

KEYSIGHT TECHNOLOGIES (AGILENT HP)

DSO81004B

The Keysight Technologies (formerly Agilent) DSO81004B is a high-performance 10 GHz, 4-channel real-time digital storage oscilloscope belonging to the Infiniium 80000B Series. Known for its industry-leading signal integrity, the DSO81004B features the lowest noise floor, lowest jitter measurement floor, and flattest frequency response in its class, making it an exceptional tool for high-speed digital design, RF, and serial bus characterization.

SPECIFICATIONS

General

Interfaces	LAN, GPIB, USB 2.0 (5 ports), VGA, RS-232, PS/2
Display	8.4 inch (213 mm) diagonal XGA touch screen display, 256-level intensity grading

Physical

Power Supply	100 - 240 VAC ($\pm 10\%$), 47 - 63 Hz, 800 W maximum
Operating Temperature	5 to 40 °C
Dimensions (W×H×D)	425 × 216 × 525 mm
Weight	20 kg

Key Performance Specifications

Analog Bandwidth	10 GHz
Analog Channels	4 (simultaneous)
Max Real-Time Sample Rate (2-Channel)	40 GSa/s
Max Real-Time Sample Rate (4-Channel)	20 GSa/s
Standard Memory Depth	1 Mpts (4 channels), 2 Mpts (2 channels)
Calculated Rise Time (10% to 90%)	38.5 ps
Calculated Rise Time (20% to 80%)	28 ps
System Bandwidth with Probe	10 GHz (combined system with InfiniiMax II 1169A)

Vertical System

Input Impedance	50 Ω ($\pm 1.5\%$)
Input Coupling	DC
Input Sensitivity Range	2 mV/div to 1 V/div
Vertical Resolution (ADC)	8 bits
Vertical Resolution with High Res Mode	Up to 12 bits
DC Gain Accuracy	$\pm 2\%$ of full scale
Offset Range	± 1.2 V (< 100 mV/div), ± 4 V (≥ 100 mV/div)
Channel-to-Channel Isolation	≥ 40 dB (DC to 10 GHz)
Industry Lowest Noise Floor	342 μ V @ 5 mV/div

Horizontal System

Timebase Range	5 ps/div to 20 s/div
Timebase Resolution	50 fs
Timebase Accuracy	± 0.1 ppm
Channel-to-Channel Deskew Range	± 25 μ s
Intrinsic Sample Clock Jitter	100 fs rms
Internal Timebase Reference Aging Rate	± 0.1 ppm per year
Internal Timebase Reference Temperature Stability	± 0.05 ppm (0 $^{\circ}$ C to 50 $^{\circ}$ C)

Acquisition System

Acquisition Modes	Real-time, Equivalent-time, Segmented, Peak Detect, High Resolution, Average
Segmented Memory Max Segments	Up to 16,384 segments (configuration dependent)
Peak Detect Resolution	50 ps minimum pulse width

Trigger System

Trigger Jitter	< 500 fs rms
Trigger Sources	Channel 1, Channel 2, Channel 3, Channel 4, Aux
Trigger Holdoff Range	100 ns to 10 s
Trigger Level Range (Internal)	± 4 divisions from center screen
Trigger Sensitivity	0.5 div (DC to 5 GHz), 1.0 div (5 GHz to 10 GHz) internal
Trigger Modes	Edge, Glitch, Width, Transition, Runt, Timeout, Pattern, State, Setup/Hold, Window

Waveform Measurements & Analysis

Automatic Voltage Measurements	Peak-to-Peak, Amplitude, Max, Min, Top, Base, Overshoot, Undershoot, Average, RMS
Automatic Time Measurements	Period, Frequency, Rise Time, Fall Time, +Width, -Width, Duty Cycle, Tmin, Tmax
Waveform Math Operators	Add, Subtract, Multiply, Divide, FFT, Differentiate, Integrate, Square Root, Absolute, Log, Invert
FFT Window Functions	Hanning, Hamming, Rectangular, Blackman-Harris, Flat Top

Display & User Interface

Display Resolution	1024 × 768 (XGA)
Touch Screen Capability	Yes

Connectivity & I/O Interfaces

USB Ports	5 total (2 front, 3 rear) USB 2.0 type A
LAN Port Interface Speed	10/100/1000Base-T
10 MHz Reference Input/Output	Yes (BNC)
External Display Output Port	VGA (15-pin D-sub)
Probe Interface Connection Type	InfiniiMax II Autoprobe interface

Computer System & Storage

Internal Operating System	Windows XP Professional
Removable Storage Options	USB Flash Drive, CD-RW/DVD-ROM drive standard

Power & Environmental

Line Frequency Range	47 - 63 Hz
Storage Temperature Range	-40 °C to +70 °C
Operating Humidity (Non-condensing)	Up to 95% relative humidity at +40 °C
Operating Altitude	Up to 4,600 m (15,000 ft)

Regulatory & Compliance

Safety Standards Certifications	IEC 61010-1, EN 61010-1, UL 61010B-1, CAN/CSA-C22.2 No. 1010.1-92
Calibration Interval Recommendation	1 year

Connectivity

LXI Compliance	Class C
GPIO Interface	IEEE 488.2

Power

Maximum Power Consumption	550 W
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Display System

Display Size	12.1 in (307 mm) diagonal
Display Type	Active-matrix color TFT-LCD

Triggering System

Auxiliary Trigger Input Impedance	50 Ω
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Inputs & Outputs

Auxiliary Trigger Input Connector	BNC (front panel)
10 MHz Reference Input Connector	BNC (rear panel)
10 MHz Reference Output Connector	BNC (rear panel)

Calibration System

DC Calibrator Output Voltage Range	±2.4 V
DC Calibrator Output Resolution	0.1 mV

Environmental

Operating Vibration	0.3 g(rms), 5 Hz to 500 Hz
Non-operating Vibration	2.41 g(rms), 5 Hz to 500 Hz
Operating Shock	30 g, half-sine, 11 ms duration

Standard Accessories

Included Accessories	USB keyboard, USB optical mouse, ESD wrist strap, precision 3.5 mm female-to-female adapters (4), accessory pouch, power cord
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TECHNOLOGY

Digital Storage Oscilloscope

APPLICATIONS

High-Speed Serial Characterization, RF Signal Analysis, Debugging High-Speed Digital Systems

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