

TEKTRONIX

TDS7404B

The Tektronix TDS7404B is a 4 GHz, 4-channel Digital Phosphor Oscilloscope (DPO) from the TDS7000B series, designed for high-speed digital design, signal integrity analysis, and compliance testing. Offering up to 20 GS/s real-time sample rate on one channel and a high waveform capture rate powered by DPX acquisition technology, it provides deep insights into complex signals.

SPECIFICATIONS

General

Interfaces	GPIB, LAN, USB, RS-232, Centronics Parallel, PS/2, VGA, TekConnect
Display	10.4-inch Color TFT-LCD, XGA (1024x768), Touch Screen

Physical

Power Supply	100 to 240 V RMS $\pm 10\%$ (47 to 63 Hz), 115 V RMS $\pm 10\%$ (360 to 440 Hz), < 600 W
Operating Temperature	5 to 45 °C
Dimensions (W×H×D)	455 × 277 × 425 mm
Weight	19.1 kg

Vertical System

Number of Channels	4
Analog Bandwidth	4 GHz
Hardware Bandwidth Limits	2.5 GHz, 250 MHz, 20 MHz (user selectable)
Calculated Rise Time (10% to 90%)	100 ps (typical)
Calculated Rise Time (20% to 80%)	62 ps (typical)
Input Coupling	DC, GND
Input Impedance	50 Ω
Input Sensitivity Range (50 Ω)	2 mV/div to 1 V/div
Vertical Resolution	8 bits
DC Gain Accuracy	$\pm 1\%$
Offset Range	± 1 V (2 to 100 mV/div), ± 10 V (102 to 1000 mV/div)
Maximum Input Voltage (50 Ω)	5 V RMS
Channel-to-Channel Isolation	$\geq 100:1$ at 100 MHz, $\geq 30:1$ at 4 GHz (typical)
Effective Number of Bits (ENOB)	5.0 bits (typical at 4 GHz)
Vertical Position Range	± 5 div

Horizontal System & Timebase

Real-Time Sample Rate (1 Channel)	20 GS/s
Real-Time Sample Rate (2 Channels)	10 GS/s
Real-Time Sample Rate (4 Channels)	5 GS/s
Equivalent Time Sample Rate (Max)	250 GS/s
Standard Record Length (1 Channel)	4 MS
Standard Record Length (2 Channels)	2 MS
Standard Record Length (4 Channels)	1 MS
Timebase Range	50 ps/div to 10 s/div
Timebase Accuracy	±15 ppm
Channel-to-Channel Deskew Range	±75 ns
Jitter Noise Floor	2.5 ps RMS (typical)

Trigger System

Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, HF Rej, LF Rej, Noise Rej
Trigger Holdoff Range	250 ns to 12 s
Trigger Sensitivity (Internal)	0.35 div from DC to 50 MHz, increasing to 1.5 div at 4 GHz
Edge Triggering	Positive, negative, or dual slope on any channel
Glitch/Pulse Width Triggering	Triggers on glitches down to 225 ps; pulse width from 225 ps to 10 s
Runt Triggering	Triggers on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again
Timeout Triggering	Triggers on an event which remains high, low, or either, for a specified time period (300 ps to 1 s)
Transition Time Triggering	Triggers on rise/fall rate faster or slower than specified
Setup/Hold Violation Triggering	Triggers on violations of setup and hold times between clock and data
Pattern/State Triggering	Triggers when logic pattern goes true/false or is clocked
Window Triggering	Triggers when a signal enters or exits a user-defined window voltage range
Comm/Serial Triggering	Optional AMI, NRZ, and Coded Mark Inversion (CMI) mask types up to 3.125 Gb/s (Option SM)
Trigger Delay (by Time or Events)	Trigger-Delay-by-Time (1.2 ns to 250 s); Trigger-Delay-by-Events (1 to 10,000,000 events)
Trigger Level Range (Internal)	±12 divisions from screen center
Trigger Level Range (External/Auxiliary)	±5.0 V

Display & User Interface

Display Type	Color TFT-LCD
Display Size (Diagonal)	10.4 in.
Display Resolution	1024 × 768 pixels
Waveform Capture Rate (Maximum)	> 400,000 wfms/s
Color Palettes	Normal, Green, Gray, Temperature, Spectral, and User-defined
Touch Screen Support	Standard

Measurement, Math & Analysis

Automatic Waveform Measurements	38 automatic measurements
Measurement Statistics	Mean, Minimum, Maximum, Standard Deviation, and Population
Waveform Histograms	Vertical and Horizontal histograms with 22 statistics
Waveform Math Functions	Add, Subtract, Multiply, Divide, Integrate, Differentiate, FFT
Advanced Math	User-defined algebraic expressions
FFT Window Types	Rectangular, Hamming, Hanning, Kaiser-Bessel, Blackman-Harris, Gaussian, Flattop2
Mask Testing	Optional (Communications Mask Testing up to 3.125 Gb/s with Option SM)

Computer System & Storage

Operating System	Windows 2000
CPU	Intel Pentium 4 (2.0 GHz)
System Memory (RAM)	512 MB
Internal Hard Disk Drive Capacity	≥40 GB
Removable Media Storage	CD-RW, 3.5-inch 1.44 MB floppy drive

Connectivity & Interface Ports

GPIB Interface	IEEE 488.2
LAN Interface	10/100 Base-T RJ-45
USB Ports	4 USB 1.1 ports
RS-232 Serial Port	DB-9 male
External Video Output (VGA/DVI)	VGA (15-pin D-sub)
Keyboard and Mouse Ports	PS/2
Parallel Port	Centronics
Probe Interface Connection Type	TekConnect

Power & Environmental

Power Consumption (Maximum)	600 W
Non-Operating Temperature	-22 °C to +60 °C
Operating Humidity Range	20% to 80% RH (non-condensing)
Non-Operating Humidity Range	5% to 90% RH (non-condensing)
Operating Altitude	3,000 m (10,000 ft.)
Non-Operating Altitude	12,190 m (40,000 ft.)

Physical Characteristics

Width	455 mm
Height	277 mm
Depth	425 mm
Net Weight	19.1 kg
Shipping Weight	37 kg

Standards & Compliance

Safety Certifications	UL 3111-1, CSA 1010.1, EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326-1, FCC Part 15 Class A

Options & Accessories

Memory Expansion Options	Opt 2M (8 MS), Opt 3M (16 MS), Opt 4M (32 MS), Opt 5M (64 MS) - single-channel values
Compatible Active Probes	P7240, P7260, P7330, P7350, P7380
Compatible Differential Probes	P7350, P7380, P7350SMA
Option 1R (Rackmount Kit)	Available
Option ST (Serial Triggering)	Up to 1.25 Gb/s
TekConnect Adapter Options	TCA-BNC, TCA-SMA, TCA-1MEG, TCA-75

Timebase System

Timebase Delay Range	5 ns to 250 s
Pre-trigger Delay Range	0% to 100% of record length

Input & Output Ports

External Reference Input Frequency	10 MHz $\pm$ 10 kHz
Internal Reference Output Frequency	10 MHz (typical)
External Clock Input	1 GHz to 4 GHz (SMA connector)
External Clock Output	1 GHz to 4 GHz (SMA connector)
Auxiliary Trigger Input Interface	BNC (50 Ω , max 5 V RMS with peaks $\leq$ $\pm$ 30 V)

Environmental

Operating Vibration	0.048 g RMS (5 Hz to 500 Hz)
Non-Operating Vibration	2.24 g RMS (5 Hz to 500 Hz)
Operating Shock	15 g (11 ms half-sine)
Non-Operating Shock	50 g (11 ms half-sine)

Power Specifications

AC Input Voltage Range	100 to 240 V AC (±10%) at 50/60 Hz, or 115 V AC (±10%) at 400 Hz
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Triggering

Trigger Jitter (Typical, with Enhanced Triggering)	1.5 ps RMS
Trigger Jitter (Typical, without Enhanced Triggering)	8 ps RMS
External Trigger Input Impedance	50 Ω
External Trigger Max Input Voltage (1 MΩ)	N/A (50 Ω only)
External Trigger Max Input Voltage (50 Ω)	5 V RMS, with peaks ≤ ±30 V
Auto-trigger Mode Timeout Range	0.02 s to 45 s

Storage

Floppy Disk Drive	3.5 in, 1.44 MB
CD-RW Drive	Standard

I/O Ports & Connectivity

External Display Output Resolution	Up to 1600 × 1200 at 75 Hz
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Physical / Installation

Cooling Clearance	Minimum 3 in (76 mm) on left side, right side, and rear
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Power

Line Frequency	47 to 63 Hz, or 360 to 440 Hz
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Display

Display Color Resolution	24-bit (16.7 million colors)
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TECHNOLOGY

Digital Phosphor Oscilloscope (DPO)

APPLICATIONS

High-speed digital design, compliance testing, signal integrity analysis

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