

TEKTRONIX

DSA8300

The Tektronix DSA8300 is a high-performance Digital Sampling Oscilloscope (modular mainframe) designed for ultra-high-speed electrical and optical communications analysis, TDR/TDT/S-parameter measurements, and precision jitter and noise analysis. Offering an equivalent-time sampling architecture with modular versatility, it supports bandwidths up to and exceeding 110 GHz depending on the installed acquisition module. The system runs Windows 7 Ultimate and features a 10.4-inch XGA touchscreen for advanced multi-channel signal evaluation.

SPECIFICATIONS

General

Interfaces	7× USB 2.0 (3 front, 4 rear), 1× Gigabit Ethernet (10/100/1000 Base-T, RJ-45), 1× GPIB (IEEE-488.2), 1× DVI-I, 1× VGA, 1× RS-232
Display	10.4-inch active-matrix color TFT LCD, 1024 × 768 (XGA) resolution, with touchscreen

Physical

Power Supply	100 to 240 V AC ±10% (50/60 Hz), or 115 V AC ±10% (400 Hz)
Operating Temperature	10 °C to 40 °C °C
Dimensions (W×H×D)	457 mm × 343 mm × 419 mm mm
Weight	21.0 kg

Vertical System

Analog Bandwidth	Up to >70 GHz (electrical), up to >110 GHz (optical) module-dependent
Number of Input Channels	Up to 8 channels simultaneous acquisition (using 4 dual-channel electrical modules)
Vertical Resolution (ADC)	16 bits
Input Impedance	50 Ω (typical, module-dependent)
Input Coupling	DC (module-dependent)
Dynamic Range	1.0 Vp-p (typical electrical module full scale)

Horizontal System

Maximum Record Length	50 to 16,000 points per channel
Time Base Range	2 ps/div to 1 ms/div (minimum 500 fs/div with phase reference module)
Standard Jitter	<800 fs RMS (typical)
Phase Reference Jitter	<100 fs RMS (with 82A04B Phase Reference Module)
Horizontal Resolution	1 fs

Trigger System

Direct Trigger Input Range	DC to 3.0 GHz
Direct Trigger Sensitivity	200 mVp-p (typical at 3.0 GHz)
Prescaled Trigger Input Range	2.0 GHz to 15.0 GHz (typical)
Trigger Sources	Direct, Prescaled, Clock Recovery (module-dependent), Internal Clock
Trigger Modes	Free Run, Normal
Trigger Jitter	<1.2 ps RMS (direct trigger, typical)
Maximum Trigger Rate	300 kHz
Direct Trigger Input Impedance	50 Ω
Direct Trigger Coupling	DC
Direct Trigger Connector	SMA female

Acquisition System

Acquisition Modes	Sample, Average, Envelope
Waveform Capture Rate	300 kS/s maximum sample rate

Waveform Measurements and Analysis

Automatic Measurements	Over 120 automatic measurements (amplitude, timing, RJ, DJ, Eye-diagram)
Math Functions	Addition, subtraction, multiplication, division, integration, differentiation, FFT
FFT Window Types	Rectangular, Hamming, Hanning, Blackman-Harris, Kaiser-Bessel

Display and User Interface

Display Type	Active-matrix color TFT LCD
Display Size	10.4 inches (264 mm) diagonal
Display Resolution	1024 × 768 pixels (XGA)
Touchscreen Technology	Resistive touch panel

Connectivity and Ports

USB Ports	7× USB 2.0 (3 front panel, 4 rear panel)
LAN Port	1× RJ-45 Gigabit Ethernet (10/100/1000 Base-T)
GPIB Port	1× IEEE-488.2 interface
Video Outputs	1× DVI-I, 1× VGA
Reference Clock Input	10 MHz (BNC, rear panel)
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Processor and Storage

Internal Operating System	Windows 7 Ultimate (32-bit)
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Power Specifications

Power Consumption	600 W (maximum)
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Environmental Specifications

Storage Temperature	-20 °C to +60 °C
Operating Altitude	Up to 3,000 m (9,843 ft)
Non-operating Altitude	Up to 12,000 m (39,370 ft)
Operating Humidity	20% to 80% RH (non-condensing)

Physical Characteristics

Form Factor	Modular Mainframe Benchtop / Rackmount
Height	343 mm (13.5 in.)
Width	457 mm (18.0 in.)
Depth	419 mm (16.5 in.)

Modular Capacity

Small Module Slots	4 slots (for electrical, optical, and accessory acquisition modules)
Large Module Slots	2 slots (for trigger, phase reference, and accessory modules)

Environmental

Operating Vibration	0.22 g RMS, 5 Hz to 500 Hz
Non-operating Vibration	2.28 g RMS, 5 Hz to 500 Hz

Regulatory & Compliance

EMC Compliance	EU EMC Directive 2004/108/EC, EN61326-1, EN61326-2-1
Safety Certification	UL61010-1, CAN/CSA-C22.2 No. 61010-1, EN61010-1, IEC61010-1

System & Processing

System Memory	4 GB
Removable Storage	≥160 GB rear-panel removable HDD (or SSD, configuration dependent)

Triggering

Pattern Lock Sequence Length	2 to 8,388,608 (2 ²³) bits
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Connectivity & I/O

Audio I/O	Mic In, Line In, Line Out (3.5 mm jacks)
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Measurement Capabilities

TDR Rise Time	Down to 12 ps incident / 15 ps reflected (module dependent)
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TECHNOLOGY

Equivalent-time sampling oscilloscope mainframe

APPLICATIONS

High-speed serial data communications testing, optical and electrical eye-diagram analysis, TDR/TDT/S-parameter characterization, precision jitter, noise, and BER analysis

