

TEKTRONIX

DSA71254

The Tektronix DSA71254 is a high-performance 12.5 GHz Digital Serial Analyzer designed for signal integrity verification, compliance testing, and characterization of high-speed serial data standards. Combining an industry-leading 12.1-inch display, up to 50 GS/s real-time sampling rate on four channels simultaneously, and Pinpoint triggering, it offers unmatched precision and specialized measurement capabilities for demanding electronic designs.

SPECIFICATIONS

General

Interfaces	USB 2.0, GPIB (IEEE 488.2), LAN (10/100/1000 Base-T), LXI Class C, VGA, DVI, RS-232
Display	12.1-inch active matrix color TFT-LCD touch screen, XGA (1024 × 768) resolution

Physical

Power Supply	100 to 240 V AC (±10%), 47 to 63 Hz (and 115 V AC ±10%, 360 to 440 Hz), < 1000 VA
Operating Temperature	5 °C to +45 °C °C
Dimensions (W×H×D)	451 mm × 298 mm × 489 mm mm
Weight	24 kg kg

Vertical System

Analog Bandwidth (-3 dB)	12.5 GHz
Number of Input Channels	4
Rise Time (10% to 90%, typical)	35 ps
Rise Time (20% to 80%, typical)	24 ps
Vertical Resolution	8-bit (up to 11-bit with averaging)
Input Sensitivity Range (50 Ohm)	10 mV/div to 1 V/div
DC Gain Accuracy	±2%
Input Coupling	DC, GND
Position Range	±5 divisions
Input Impedance	50 Ω ± 1.5%
Probe Interface Type	TekConnect

Horizontal System & Timebase

Timebase Delay Time Range	-5.0 ks to 250 s
Channel-to-Channel Deskew Range	±75 ns
Timebase Stability	±1.5 ppm (initial accuracy)
Timebase Aging (per Year)	±1.0 ppm
Trigger Jitter (typical)	100 fs RMS (with Enhanced Triggering enabled)

Acquisition System

Maximum Real-Time Sample Rate (All 4 Channels)	25 GS/s
Maximum Record Length (Standard)	50 MSamples/ch
Waveform Update Rate (Max)	300,000 wfms/s
Equivalent Time Sample Rate (Max)	10 TS/s
Envelope Acquisition Mode	Min/Max accumulator for 1 to 2×10^9 waveforms
Average Acquisition Mode	Selectable from 2 to 10,000 waveforms

Trigger System

Trigger Sources	CH1, CH2, CH3, CH4, Aux In
Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, HF Rej, LF Rej, Noise Rej
Trigger Holdoff Range	250 ns to 12 s
Serial Pattern Triggering Speed	Up to 3.125 Gb/s
Hardware Serial Trigger Payload Length	64-bit
Glitch Trigger Minimum Width	150 ps
Width Trigger Range	150 ps to 1 s
Runt Trigger Minimum Width	150 ps
Timeout Trigger Range	300 ps to 1 s
Transition Trigger Range	300 ps to 1 s
Trigger Level Range (Internal)	±8 divisions from center of screen
A-B Trigger Sequence Delay Range	3.2 ns to 250 s

Serial Data & Jitter Analysis

Standard Jitter & Eye Analysis Software	DPOJET (standard on DSA series)
Jitter Decomposition Model	RJ/DJ separation using spectral and Dual-Dirac methods
Clock Recovery PLL Types	First-Order, Second-Order, Golden PLL, Custom
Reference Receiver Equalization	CTLE (Continuous Time Linear Equalization), DFE (Decision Feedback Equalization), FFE (Feed Forward Equalization)

Controller & Storage

Internal Operating System	Windows XP Professional
Internal Storage Capacity	≥ 80 GB Removable Hard Disk Drive
Removable Storage Options	USB Flash Drive, DVD-RW Drive

Connectivity & Interface Ports

Auxiliary Input Port	BNC connector, 50 Ω, max 5 V RMS
Fast Edge Output Port	SMA connector, rise time < 50 ps
External Reference Input	10 MHz (or 100 MHz)
Internal Reference Output	10 MHz
LAN Port Speed	10/100/1000 Mbps
USB Ports Configuration	5 USB Host ports (USB 2.0), 1 USB Device port
External Video Output Ports	DVI, VGA

Display & User Interface

Touch Screen Technology	Resistive
Waveform Display Formats	YT, XY
Customizable UI Features	MyScope Custom Windows

Power & Environmental

Non-Operating Temperature Range	-40 °C to +71 °C
Operating Humidity Range	8% to 80% RH (up to 32 °C)
Operating Altitude (Max)	3,000 m (9,843 ft)

Physical Characteristics

Height	298 mm (11.74 inches)
Width	451 mm (17.75 inches)
Depth	489 mm (19.25 inches)
Weight (Net)	20 kg (44 lbs)
Weight (Shipping)	34 kg (75 lbs)
Rackmount Kit Compatibility	7U rackmount kit

Regulatory & Safety

Safety Standards Certification	UL61010-1, CSA 22.2 No. 61010-1, EN61010-1, IEC61010-1
Electromagnetic Compatibility (EMC)	EN61326, FCC 47 CFR Part 15 Subpart B Class A
Recommended Calibration Interval	1 year

Input System

Input Connector Type	TekConnect
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Waveform Measurements and Math

Number of Math Waveforms	4
Math Operators	Add, subtract, multiply, divide, integrate, differentiate, FFT

Compliance and Certifications

LXI Compliance	LXI Class C
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Environmental

Operating Vibration	0.33 G RMS, 5 Hz to 500 Hz
Non-Operating Vibration	2.26 G RMS, 5 Hz to 500 Hz

Physical and Cooling

Cooling Clearance (Left/Right)	76 mm (3 in.)
Cooling Clearance (Rear)	76 mm (3 in.)
Cooling Clearance (Top/Bottom)	0 mm (0 in.)

Horizontal System

Maximum Real-Time Sample Rate (2 Channels)	50 GS/s
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Display

Display Size	12.1 in (307.3 mm) diagonal
Display Resolution	1024 × 768 pixels (XGA)

Software & Features

Standard Software/Options	Option DJA (DPOJET Jitter and Eye Diagram Analysis), Option MTH (Serial Mask Testing), Option PTH1 (Serial Pattern Triggering)
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Power

Power Source Voltage	100 to 240 V AC ±10%
Power Source Frequency	50 to 60 Hz (100 to 240 V AC), 400 Hz (115 V AC)
Maximum Power Consumption	<1200 VA

Computer System

System Memory	2 GB / 4 GB (hardware version dependent)
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TECHNOLOGY

Digital Phosphor Oscilloscope (DPO) / Digital Serial Analyzer (DSA)

APPLICATIONS

High-speed serial data analysis, compliance testing, and signal integrity debugging

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