

LECROY (TELEDYNE LECROY)

WaveRunner 204Xi-A

The Teledyne LeCroy WaveRunner 204Xi-A is a highly capable 2 GHz, 4-channel Digital Storage Oscilloscope (DSO) designed for debugging, serial data analysis, and power measurements. Built with a compact footprint of only 15 cm depth and a bright 10.4-inch touch screen display, it delivers an impressive sample rate of up to 10 GS/s (interleaved) and a standard record length of 12.5 Mpts/ch. Standard features include the WaveScan advanced search tool, WaveStream fast viewing mode, and deeply integrated math and analysis capabilities, making it an exceptional troubleshooting tool for both slow-speed analog and high-speed digital designs.

SPECIFICATIONS

General

Interfaces	6 × USB Host (2 front, 4 rear), 1 × USB Device (rear), 10/100/1000Base-T LAN (RJ-45), VGA Out, GPIB (optional)
Display	10.4-inch color TFT-LCD touch screen, SVGA (800 × 600) resolution

Physical

Operating Temperature	5 to 40 °C °C
Dimensions (W×H×D)	340 mm × 260 mm × 152 mm mm
Weight	7.26 kg

Vertical System

Analog Bandwidth (-3 dB)	2 GHz
Number of Channels	4
Rise Time (10% to 90%)	225 ps (typical)
Input Impedance	1 MΩ 16 pF or 50 Ω
Input Coupling	AC, DC, GND (50 Ω is DC only)
Vertical Resolution	8-bit (up to 11-bit with ERES)
Vertical Sensitivity (1 MΩ)	2 mV/div - 10 V/div
Vertical Sensitivity (50 Ω)	2 mV/div - 1 V/div
DC Gain Accuracy	±1.5% of full scale
Maximum Input Voltage (1 MΩ)	400 V max (DC + Peak AC ≤ 10 kHz)
Maximum Input Voltage (50 Ω)	5 Vrms
Hardware Bandwidth Limiters	20 MHz, 200 MHz, 1 GHz
Probe Interface	LeCroy ProBus
Channel-to-Channel Isolation	40 dB @ 1 GHz, 30 dB @ 2 GHz (typical)
Rise Time (20% to 80%)	120 ps (typical)
Input Capacitance (1 MΩ)	16 pF (typical)
Enhanced Resolution (ERES)	8.5 to 11.0 bits (in 0.5 bit steps)

Horizontal System & Acquisition

Maximum Real-time Sample Rate (Single-Channel)	10 GS/s (interleaved)
Maximum Real-time Sample Rate (Multi-Channel)	5 GS/s (all 4 channels)
Standard Memory Depth (Single-Channel)	25 Mpts (interleaved)
Standard Memory Depth (Multi-Channel)	12.5 Mpts/ch (all 4 channels)
Time Base Range	20 ps/div - 1000 s/div

Trigger System

Trigger Modes	Auto, Normal, Single, Stop
Trigger Coupling	AC, DC, LFREJ, HFREJ, Noise Reject
Trigger Sources	Ch 1, Ch 2, Ch 3, Ch 4, EXT, EXT/10, Line
Standard Trigger Types	Edge, Width, Glitch, Period, Timeout, Dropout, Slew Rate, Runt, Interval, Pattern, State, TV-Composite
Serial Trigger Options	I2C, SPI, UART, RS-232, LIN, CAN, FlexRay
Trigger Jitter	≤ 3 ps rms (typical)
Trigger Level Range	Internal: ±4.1 div from center; External: ±0.4 V (50 Ω), ±4 V (1 MΩ)
Trigger Sensitivity (Internal, DC to 2 GHz)	1.0 div
Trigger Sensitivity (Internal, DC to 1 GHz)	0.6 div
Trigger Sensitivity (External, DC to 2 GHz)	300 mV
Trigger Sensitivity (External, DC to 1 GHz)	150 mV
Trigger Holdoff (by Time)	2 ns to 20 s
Trigger Holdoff (by Events)	1 to 99,999,999 events

Acquisition Modes & Signal Processing

Waveform Update Rate	Up to 1,250,000 waveforms/second (WaveStream mode)
Acquisition Modes	Real-time, WaveStream (Fast Viewing), Roll, Sequence (Segmented Memory)
Sequence Mode Max Segments	10,000
Waveform Math Operators	Add, Subtract, Multiply, Divide, FFT, Absolute Value, Average, Derivative, Envelope, Integral, Invert, Reciprocal, Rescale, Square, Square Root, Zoom
FFT Window Types	von Hann (Hanning), Hamming, Flat Top, Blackman-Harris, Rectangular

Measurements & Analysis

WaveScan Advanced Search	Search and scan by parameter value, edge, pulse width, runt, slew rate, or dropout
Measurement Parameters	Up to 8 parameters displayed simultaneously with statistics (min, max, mean, std. dev, count)

Input/Output Interfaces

External Trigger Input	Front panel BNC (1 M Ω 16 pF or 50 Ω)
Auxiliary Output	Front panel BNC trigger out / calibrator signal

Power & Physical Characteristics

Power Consumption	340 VA (typical), 400 VA (maximum)
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Environmental & Compliance

Storage Temperature Range	-20 °C to 60 °C
Operating Humidity Range	Up to 80% RH at or below 31 °C, decreasing linearly to 50% RH at 40 °C
Safety Certifications	UL 61010-1, CSA C22.2 No. 61010-1, EN 61010-1

Horizontal System

Channel-to-Channel Deskew Range	± 9 ns
Interpolation	Linear, Sin(x)/x

Computer System

Processor	Intel Celeron M (2.0 GHz)
Operating System	Windows XP Embedded
System Memory (RAM)	1 GB
Hard Disk Drive	≥ 160 GB (SATA)

Interfaces & Calibration

LXI Compliance	LXI Class C
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Environmental

Environmental Shock	Meets MIL-PRF-28800F Class 3
Environmental Vibration	Meets MIL-PRF-28800F Class 3

Acquisition System

Optional Memory Depth (M-Option)	25 Mpts/ch (50 Mpts single-channel)
Optional Memory Depth (L-Option)	50 Mpts/ch (100 Mpts single-channel)

Display & User Interface

Grid Styles	Auto, Single, Dual, Quad, Octal, XY, Single+XY, Dual+XY
Maximum Zoom Traces	4

Inputs & Outputs

Calibrator Output Signal	1 kHz, 1 V square wave into ≥ 10 k Ω
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Power Requirements

Power Frequency	47 to 63 Hz (90 to 264 V AC) / 380 to 420 Hz (90 to 132 V AC)
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TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

Electronic debugging, serial protocol analysis, high-frequency signal integrity testing, and general-purpose waveform measurement.

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