of Input Channels	2 channels plus 2 auxiliary inputs
Vertical Resolution	8 bits (up to 12 bits with HiRes mode)
Calculated Rise Time	700 ps (10% to 90%)
Input Impedance	1 M Ω $\pm$ 1% in parallel with 10 pF, or 50 Ω $\pm$ 1% (software switchable)
Input Coupling	AC, DC, or GND
Input Sensitivity Range	1 mV/div to 10 V/div
DC Gain Accuracy	$\pm$ 1.5%
Maximum Input Voltage (1 M Ω)	400 V (DC + Peak AC)
Maximum Input Voltage (50 Ω)	5 V RMS
Hardware Bandwidth Limits	20 MHz and 100 MHz (selectable)
Offset Range (1 mV/div to 99.5 mV/div)	$\pm$ 1 V
Offset Range (100 mV/div to 995 mV/div)	$\pm$ 10 V
Offset Range (1 V/div to 10 V/div)	$\pm$ 100 V
Channel-to-Channel Isolation	>100:1 at 100 MHz
Input Capacitance (1 M Ω)	10 pF $\pm$ 3 pF
VSWR (50 Ω input)	< 1.3:1 (DC to 300 MHz), < 1.5:1 (300 MHz to 500 MHz)
Channel-to-Channel Deskew Range	$\pm$ 100 ns
Common Mode Rejection Ratio (CMRR)	20:1 at 50 MHz
Auxiliary Channels	2 auxiliary channels (AUX 1 and AUX 2) with selectable 100 mV/div, 1 V/div, and 10 V/div settings

Horizontal System

Maximum Real-Time Sampling Rate	500 MS/s
Equivalent-Time Sampling Rate (ETS)	Up to 50 GS/s
Maximum Record Length	15,000 points per channel (standard); 50,000 points per channel (with Option 1M)
Time Base Range	500 ps/div to 10 s/div
Time Base Accuracy	$\pm$ 25 ppm (over temperature range)
Pre-trigger Delay Range	0 to 100% of record length

Trigger System

Trigger Modes	Auto, Normal, Single Sequence
Trigger Coupling	DC, AC, HF Reject, LF Reject, Noise Reject
Trigger Holdoff Range	250 ns to 12 s
Edge Triggering	Positive or negative slope on any channel or auxiliary input
Pulse Width Triggering	Trigger on width <, >, or = a specified time limit (range 2 ns to 1 s)
Runt Triggering	Trigger on a pulse that crosses one threshold but fails to cross a second threshold
Glitch Triggering	Trigger on glitches down to 2 ns
Internal Trigger Sensitivity	0.35 div (DC to 50 MHz), 1.0 div (50 MHz to 500 MHz)
External Trigger Sensitivity	150 mV (DC to 50 MHz), 500 mV (50 MHz to 500 MHz)
Trigger Level Range (Internal)	±12 divisions from screen center
Trigger Level Range (External)	±1.5 V
Auxiliary Trigger Input Impedance	1 MΩ in parallel with 10 pF
Maximum Auxiliary Trigger Input Voltage	400 V (DC + peak AC)

Acquisition System

Acquisition Modes	Sample, Envelope, Average, High Resolution (HiRes)
Averaging Factor Range	2 to 10,000
Hi-Res Mode Resolution	Up to 12 bits (at slower sweep speeds)

Waveform Measurements and Analysis

Automatic Measurements	25 automatic measurements (including amplitude, frequency, rise/fall time, duty cycle, phase)
Waveform Math	Addition, subtraction, multiplication

Power Specifications

Power Consumption	300 W maximum
-------------------	---------------

Environmental Specifications

Operating Altitude	Up to 4,500 m (15,000 ft)
Non-Operating Altitude	Up to 15,000 m (50,000 ft)
Storage Temperature Range	-40 to +75 °C

Display

Display Resolution	640 × 480 pixels
CRT Size	7 in (178 mm) diagonal
CRT Type	7-inch monochrome CRT with white phosphor (P4)

Environmental

Operating Humidity Range	Up to 95% RH at $\leq +30\text{ }^{\circ}\text{C}$, up to 75% RH from $+31\text{ }^{\circ}\text{C}$ to $+40\text{ }^{\circ}\text{C}$, up to 45% RH from $+41\text{ }^{\circ}\text{C}$ to $+50\text{ }^{\circ}\text{C}$
Operating Vibration	0.31 g RMS, 5 Hz to 500 Hz, 10 min per axis
Non-Operating Shock	50 g, 11 ms, half-sine

Auxiliary Interfaces

Probe Compensator Output Voltage	0.5 V $\pm 10\%$ into $\geq 1\text{ M}\Omega$ load
Probe Compensator Output Frequency	1 kHz $\pm 25\%$
Signal Output	Main Trigger, Delayed Trigger, or CH 1 Vertical Signal (selectable)
Signal Output Levels	CH 1: 50 mV/div into $1\text{ M}\Omega$, 25 mV/div into $50\text{ }\Omega$; Trigger: TTL compatible

Power Requirements

Line Voltage	90 V to 250 V AC (RMS), continuous range
Line Frequency	45 Hz to 440 Hz (90 V to 132 V AC), 45 Hz to 66 Hz (132 V to 250 V AC)

Storage

Non-Volatile Setup Memory	10 front-panel setups
Non-Volatile Waveform Memory	4 reference waveforms

Interfaces

GPIO Interface	IEEE-488.2 compatible, fully programmable
Centronics Parallel Port	DB-25 female connector, supports EPSON, HP, or ThinkJet printers (with Option 13)
RS-232-C Port	DB-9 male connector, up to 19.2 kbaud (with Option 13)

Triggering

Logic Triggering	Pattern and State triggering (standard; Deluxe triggering adds Setup/Hold, Delay, and Transition with Option 1D)
Video Triggering	NTSC, PAL, SECAM, and custom formats (with Option 05)

Waveform Measurements & Math

Advanced Math Functions	FFT, integration, and differentiation (with Option 2F)
-------------------------	--

TECHNOLOGY

Digital Storage Oscilloscope

APPLICATIONS

Electronic design, laboratory testing, and component characterization

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