

TEKTRONIX

TDS2012

The Tektronix TDS2012 is a 100 MHz, 2-channel digital storage oscilloscope from the original TDS2000 series, offering a 1.0 GS/s real-time sample rate, a color LCD display, and standard FFT capabilities. Known for its compact, lightweight design, the TDS2012 features optional rear-panel expansion modules for communication, including RS-232, GPIB, and USB connectivity.

SPECIFICATIONS

General

Interfaces	Optional RS-232, GPIB, and Centronics (via TDS2CMA module) or CompactFlash and USB (via TDS2MEM module)
Display	1/4 VGA active matrix color TFT LCD
User Interface Languages	11 languages
Warm-up Time	20 minutes
Recommended Calibration Interval	1 year
Standard Probes Included	P2200 (100 MHz, 1x/10x passive probe, one per channel)

Physical

Power Supply	90 V to 250 V AC, 45 Hz to 440 Hz, CAT II, <30 W power consumption
Operating Temperature	0 °C to +50 °C °C
Dimensions (W×H×D)	323.8 mm × 151.4 mm × 124.5 mm mm
Weight	2.0 kg

Vertical System

Analog Bandwidth	100 MHz
Number of Channels	2
Calculated Rise Time	3.5 ns
Input Coupling	AC, DC, GND
Input Impedance	1 M Ω $\pm$ 2% in parallel with 20 pF $\pm$ 3 pF
Input Sensitivity Range	2 mV/div to 5 V/div
Vertical Resolution	8 bits
DC Gain Accuracy	$\pm$ 3% for Sample or Average acquisition mode
Maximum Input Voltage	300 V RMS CAT II, derated at 20 dB/decade above 100 kHz to 13 V peak AC at 3 MHz and above
Position Range	$\pm$ 2 V (2 mV to 200 mV/div), $\pm$ 50 V (>200 mV to 5 V/div)
Channel-to-Channel Isolation	$\geq$ 100:1 at 60 Hz, $\geq$ 10:1 at 100 MHz
Bandwidth Limit	20 MHz
Input Capacitance	20 pF $\pm$ 3 pF
Common Mode Rejection Ratio (CMRR)	At least 100:1 at 60 Hz, and at least 20:1 at 50 MHz (with equal Volts/Div settings)

Horizontal System

Maximum Real-Time Sampling Rate	1.0 GS/s (on each channel)
Maximum Record Length	2.5k points per channel
Sec/Div Range	5 ns/div to 50 s/div
Time Base Accuracy	$\pm$ 50 ppm
Horizontal Delay Range	Pre-trigger (10 divisions), Post-trigger (500 s)

Trigger System

Trigger Modes	Auto, Normal, Single Sequence
Trigger Types	Edge, Video, Pulse Width
Trigger Source Options	CH1, CH2, EXT, EXT/5, AC Line
Trigger Coupling	AC, DC, Noise Reject, HF Reject, LF Reject
Trigger Sensitivity (Internal)	0.35 div from DC to 10 MHz; 1 div from 10 MHz to 100 MHz
Trigger Sensitivity (External)	50 mV from DC to 10 MHz; 100 mV from 10 MHz to 100 MHz
Trigger Level Range	Internal: $\pm$ 8 divisions from screen center; External: $\pm$ 1.6 V ($\pm$ 8 V for EXT/5)
Trigger Holdoff Range	500 ns to 10 s
Pulse Width Trigger Range	33 ns to 10 s
Video Trigger Formats	NTSC, PAL, SECAM
External Trigger Input Impedance	1 MOhm $\pm$ 2% in parallel with 20 pF $\pm$ 3 pF
External Trigger Maximum Input Voltage	300 V RMS CAT II
External Trigger Level Range	$\pm$ 1.6 V (EXT), $\pm$ 16 V (EXT/10)

Acquisition Modes

Sample Mode	Standard sample data only
Peak Detect Mode	High-frequency and random glitch capture as narrow as 12 ns
Average Mode	Averages selectable from 4, 16, 64, or 128 waveforms

Measurement & Waveform Analysis

Automated Measurements	11 automatic measurements (Period, Frequency, +Width, -Width, Rise Time, Fall Time, Max, Min, Peak-to-Peak, Mean, Cycle RMS)
Cursor Types	Amplitude, Time
Waveform Math Operations	Addition, Subtraction, FFT
FFT Window Types	Hanning, Flat Top, Rectangular

Display System

Display Resolution	320 × 240 pixels
Waveform Display Styles	Dots, Vectors
Graticule Options	Full, Grid, Crosshair, Frame
Display Type	Color Active Matrix TFT LCD

Connectivity & Interfaces

External Trigger Input	Standard BNC, 1 MΩ in parallel with 20 pF
Probe Compensator Output	Approx. 5 V into ≥1 MΩ load, frequency 1 kHz

Physical Characteristics

Shipping Weight	Approx. 3.6 kg (with accessories)
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Environmental & Reliability

Non-Operating Temperature Range	-40 °C to +71 °C
Operating Humidity Range	Up to 90% RH at or below +30 °C; up to 60% RH up to +50 °C
Non-Operating Humidity Range	Up to 90% RH at or below +30 °C; up to 85% RH up to +50 °C
Operating Altitude Limit	Up to 3,000 m
Non-Operating Altitude Limit	Up to 15,000 m

Standards & Certifications

Regulatory Safety Standards	UL61010B-1, CSA C22.2 No. 1010.1, EN61010-1
Electromagnetic Compatibility (EMC)	Directive 89/336/EEC, EN55011 Class A

Power and Cooling

Power Consumption	Less than 30 W
Cooling	Natural convection (fanless)

Storage

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

Waveform Measurements

FFT Points	2048 points
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Safety & Compliance

Overvoltage Category	CAT II 300 V
Pollution Degree	Pollution Degree 2

Signal Outputs

Probe Compensator Output Frequency	1 kHz
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Display

Display Backlight	CCFL
Display Contrast Adjustment	No

Expansion

Optional Modules	TDS2CMA (GPIB, RS-232, Centronics), TDS2MEM (CompactFlash, RS-232, Centronics)
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TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Electronic Design, Troubleshooting, Education, and Manufacturing Test

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