

TEKTRONIX

TDS420

The Tektronix TDS420 is a 150 MHz, 4-channel digital storage oscilloscope designed for laboratory and field service applications. It features high resolution acquisition, comprehensive triggering, and robust analysis capabilities in a portable form factor.

SPECIFICATIONS

General

Display	7-inch (17.78 cm) Monochrome CRT
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Physical

Dimensions (W×H×D)	362 mm × 191 mm × 472 mm mm
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Vertical System

Analog Bandwidth	150 MHz
Number of Channels	4
Simultaneous Channels	4
Input Coupling	AC, DC, GND
Input Impedance	1 MΩ in parallel with 15 pF, or 50 Ω (selectable)
Input Sensitivity Range	1 mV/div to 10 V/div
Vertical Resolution	8 bits (up to 12 bits in High Resolution mode)
DC Gain Accuracy	±1.5%
Maximum Input Voltage (1 MΩ)	400 V (DC + peak AC)
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
Vertical Position Range	±5 divisions

Horizontal System

Maximum Real-time Sample Rate	100 MS/s
Single Shot Bandwidth	40 MHz
Maximum Record Length	15,000 points/channel (up to 120,000 points with Option 1M)
Time Base Range	1 ns/div to 20 s/div

Trigger System

Trigger Modes	Auto, Normal, Single
Trigger Coupling	AC, DC, HF Rej, LF Rej, Noise Rej
Trigger Sensitivity	0.35 div from DC to 50 MHz, increasing to 1 div at 150 MHz
Trigger Level Range	±12 divisions from screen center

Acquisition Modes

Sample Mode	Yes
Peak Detect Mode	Yes (10 ns)
High Resolution Mode	Yes (up to 12 bits)
Single Sequence Mode	Yes

Waveform Measurements and Analysis

Automatic Measurements	25 standard measurements
Waveform Math Operations	Addition, Subtraction, Multiplication
Advanced Waveform DSP	FFT, Integration, Differentiation (optional via Option 2F)

Display Characteristics

Display Type	Monochrome CRT
Display Size	7 inches (17.8 cm) diagonal
Format	YT, XY

Connectivity and Interfaces

GPIB Interface	IEEE-488.2 standard
RS-232 Serial Port	Optional (via Option 13)
Centronics Printer Port	Optional (via Option 13)
VGA/Video Output	Standard (VGA output is standard on the rear panel)
Floppy Disk Drive	3.5-inch, 1.44 MB, DOS format (optional via Option 1F)

Power Specifications

Line Voltage Range	90 to 250 V AC
Line Frequency Range	45 to 440 Hz

Environmental Specifications

Operating Temperature Range	0 to +50 °C
Non-Operating Temperature Range	-40 to +75 °C
Operating Humidity Range	Up to 95% RH at ≤ 30 °C
Operating Altitude Limit	4,500 m (15,000 ft)
Non-Operating Altitude Limit	15,000 m (50,000 ft)

Physical Characteristics

Width	362 mm
Height	191 mm
Depth	472 mm
Net Weight	8.6 kg

Triggering System

Logic Triggering Types	Pattern, State
Video Triggering (Option 05)	NTSC, PAL, SECAM, and Custom formats

Hardware Options

Option 1F	Adds 3.5 inch 1.44 MB floppy disk drive and file system
Option 2F	Adds Advanced DSP Math (FFT, Integration, Differentiation)

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

Memory & Storage

Internal Setup Storage	10 front-panel setups
Internal Waveform Storage	4 reference waveforms
Floppy Disk Storage Format	3.5-inch MS-DOS compatible (with Option 1F)

Inputs & Outputs

Calibrator Output Voltage	500 mV into $\geq 1\text{ M}\Omega$
Calibrator Output Frequency	1 kHz

Interfaces

GPIB Standard Compliance	IEEE Std 488.2-1987
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Options

Option 2F Description	Adds advanced DSP math functions (FFT, Integration, Differentiation)
Option 05 Description	Adds video trigger capability for NTSC, PAL, SECAM, and custom formats

TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Electronic Design and Debugging, Field Service, Component Test

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