TEKTRONIX

TDS3024B

The Tektronix TDS3024B is a 4-channel, 200 MHz digital phosphor oscilloscope (DPO) from the TDS3000B series. Designed for hardware debugging, design characterization, and production testing, it combines digital real-time (DRT) sampling technology, WaveAlert anomaly detection, and a portable battery-capable design.

SPECIFICATIONS

General

Interfaces	LAN (10Base-T Ethernet) standard, 3.5 in 1.44 MB floppy drive; GPIB, RS-232, and VGA available via optional TDS3GV module
Display	6.4 in (162.6 mm) active-matrix color TFT LCD, 640 x 480 pixels
Standard Warranty	3 years (excluding probes and accessories)

Physical

Power Supply	100 V to 240 V AC ±10% (50/60 Hz), 115 V AC ±10% (400 Hz), 75 W max; optional battery pack (TDS3BATB)
Operating Temperature	0 °C to +50 °C °C
Dimensions (W×H×D)	375 mm × 176 mm × 149 mm mm
Weight	3.2 kg

Vertical System

Analog Bandwidth (-3 dB)	200 MHz
Calculated Rise Time (10% to 90%)	1.75 ns
Number of Input Channels	4
Input Impedance	1 MΩ ±1% in parallel with 13 pF ±2 pF, or 50 Ω ±1%
Input Coupling	AC, DC, GND
Vertical Resolution (ADC)	9 bits
Input Sensitivity Range	2 mV/div to 10 V/div (for 1 MΩ), 2 mV/div to 1 V/div (for 50 Ω)
DC Gain Accuracy	±2% (±1.5% typical)
Maximum Input Voltage (1 MΩ)	150 V RMS (CAT I), derate at 20 dB/decade above 100 kHz to 13 V peak at 3 MHz
Maximum Input Voltage (50 Ω)	5 V RMS
Channel-to-Channel Isolation	≥ 100:1 at 100 MHz for any two channels with equal sensitivity settings
Hardware Bandwidth Limits	20 MHz, 150 MHz
Channel-to-Channel Deskew Range	±100 ns
Input Dynamic Range	±8 divisions from screen center
Input Capacitance (1 MΩ)	13 pF ± 2 pF
Vertical Divisions	8 divisions

Horizontal System

Maximum Real-Time Sampling Rate	2.5 GS/s on all channels
Maximum Record Length (Points per Channel)	10k points
Time Base Range	2 ns/div to 10 s/div
Time Base Accuracy	±20 ppm
Post-Trigger Delay Range	0 to 10,000 s
Pre-Trigger Delay Range	0% to 100% of record length
Horizontal Divisions	10 divisions

Trigger System

Trigger Modes	Auto, Normal, Single Sequence
Trigger Coupling	AC, DC, Noise Reject, HF Reject, LF Reject
Trigger Holdoff Range	250 ns to 8 s
Edge Triggering	Conventional level-driven trigger. Positive or negative slope on any channel.
Pulse Width Triggering	Trigger on width of positive or negative pulses > < = or != to a select time limit (39.6 ns to 2.24 s)
Runt Triggering	Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again
Video Triggering	Trigger on all lines or individual lines, odd/even or all fields in NTSC, PAL, and SECAM systems

Acquisition System

Acquisition Modes	Sample, Peak Detect, Envelope, Average, Single Sequence
Peak Detect Mode Min Pulse Width	4 ns
Averaging Factor Range	2 to 512
Maximum Waveform Capture Rate	3,600 wfms/s (continuous)

Waveform Measurements and Analysis

Automatic Measurements	25 (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, Burst Width, Delay, Phase, Area, Cycle Area)
Fast Fourier Transform (FFT)	Standard (Kaiser-Bessel, Rectangular, Hanning, Hamming windows)
Waveform Math	Add, Subtract, Multiply, Divide
Waveform Anomaly Detection	WaveAlert (detects anomalous waveforms on all channels)

Connectivity and Ports

Standard LAN Port	10Base-T Ethernet (RJ-45)
Probe Interface	TekProbe Level II

Processor and Storage

Internal Storage	Non-volatile storage for up to 4 reference waveforms and 10 instrument setups

Optional Modules

Optional Application Modules	TDS3AAM (Advanced Analysis), TDS3LIM (Limit Testing), TDS3TMT (Telecommunications Mask Testing), TDS3VID (Extended Video), TDS3SDI (601 Serial Digital Video)

Standard Accessories

Standard Probes	P6139A 10X passive probes (one per channel)

Environmental Specifications

Storage Temperature Range	-20 °C to +60 °C
Operating Humidity Range	Up to 95% RH at or below +30 °C; up to 45% RH up to +50 °C
Operating Altitude	Up to 3,000 meters

Physical Characteristics

Weight with Battery Pack	4.1 kg

Triggering

Edge Trigger Sensitivity (DC Coupled, Internal)	0.35 div (DC to 50 MHz), 1.0 div (at 200 MHz)
Trigger Sources	CH1, CH2, CH3, CH4, AC Line

Interfaces & Storage

Floppy Disk Drive	3.5-inch, 1.44 MB

Power

Optional Battery Pack Model	TDS3BATB
Battery Operating Time (Continuous)	Up to 3 hours (with TDS3BATB)
Maximum Power Consumption	75 W

Compliance

Safety Certifications	UL3111-1, CSA1010.1, EN61010-1
Electromagnetic Compatibility (EMC)	EN61326 Class A, FCC Part 15 Class A, AS/NZS 2064

Display System

Display Formats	YT, XY
Graticule Styles	Full, Grid, Crosshair, Frame

Storage & Save

Internal Setup Storage	10 front-panel setups
Internal Reference Waveform Storage	4 waveforms of 10K points
Waveform File Formats	Spreadsheet (CSV), Mathcad, MATLAB, PNG, BMP, PCX, TIFF, EPS

Interfaces & Connectivity

Parallel Printer Port	Centronics DB-25 female connector (standard)
Optional Communication Module (TDS3GV) Interfaces	GPIB (IEEE-488.2), RS-232 (DB-9 male), VGA monitor out

Environmental & Physical

Cooling Clearance	51 mm (2 in.) on left, right, and rear

TECHNOLOGY

Digital Phosphor Oscilloscope (DPO)

APPLICATIONS

Electronic Design, Troubleshooting, General Bench Test, Telecommunications, Video Design

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