

TEKTRONIX

TDS2002B

The Tektronix TDS2002B is a 60 MHz, 2-channel digital storage oscilloscope from the TDS2000B Series. Featuring a 1.0 GS/s real-time sampling rate on each channel, an active-matrix color TFT display, and integrated USB host and device ports, it provides professional-grade measurement performance, seamless PC connectivity, and ease of use in a highly portable benchtop form factor.

SPECIFICATIONS

General

Interfaces	1 x USB Host (front panel, supports USB flash drives), 1 x USB Device (rear panel, supports PC connection, PictBridge, and GPIB via TEK-USB-488 adapter)
Display	5.7 in. (145 mm) QVGA (320 × 240 pixels) Active Matrix Color TFT LCD
User Interface Languages	11 languages (English, French, German, Italian, Spanish, Portuguese, Russian, Simplified Chinese, Traditional Chinese, Korean, Japanese)

Physical

Power Supply	100 to 240 V AC ±10% (45 to 66 Hz) or 115 V AC ±10% (360 to 440 Hz), power consumption less than 30 W
Operating Temperature	0 to 50 °C °C
Dimensions (W×H×D)	326.3 mm × 158.0 mm × 124.2 mm mm
Weight	2.0 kg kg

Vertical System

Analog Bandwidth (-3 dB)	60 MHz
Calculated Rise Time (10% to 90%)	5.8 ns
Number of Input Channels	2
Input Impedance	1 MΩ ± 2% in parallel with 20 pF ± 3 pF
Input Coupling	AC, DC, GND
Input Sensitivity Range	2 mV/div to 5 V/div with calibrated fine adjustment
Vertical Resolution (ADC)	8 bits
DC Gain Accuracy	±3% for 10 mV/div to 5 V/div; ±4% for 2 mV/div to 5 mV/div
Maximum Input Voltage	300 V RMS CAT II (derated at 20 dB/decade above 100 kHz)
Position Range	±1.8 V (2 mV to 200 mV/div); ±45 V (>200 mV to 5 V/div)
Channel-to-Channel Isolation	>100:1 at 60 MHz
Hardware Bandwidth Limits	20 MHz

Horizontal System

Maximum Real-Time Sampling Rate	1.0 GS/s per channel
Maximum Record Length	2.5k points on all time bases
Time Base Range	5 ns/div to 50 s/div
Time Base Accuracy	±50 ppm
Delta Time Measurement Accuracy	±(1 sample interval + 50 ppm × reading + 0.6 ns)

Trigger System

Trigger Sources	CH1, CH2, Ext, Ext/5, AC Line
Trigger Modes	Auto, Normal, Single Sequence
Trigger Coupling	AC, DC, HF Reject, LF Reject, Noise Reject
Trigger Holdoff Range	500 ns to 10 s
Edge Triggering	Rising or falling slope
Pulse Width Triggering	Selectable pulse width duration from 33 ns to 10 s
Video Triggering	NTSC, PAL, SECAM; line-selectable
Trigger Sensitivity (Internal)	1.0 div from DC to 10 MHz; 1.5 div from 10 MHz to 60 MHz
External Trigger Input Impedance	1 MΩ in parallel with 20 pF
External Trigger Sensitivity	100 mV from DC to 10 MHz; 150 mV from 10 MHz to 60 MHz
Trigger Level Range (Internal)	±8 divisions from screen center
Trigger Level Accuracy (Internal)	±(0.2 div + 5% of active trigger level)
Trigger Level Accuracy (External)	±(6% of setting + 40 mV)

Acquisition System

Acquisition Modes	Sample, Peak Detect, Average
Peak Detect Mode Min Pulse Width	12 ns
Averaging Factor Range	4, 16, 64, 128

Waveform Measurements and Analysis

Automatic Measurements	11 standard measurements (Period, Frequency, +Width, -Width, Rise Time, Fall Time, Max, Min, Peak-to-Peak, Mean, Cycle RMS)
Basic Math Functions	Add, Subtract, Multiply
Fast Fourier Transform (FFT) Window Types	Hanning, Hamming, Blackman-Harris, Rectangular
FFT Vertical Scale Options	dBV RMS, Linear RMS

Display and User Interface

Waveform Display Formats	YT, XY
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Connectivity and Ports

Probe Calibration Output	5.0 V into ≥1 MΩ, 1 kHz square wave
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Power Specifications

Power Supply Voltage Range	100 to 240 V AC $\pm 10\%$ (47 to 63 Hz); 115 V AC $\pm 10\%$ (360 to 440 Hz)
Power Consumption (Maximum)	Less than 30 W

Environmental Specifications

Storage 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 60% RH up to +55 °C
Operating Altitude	Up to 3,000 m (9,843 ft.)
Non-Operating Altitude	Up to 15,000 m (49,212 ft.)
Cooling Method	Convection

Physical Characteristics

Form Factor	Benchtop
Kensington Lock Slot	Standard rear-panel security slot compatible with Kensington-style locks

Compliance and Standards

Safety Certifications	UL 61010-1:2004, CSA22.2 No. 61010-1:2004, EN 61010-1:2001, IEC 61010-1:2001
Electromagnetic Compatibility (EMC)	Meets 2004/108/EC, EN 61326-1 Class A
Shock and Vibration Resistance	Meets MIL-PRF-28800F Class 3 (operational and non-operational)
Calibration Interval	1 year (recommended)

Connectivity & Interfaces

USB Ports	1x USB 2.0 Host (front panel), 1x USB 2.0 Device (rear panel)
GPIO Interface	Optional (via TEK-USB-488 adapter)
Direct Printing Support	PictBridge-compatible printers via USB Device port

Storage

Internal Waveform Storage	2 reference waveforms
Internal Setup Storage	10 front-panel setups
External Storage Support	USB flash drive via front-panel USB Host port

Standard Accessories

Included Probes	P2220 200 MHz 1x/10x passive probe per channel
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Display

Display Size	5.7 inches (144 mm) diagonal
Display Resolution	320 x 240 pixels (QVGA)

Signal Acquisition

Common Mode Rejection Ratio (CMRR)	100:1 at 60 Hz, decreasing to 10:1 at 50 MHz (with equal attenuation settings on both channels)
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Software & Connectivity

Included Software	OpenChoice Desktop, NI LabVIEW SignalExpress Tektronix Edition LE
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Power System

Power Source Frequency Range	47 Hz to 63 Hz (at 100 to 240 V), 360 Hz to 440 Hz (at 100 to 120 V)
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TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Electronic design and debugging, education and training, manufacturing test, service and repair

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