

LECROY (TELEDYNE LECROY)

WaveSurfer 24Xs-A

The Teledyne LeCroy WaveSurfer 24Xs-A is a 200 MHz, 4-channel digital oscilloscope designed to streamline debugging and analysis for everyday design. Featuring a space-efficient design with a depth of only 15 cm (6 inches), it features a large 10.4" SVGA touch screen display, a high sample rate of 2.5 GS/s per channel, and 5 Mpts of standard acquisition memory. Complete with advanced capabilities such as WaveStream fast viewing mode, WaveScan search-and-find, and LXI compliance, the WaveSurfer 24Xs-A is optimized for quick problem detection and embedded design troubleshooting.

SPECIFICATIONS

General

Interfaces	USB Host (1 front, 3 rear), USB Device (rear), LAN (10/100/1000Base-T), SVGA Out, Optional GPIB
Display	10.4" SVGA Color TFT-LCD Touch Screen (800 x 600 resolution)

Physical

Power Supply	100 - 240 VAC ($\pm 10\%$) at 45 - 66 Hz (or 100 - 120 VAC at 380 - 420 Hz), 340 VA max
Operating Temperature	5 to 40 °C
Dimensions (W×H×D)	332 × 260 × 152 mm
Weight	7.26 kg

Vertical System

Analog Bandwidth (-3 dB)	200 MHz
Number of Input Channels	4
Calculated Rise Time (10% to 90%)	1.75 ns (typical)
Input Impedance	1 M Ω $\pm 1\%$ 16 pF; 50 Ω $\pm 1\%$
Input Coupling	GND, AC 1 M Ω , DC 1 M Ω , DC 50 Ω
Vertical Resolution	8-bit (up to 11-bit with Enhanced Resolution / ERES)
Input Sensitivity Range (1 M Ω)	2 mV/div - 10 V/div
Input Sensitivity Range (50 Ω)	2 mV/div - 1 V/div
DC Gain Accuracy	$\pm 1.5\%$ (typical)
Maximum Input Voltage (1 M Ω)	400 V max (Peak AC < 10 kHz + DC)
Maximum Input Voltage (50 Ω)	5 Vrms
Hardware Bandwidth Limits	20 MHz, 200 MHz (full)
Enhanced Resolution (ERES)	Up to 11 bits (0.5 to 3 bits enhancement)
Probe Interface Type	LeCroy ProBus
Input Capacitance	16 pF

Horizontal System

Maximum Real-Time Sampling Rate	2.5 GS/s (on all 4 channels)
Equivalent-Time Sampling Rate (ETS)	50 GS/s
Maximum Record Length	5 Mpts/ch (standard)
Time Base Range	200 ps/div - 1000 s/div
Channel-to-Channel Deskew Range	±4.5 ns

Trigger System

Trigger Modes	Auto, Normal, Single, Stop
Trigger Sources	Ch 1, Ch 2, Ch 3, Ch 4, EXT, EXT/10, Line
Trigger Coupling	AC, DC, HFRej, LFRej
Trigger Holdoff Range	2 ns to 20 s (or 1 to 99,999,999 events)
Trigger Types	Edge, Glitch, Width, Logic (Pattern), TV (Video), Runt, Slew Rate, Interval, Dropout, State
External Trigger Input Impedance	1 MΩ ±1% 16 pF
Serial Bus Triggering Options	I2C, SPI, UART, RS-232, LIN, CAN
Trigger Jitter	< 9 ps rms (typical)
External Trigger Maximum Input Voltage (1 MΩ)	400 V max (DC + Peak AC < 10 kHz)
Trigger Level Range (Internal)	±4.1 divisions from center
Trigger Level Range (External)	±0.5 V (Ext), ±5 V (Ext/10)
Trigger Sensitivity (Internal)	0.6 div @ < 200 MHz

Acquisition System

Acquisition Modes	Real-time, Roll, Random Interleaved Sampling (RIS)
Averaging Factor Range	Up to 1,000,000 sweeps
Waveform Capture Rate	Up to 22,000 wfms/s (WaveStream mode)
Advanced Search & Find	WaveScan (more than 20 search modes)
Mixed Signal Capability (Optional)	Up to 36 digital channels, 500 MHz bandwidth, 2 GS/s, up to 50 Mpts/ch
Interleaved Maximum Sampling Rate	5 GS/s
Interleaved Maximum Record Length	20 Mpts
Waveform Interpolation	Linear, Sin(x)/x

Waveform Measurements and Analysis

Automatic Measurements	Up to 6 simultaneous measurements (voltage, time, frequency, statistics)
Measurement Statistics	Min, Max, Mean, Standard Deviation, Count
Advanced Math & Formula Editor	FFT, Absolute Value, Derivative, Integral, Logarithm, Square, Square Root, Reciprocal, Rescale
Limit and Mask Testing	Supported

Display and User Interface

Display Type	Color TFT-LCD Touch Screen
Display Size	10.4 inches (264 mm) diagonal
Display Resolution	800 x 600 (SVGA)
Waveform Display Formats	YT, XY
Intensity Modulation / Color Grading	WaveStream Fast Viewing Mode (256 levels)
Local Language UI	Supported (10 language preferences)

Connectivity and Ports

USB Host Ports	4 ports (1 front, 3 rear)
USB Device Ports	1 port (rear)
LAN Port (Ethernet)	10/100/1000Base-T Ethernet (RJ-45)
External Video Output Port	SVGA (DB-15)
LXI Class Compliance	LXI Class C compliant
Auxiliary Output (Trigger Out)	Trigger Out, Pass/Fail
Probe Calibration / Demo Output	1 kHz, 1 V square wave

Processor and Storage

Internal Operating System	Windows Embedded
Removable Storage Options	USB Flash Drive

Power Specifications

Power Supply Voltage Range	100 - 240 VAC ($\pm 10\%$)
Power Consumption (Maximum)	340 VA

Environmental Specifications

Operating Temperature Range	5 °C to 40 °C
Storage Temperature Range	-20 °C to 60 °C
Operating Humidity Range	5% to 80% RH (non-condensing) up to 30 °C; decreasing to 45% RH at 40 °C

Physical Characteristics

Form Factor	Benchtop
Height	260 mm (10.25 inches)
Width	332 mm (13 inches)
Depth	152 mm (6 inches)

Timebase System

Timebase Accuracy	± 10 ppm
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Computer System

Processor	Intel Celeron M 1.5 GHz
System Memory	1 GB RAM

Interfaces

Network Interface	10/100/1000Base-T (RJ-45)
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Auxiliary Inputs & Outputs

Calibrator Output	1 kHz, 1 V p-p into $\geq 1\text{ M}\Omega$
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Storage

Internal Hard Drive Capacity	160 GB
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Standard Accessories

Standard Passive Probe Model	PP009
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Environmental

Environmental Compliance	MIL-PRF-28800F Class 3 (Shock and Vibration)
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TECHNOLOGY

Digital

APPLICATIONS

Electronic design, embedded systems debugging, and serial data analysis

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