

TEKTRONIX

TDS644B

The Tektronix TDS644B is a high-performance, 4-channel digital real-time oscilloscope designed for precise signal acquisition and analysis. Featuring an analog bandwidth of 500 MHz and a maximum real-time sample rate of 2.5 GS/s simultaneously across all four channels, it offers exceptional signal fidelity and transient capture capabilities. With standard 15,000-point record lengths, an 8-bit vertical resolution (extendable to over 11 bits with averaging), a high-resolution color display, and built-in advanced waveform math (including FFT), the TDS644B is a versatile instrument for demanding design, debugging, and testing environments.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), RS-232, Centronics parallel port, VGA monitor output
Display	Color VGA display
Real-Time Clock	Standard (battery-backed, displays date and time)

Physical

Power Supply	90 to 250 V AC, 45 to 440 Hz, 300 W maximum
Operating Temperature	4 °C to 50 °C °C
Dimensions (W×H×D)	445 mm × 193 mm × 471 mm mm
Weight	14.1 kg

Signal Acquisition System

Number of Channels	4
Analog Bandwidth	500 MHz
Calculated Rise Time	700 ps
Maximum Real-Time Sample Rate	2.5 GS/s (simultaneous on all 4 channels)
Vertical Resolution (A/D Converter)	8-bit (greater than 11-bit with averaging)
Standard Record Length	15,000 points per channel
Acquisition Modes	Sample, Envelope, Average
Channel Deskew Range	±100 ns

Vertical System

Input Sensitivity Range	1 mV/div to 10 V/div
Vertical Gain Accuracy	±1.5%
Input Impedance	50 Ω
Input Coupling	DC, GND
Maximum Input Voltage (50 Ω)	5 V RMS
Channel-to-Channel Isolation	>100:1 at 100 MHz
Selectable Bandwidth Limits	20 MHz and 150 MHz
Offset Range	±1 V (1 mV/div to 99.5 mV/div), ±10 V (100 mV/div to 995 mV/div), ±24 V (1 V/div to 10 V/div)
Position Range	±5 divisions

Horizontal System

Time Base Range	200 ps/div to 10 s/div
Time Base Accuracy	±100 ppm

Trigger System

Trigger Sources	Ch 1, Ch 2, Ch 3, Ch 4, AC Line, Auxiliary
Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, HF Reject, LF Reject, Noise Reject
Trigger Types	Edge, Pulse, Logic, Video
Pulse Triggering	Glitch, Width, Runt, Slew Rate, Setup & Hold
Logic Triggering	Pattern, State
Video Triggering	NTSC, PAL, SECAM, Custom
Trigger Holdoff Range	250 ns to 12 s

Waveform Measurements & Analysis

Automatic Measurements	Fully automated system supporting over 25 parameters
Waveform Math Operations	Addition, subtraction, multiplication, division
Advanced Math Functions	FFT, Integration, Differentiation
Limit Testing Capabilities	Waveform Pass/Fail Template Testing

Storage & File Management

Floppy Disk Drive Capacity	3.5 in. DOS Format (1.44 MB / 720 KB)
Internal Setup Storage	Up to 10 front-panel setups
Internal Waveform Storage	4 reference memory locations

Environmental & Physical Characteristics

Storage Temperature Range	-40 °C to +75 °C
Operating Humidity Range	Up to 95% RH at 40 °C
Operating Altitude	Up to 4,570 m (15,000 ft)
Non-Operating Altitude	Up to 12,190 m (40,000 ft)

Power & Electrical

Line Voltage Range	90 to 250 V RMS (continuous), 47 Hz to 63 Hz; 90 to 132 V RMS, 47 Hz to 440 Hz
Maximum Power Consumption	350 W

Auxiliary Outputs & Inputs

Calibrator Output Signal	0.5 V into >= 50 kΩ, 1 kHz
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Calibration & Maintenance

Warm-up Time	20 minutes
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Options

Option 2F	Advanced DSP Math (adds FFT, integration, and differentiation functions)
Option 13	RS-232 and Centronics hardcopy interfaces
Option 05	Video Trigger (provides NTSC, PAL, SECAM, and custom video triggering)
Option 1R	Rackmount kit (configured for standard 19-inch rack)

Triggering Performance

Trigger Level Range	±12 divisions from center of screen
Trigger Sensitivity (Internal, DC Coupled)	0.35 division from DC to 50 MHz, increasing to 1.2 division at 500 MHz

Display

Display Type	7-inch Liquid Crystal Color Shutter (LCCS) CRT
Display Resolution	640 × 480 pixels

TECHNOLOGY

Digital Real-Time (DRT) Oscilloscope

APPLICATIONS

Electronic circuit design, high-speed digital debugging, telecommunications testing, and general-purpose scientific research

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.