

TEKTRONIX

TDS520D

The Tektronix TDS520D is a 500 MHz, 2-channel Digital Phosphor Oscilloscope (DPO) designed for advanced electronic design, debug, and characterization. Featuring three-dimensional signal acquisition (amplitude, time, and distribution over time), it delivers high waveform capture rates and real-time visualization of signal dynamics.

SPECIFICATIONS

General

Interfaces	GPIO (IEEE-488.2) standard; RS-232-C and Centronics (with Option 13)
Display	7-inch monochrome CRT, 640 x 480 pixels, digital phosphor display with intensity modulation
Warm-up Time	20 minutes

Physical

Power Supply	90 to 250 V AC RMS, 45 to 440 Hz, power consumption < 300 W
Operating Temperature	+4 to +50 °C (with floppy drive) °C
Dimensions (W×H×D)	448 × 193 × 471 mm
Weight	14.1 kg

Vertical System

Analog Bandwidth (-3 dB)	500 MHz
Calculated Rise Time (10% to 90%)	700 ps
Number of Input Channels	2
Input Coupling	AC, DC, GND
Input Impedance	1 MΩ 10 pF, or 50 Ω
Input Sensitivity Range	1 mV/div to 10 V/div (1 MΩ), 1 mV/div to 1 V/div (50 Ω)
Vertical Resolution	8 bits (up to 12 bits with Hi-Res or Averaging)
Maximum Input Voltage	400 V (DC + Peak AC) at 1 MΩ, 5 V RMS at 50 Ω
DC Gain Accuracy	±1%
Offset Range	±1 V (1 to 99.5 mV/div), ±10 V (100 mV to 995 mV/div), ±100 V (1 V to 10 V/div)
Hardware Bandwidth Limits	20 MHz, 250 MHz
Channel-to-Channel Isolation	>= 100:1 at 100 MHz
Hi-Res Mode Vertical Resolution	Up to 12 bits
VSWR (50 Ω)	≤ 1.3:1 from DC to 500 MHz
Maximum Input Voltage (50 Ω)	5 V RMS (with peaks ≤ ±30 V)
Vertical Position Range	±5 divisions

Horizontal System

Timebase Range	500 ps/div to 10 s/div
Timebase Accuracy	±25 ppm (0.0025%)
Channel-to-Channel Deskew Range	±25 ns
Timebase Delay Jitter	≤ 8 ps RMS (for delays < 100 µs)

Acquisition System

Maximum Real-Time Sample Rate	1 GS/s
Peak Detect	1 ns
Acquisition Modes	Sample, Peak Detect, Envelope, Average, High Resolution, FastFrame
Waveform Capture Rate	Up to 100,000 wfm/s (DPO mode)
DPO Display Density	Up to 100,000,000 points/s
Segmented Memory	FastFrame Segmented Memory with Timestamp
Single-Channel Max Sample Rate	1 GS/s
Dual-Channel Max Sample Rate	500 MS/s
Maximum Equivalent-Time Sample Rate	100 GS/s
Average Acquisition Mode Range	Averaged over 1 to 10,000 waveforms (selectable)
Envelope Acquisition Mode Range	Minimum/maximum accumulated over 1 to 2,000 waveforms, or infinite

Trigger System

Trigger Sources	CH1, CH2, AC Line, Auxiliary, External
Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, HF Reject, LF Reject, Noise Reject
Trigger Holdoff Range	250 ns to 12 s
Trigger Types (Edge)	Edge (rising, falling)
Trigger Types (Pulse)	Width, Glitch, Runt, Slew Rate, Timeout
Trigger Types (Logic)	Pattern, State, Setup/Hold
Trigger Types (Comm)	AMI, HDB3, CMI, MLT3 (with Option 2C)
Trigger Types (Video)	NTSC, PAL, SECAM, HDTV (with Option 5)
Internal Trigger Sensitivity	0.35 div from DC to 50 MHz, increasing to 1.0 div at 500 MHz
Internal Trigger Level Range	±12 divisions from center screen
External Trigger Level Range	±1.5 V

Waveform Measurements and Analysis

Automatic Measurements	29 automatic measurements
Measurement Statistics	Mean, Minimum, Maximum, Standard Deviation
Waveform Math Operators	Add, Subtract, Multiply, Divide, Integrate, Differentiate, FFT
Histograms	Horizontal and Vertical histograms on DPO and normal waveforms
Limit Testing	Standard
Mask Testing	Communication signal analysis (with Option 2C / Option ST)
Differential Measurements	Up to 500 MHz (using differential probes)

Display and User Interface

Display Type	Monochrome CRT (Digital Phosphor Display)
Display Size	7-inch (178 mm) diagonal
Display Resolution	640 × 480 pixels
Waveform Display Formats	YT, XY

Connectivity and Interfaces

GPIB Interface	IEEE-488.2 standard
Floppy Disk Drive	3.5-inch 1.44 MB (standard)
RS-232 Port	Option 13
Centronics Port	Option 13
External Trigger Input	Front panel BNC
Auxiliary Output	Trigger Out, Main Trigger, Delayed Trigger
VGA Output	15-pin D-sub (standard)
Disk Storage Options	Iomega Zip 100 MB drive (optional, Option 1F)

Power Specifications

Power Supply Voltage Range	90 to 250 V AC RMS
Power Supply Frequency Range	45 to 440 Hz
Power Consumption	Less than 300 W

Environmental and Compliance

Operating Temperature Range	+4 °C to +50 °C (with floppy drive)
Operating Humidity	Up to 75% RH at +40 °C
Operating Altitude	Up to 4,572 m (15,000 ft)
Electromagnetic Compatibility (EMC)	EN50081-1, EN50082-1, FCC Class A
Safety Certifications	UL 3111-1, CSA C22.2, EN61010-1

Physical Characteristics

Dimensions (W x H x D)	448 mm × 193 mm × 471 mm (with handle)
Cooling	Forced air cooling

Signal Outputs

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

Storage

Non-volatile Setup Storage	10 front-panel setups
Non-volatile Waveform Storage	4 reference waveforms
Internal Floppy Drive Format	3.5 in, 1.44 MB (MS-DOS compatible)

System Features

Real-Time Clock	Yes (with time and date logging)
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TECHNOLOGY

Digital Phosphor Oscilloscope (DPO)

APPLICATIONS

Electronic design, debug, and 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.