

TEKTRONIX

TDS3044B

The Tektronix TDS3044B is a 400 MHz, 4-channel Digital Phosphor Oscilloscope (DPO) belonging to the TDS3000B Series. Featuring digital real-time (DRT) sampling technology, it achieves a maximum sample rate of 5 GS/s on all channels simultaneously. This portable instrument integrates continuous 3,600 wfms/s waveform capture, advanced triggering, 25 automatic measurements, and standard Ethernet connectivity, making it an exceptional choice for design, debug, and characterization.

SPECIFICATIONS

General

Interfaces	10Base-T Ethernet (RJ-45) and Parallel Printer Port standard; GPIB, RS-232, and VGA output available via optional TDS3GV communication module
Display	6.4 in (162.6 mm) color active-matrix TFT LCD, 640 × 480 pixels (VGA)

Physical

Power Supply	90 to 250 V AC (47 to 440 Hz at 90 to 121 V, 47 to 63 Hz at 121 to 250 V); 75 W maximum power consumption; optional TDS3BATB battery operation
Operating Temperature	0 to +50 °C °C
Dimensions (W×H×D)	375 mm × 176 mm × 149 mm mm
Weight	3.2 kg (without battery); 4.5 kg (with battery) kg

Vertical System

Number of Channels	4
Analog Bandwidth	400 MHz
Calculated Rise Time	0.875 ns
Hardware Bandwidth Limits	20 MHz, 150 MHz
Input Coupling	AC, DC, GND
Input Impedance	1 M Ω $\pm$ 1% in parallel with 13 pF $\pm$ 2 pF, or 50 Ω $\pm$ 1%
Input Sensitivity Range	1 mV/div to 10 V/div (1 M Ω); 1 mV/div to 1 V/div (50 Ω)
Vertical Resolution	8 bits
DC Gain Accuracy	$\pm$ 2%
Offset Range	$\pm$ 1 V (1 mV to 100 mV/div), $\pm$ 10 V (101 mV to 1 V/div), $\pm$ 100 V (1.01 V to 10 V/div) for 1 M Ω ; $\pm$ 1 V (1 mV to 100 mV/div), $\pm$ 10 V (101 mV to 1 V/div) for 50 Ω
Channel-to-Channel Isolation	$\geq$ 100:1 at 100 MHz
Probe Interface	TekProbe® Level II interface supports active, differential, and current probes for automatic scaling and units
Vertical Position Range	$\pm$ 5 divisions
Common Mode Rejection Ratio (CMRR)	100:1 at 60 Hz, 30:1 at 50 MHz (with identical vertical settings)
Input Capacitance	13 pF $\pm$ 2 pF

Horizontal System

Timebase Range	1 ns/div to 10 s/div
Timebase Accuracy	$\pm$ 20 ppm
Horizontal Zoom	Zoom and pan on any waveform in run or stop mode

Acquisition System

Max Real-Time Sample Rate	5 GS/s on all channels
Max Record Length	10k points per channel
Acquisition Modes	Sample, Peak Detect, Envelope, Average, Single Sequence
Waveform Capture Rate	Up to 3,600 wfms/s continuous
Waveform Anomaly Detection	WaveAlert® automatic waveform anomaly detection
Waveform Averaging	Selectable from 2 to 512 waveforms
Waveform Envelope	Selectable from 2 to 512 waveforms, or infinite

Trigger System

Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, HF Reject, LF Reject, Noise Reject
Trigger Holdoff Range	250 ns to 8 s
Trigger Sensitivity	0.35 div from DC to 50 MHz, increasing to 1 div at 400 MHz
Trigger Level Range	±8 divisions from center of screen
Edge Triggering	Positive or negative slope on any channel
Video Triggering	Triggers on all lines, individual lines, odd/even or all fields on NTSC, PAL, and SECAM signals
Pulse Width Triggering	Triggers on width of positive or negative pulses <, >, =, or ≠ a selectable time limit (39.6 ns to 2 s)
Runt Triggering	Triggers on a pulse that crosses one threshold but fails to cross a second threshold
Slew Rate Triggering	Triggers on pulse edge rates that are faster or slower than a set limit
Pattern/State Triggering	Triggers on logic patterns (AND, OR, NAND, NOR) and state (clocked)

Waveform Measurements and Math

Automatic Waveform Measurements	25 measurements (Period, Frequency, +Width, -Width, Rise Time, Fall Time, +Duty Cycle, -Duty Cycle, +Overshoot, -Overshoot, High, Low, Max, Min, Peak-to-Peak, Amplitude, Mean, Cycle Mean, RMS, Cycle RMS, Area, Cycle Area, Burst Width, Delay, Phase)
Measurement Gating	Gating via screen cursors or full record length
Waveform Math Operations	Add, Subtract, Multiply, Divide
Fast Fourier Transform (FFT)	Spectral magnitude; FFT windows: Rectangular, Hamming, Hanning, Blackman-Harris

Display System

Display Graticule Styles	Full, Grid, Crosshair, Frame
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I/O Interfaces and Connectivity

Web-based Remote Control	e*Scope® web-based interface for remote instrument control over LAN
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Storage and File System

Removable Media Storage	3.5 in 1.44 MB floppy disk drive
Internal Setup Storage Channels	10 setups
Internal Waveform Storage Channels	4 waveforms
Supported File Formats	TIFF, BMP, PCX, EPS, PNG, spreadsheet (CSV), math format

Power Requirements

Battery Operation Support	Optional TDS3BATB rechargeable Li-ion battery pack
Battery Runtime (Typical)	Up to 3 hours

Environmental and Safety Compliance

Non-Operating Temperature	-20 to +60 °C
Humidity Limits	Up to 95% RH at or below +30 °C; up to 45% RH up to +50 °C
Operating Altitude	Up to 3,000 m (9,843 ft)
Non-Operating Altitude	Up to 15,000 m (49,212 ft)

Ordering Information and Options

Included Standard Probes	Four P6139A 10X passive probes (500 MHz bandwidth)
Optional Application Modules	TDS3AAM (Advanced Analysis), TDS3LIM (Limit Testing), TDS3TMT (Telecommunications Mask Testing), TDS3VID (Extended Video), TDS3SDI (601 Serial Digital Video)
Optional Communication Modules	TDS3GV (GPIB, RS-232, and VGA video port)
Warranty Period	3 years

Triggering

B-Trigger	Trigger after time (16.5 ns to 8.5 s) or after events (1 to 9,999,999 events)
Trigger Level Accuracy	±(0.2 div + 5% of trigger level) typical
Trigger Jitter	15 ps RMS (typical)

Interfaces & Connectivity

Standard Parallel Printer Port	Centronics parallel port, DB-25 female
Standard LAN Port	10Base-T Ethernet, RJ-45 connector
Probe Compensation Output	5.0 V into ≥1 MΩ load, frequency 1 kHz (typical)
Optional VGA Output	DB-15 female connector (requires TDS3GV module)
Optional GPIB Interface	IEEE 488.2 standard interface (requires TDS3GV module)
Optional RS-232 Interface	DB-9 male connector (requires TDS3GV module)

General Specs

Power Consumption	75 W maximum
Cooling Clearance	50 mm (2 in) required on left side and rear
Safety Standards	UL61010B-1, CAN/CSA-C22.2 No. 1010.1, EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326 Class A, AS/NZS 2064, FCC Part 15 Subpart B Class A
Warm-up Time	20 minutes

Display

Display Diagonal Size	6.5 in. (165.1 mm)
Display Resolution	640 x 480 pixels
Display Technology	Active-matrix color TFT LCD
Graticule Divisions	8 x 10 divisions

Storage

Floppy Disk Drive Size	3.5 in.
Floppy Disk Drive Capacity	1.44 MB

Power & Battery

Compatible Battery Model	TDS3BATB
Compatible Battery Chemistry	Lithium-ion (Li-Ion)
AC Input Voltage Range	90 to 250 V AC
AC Input Frequency Range	47 to 440 Hz (90 to 132 V), 47 to 63 Hz (132 to 250 V)

Input/Output Interfaces

Rear Module Slots	1 expansion slot
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TECHNOLOGY

Digital Phosphor Oscilloscope (DPO)

APPLICATIONS

Electronic Design, Manufacturing Test, Service and Repair, Education

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