

TEKTRONIX

TDS3012

The Tektronix TDS3012 is a 2-channel, 100 MHz Digital Phosphor Oscilloscope (DPO) designed to combine high-performance analysis capabilities with portable convenience. Featuring a 1.25 GS/s sampling rate per channel, a color active-matrix VGA display, and a 3.5-inch floppy disk drive, it is ideal for electronic design, troubleshooting, and field service.

SPECIFICATIONS

General

Interfaces	Centronics parallel port (standard); GPIB, RS-232, LAN, VGA (optional via plug-in modules)
Display	6.4 in (162.6 mm) color active-matrix VGA LCD, 640 × 480 pixels
Warm-up Time	20 minutes
Calibration Interval	1 year
Autoset	Single-button setup of vertical, horizontal, and trigger systems

Physical

Power Supply	90 V to 250 V AC RMS, 47 Hz to 440 Hz (90 V to 132 V), 47 Hz to 63 Hz (132 V to 250 V), 75 W max; optional battery operation
Operating Temperature	0 °C to +50 °C °C
Dimensions (W×H×D)	375 mm × 176 mm × 149 mm mm
Weight	3.2 kg kg

Vertical System

Analog Bandwidth (-3 dB)	100 MHz
Calculated Rise Time (10% to 90%)	3.5 ns
Number of Input Channels	2
Input Coupling	AC, DC, GND
Input Impedance	1 MΩ ±1% in parallel with 13 pF ±2 pF, or 50 Ω ±1%
Input Sensitivity Range	1 mV/div to 10 V/div (at BNC)
Vertical Resolution	9 bits
Maximum Input Voltage	150 V RMS CAT I (1 MΩ); 5 V RMS (50 Ω)
DC Gain Accuracy	±2%
Offset Range	±100 mV (1 mV to 9.9 mV/div); ±1 V (10 mV to 99 mV/div); ±10 V (100 mV to 990 mV/div); ±100 V (1 V to 10 V/div)
Hardware Bandwidth Limits	20 MHz
Probe Interface	TekProbe Interface (Level II) with automatic scaling and units
Common Mode Rejection Ratio (CMRR)	At least 100:1 at 60 Hz, at least 20:1 at 50 MHz

Horizontal System

Timebase Range	4 ns/div to 10 s/div
Timebase Accuracy	±20 ppm
Channel-to-Channel Deskew Range	±10 ns
Horizontal Delay Time Range	-10 divisions to 500 s

Acquisition System

Maximum Real-Time Sample Rate	1.25 GS/s per channel
Maximum Record Length	10k points per channel
Acquisition Modes	Sample, Peak Detect (5 ns glitch capture), Envelope, Average, Single Sequence
Waveform Capture Rate	Up to 3,600 wfms/s (continuous)
Waveform Zoom	Horizontal and vertical zoom of live or stopped waveforms

Trigger System

Trigger Sources	CH1, CH2, Line, External
Trigger Modes	Auto, Normal, Single Sequence
Trigger Coupling	AC, DC, Noise Reject, HF Reject, LF Reject
Trigger Holdoff Range	250 ns to 8 s
Trigger Types	Edge (standard); Glitch, Width, Logic, Video (optional via TDS3TRG module)
External Trigger Input Impedance	1 MΩ in parallel with 13 pF
External Trigger Maximum Input Voltage	150 V RMS CAT I
Trigger Sensitivity (Internal)	0.35 div from DC to 50 MHz, increasing to 1 div at 100 MHz (DC coupled)
Trigger Sensitivity (External)	150 mV from DC to 50 MHz, increasing to 300 mV at 100 MHz (DC coupled)
Trigger Level Range (Internal)	±8 divisions from center of screen
Trigger Level Range (External)	±1.5 V (±15 V with External/10 setting)
Video Trigger Formats	NTSC, PAL, SECAM

Waveform Measurements and Analysis

Automatic Measurements	28 standard measurements (including Period, Frequency, +Width, -Width, Rise Time, Fall Time, Max, Min, Peak-to-Peak, Amplitude, Mean, Cycle RMS)
Waveform Math Operators	Addition, Subtraction, Multiplication, Division (standard); FFT, Integration, Differentiation (optional via TDS3FFT / TDS3MAT modules)
Testing Options	Telecommunications Mask Testing (optional via TDS3TMT module)

Display & Interface

Display Color Palettes	Normal, Green, Gray, Temp, Spectral, Fire
Graticules	Full, Grid, Crosshair, Frame
Multi-Language Interface	English, French, German, Italian, Spanish, Portuguese, Japanese, Korean, Simplified Chinese, Traditional Chinese, Russian

Storage

Floppy Disk Drive	3.5 in, 1.44 MB (DOS format)
Internal Waveform Storage	Reference waveforms, Front panel setups
Internal Setup Storage	10 setups

Power Specifications

Battery Option	TDS3BAT rechargeable NiMH battery pack (optional)
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Environmental and Compliance

Storage Temperature Range	-20 °C to +60 °C
Operating Humidity	Up to 95% RH at or below +30 °C; up to 75% RH up to +50 °C
Operating Altitude	Up to 3,000 m
Non-operating Altitude	Up to 15,000 m
Electromagnetic Compatibility	EN50081-1, EN50082-1, FCC Class A, VCCI Class A
Safety Certifications	UL3111-1, CSA1010.1, EN61010-1, IEC61010-1

Physical Characteristics

Form Factor	Portable benchtop with handle
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Power System

Battery Operating Time	Up to 2 hours (with optional TDS3BAT battery pack)
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Environmental

Operating Shock	50 g, 11 ms, half-sine
Operating Vibration	0.31 g RMS, 5 Hz to 500 Hz
Non-operating Vibration	2.46 g RMS, 5 Hz to 500 Hz

Measurement System

Cursor Measurements	ΔV , Δt , $1/\Delta t$ (frequency)
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Auxiliary Ports

Probe Compensator Output Voltage	5.0 V into $\geq 1 \text{ M}\Omega$
Probe Compensator Output Frequency	1 kHz

Expansion

Application Module Slots	4 slots for optional application modules
Communication Module Slot	1 slot for optional communication modules (TDS3GM, TDS3VM, TDS3EM)

Data Storage

Waveform Save Formats

TIFF, BMP, PCX, EPS, Mathcad, Spreadsheet (CSV)

TECHNOLOGY

Digital Phosphor Oscilloscope (DPO)

APPLICATIONS

Electronic Design, Troubleshooting, Embedded Systems, Service and Repair, Education

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