

LECROY (TELEDYNE LECROY)

WaveSurfer 3054

The Teledyne LeCroy WaveSurfer 3054 is a 500 MHz, 4-channel digital oscilloscope designed to provide advanced waveform analysis and outstanding performance in a compact, bench-friendly form factor. Featuring a 10.1" widescreen touch display, high sample rates, and robust debugging tools, it is ideal for design, validation, and general-purpose test applications.

SPECIFICATIONS

General

Interfaces	USB Host (x4), USB Device (x1), LAN (10/100/1000Base-T), HDMI, External Trigger Input, GPIB (optional via adapter)
Display	10.1-inch widescreen color TFT-LCD touch screen, 1024 x 600 resolution

Physical

Power Supply	100 to 240 VAC (±10%) at 50/60 Hz (±10%), 100 to 120 VAC at 400 Hz (±10%); max power consumption 150 VA
Operating Temperature	0 °C to +50 °C °C
Dimensions (W×H×D)	380 mm × 290 mm × 123 mm mm
Weight	4.81 kg kg

Vertical System - Analog Channels

Analog Bandwidth (-3 dB)	500 MHz
Calculated Rise Time (10% to 90%)	700 ps (typical)
Number of Input Channels	4
Bandwidth Limiters	20 MHz, 200 MHz
Input Coupling	AC 1 MΩ, DC 1 MΩ, DC 50 Ω, GND
Input Impedance	1 MΩ ± 1% 16 pF, or 50 Ω ± 1%
Maximum Rated Input Voltage (1 MΩ)	300 Vrms
Maximum Rated Input Voltage (50 Ω)	5 Vrms
Vertical Resolution	8 bits (up to 11 bits with Enhanced Resolution - ERRES)
Vertical Sensitivity Range (1 MΩ)	1 mV/div - 10 V/div
Vertical Sensitivity Range (50 Ω)	1 mV/div - 1 V/div
DC Vertical Gain Accuracy	±1.5% of full scale
Offset Range (50 Ω)	±1 V (1-4.95 mV/div), ±1.5 V (5-9.9 mV/div), ±10 V (10 mV-1 V/div)
Offset Range (1 MΩ)	±1 V (1-4.95 mV/div), ±1.5 V (5-9.9 mV/div), ±20 V (10-99 mV/div), ±200 V (100 mV-10 V/div)
Channel-to-Channel Isolation	100:1 up to 250 MHz, 50:1 up to 500 MHz

Horizontal System - Timebase

Timebase Range	500 ps/div - 50 s/div
Timebase Accuracy	±10 ppm
Timebase Delay Range (Pre-trigger)	0% to 100% of full scale
Timebase Delay Range (Post-trigger)	0 to 10,000 divisions
Channel-to-Channel Deskew Range	±100 ns
External Reference Input Frequency	10 MHz

Acquisition System

Maximum Sample Rate (Interleaved)	4 GS/s
Maximum Sample Rate (All Channels)	2 GS/s
Maximum Memory Depth (Interleaved)	20 Mpts
Maximum Memory Depth (All Channels)	10 Mpts
Acquisition Modes	Real-time, Roll, Random Interleaved Sampling (RIS), Single, Sequence
Sequence Mode Segments	Up to 1,000 segments
Waveform Update Rate	Up to 130,000 wfm/s

Trigger System

Trigger Sources	Ch 1 - Ch 4, Ext, Ext/5, Line
Trigger Coupling	AC, DC, LF Reject, HF Reject, Noise Reject
Trigger Holdoff Range	8.0 ns to 30 s
Trigger Sensitivity (Internal)	0.5 div (typical at < 500 MHz)
Trigger Level Range (Internal)	±4.1 divisions from center
Trigger Level Range (Ext)	±0.61 V
Trigger Level Range (Ext/5)	±8 V
Basic Trigger Types	Edge, Width, Pattern, Video
Advanced Trigger Types	Glitch, Interval, Dropout, Runt, Slew Rate, Out of Bounds (Window)
Trigger Jitter	< 10 ps rms (typical)

Digital Channels (MSO Option)

Digital Channels	16 (with MSO option)
Maximum Input Frequency (Digital)	125 MHz
Threshold Groupings	Two groups of 8 channels
Threshold Selections	TTL, CMOS, ECL, PECL, LVDS, User-defined
Threshold Voltage Range	±10 V
Input Impedance (Digital Probe)	100 kΩ 8 pF
Minimum Detectable Pulse Width	4 ns
Channel-to-Channel Skew (Digital)	±2 ns

Waveform Measurements & Analysis

Automatic Measurements	Up to 6 displayed simultaneously with statistics
Measurement Parameters	Amplitude, Base, Max, Min, Peak-to-Peak, Mean, RMS, Std Dev, Cycle Mean, Cycle RMS, Frequency, Period, Width, Rise Time, Fall Time, Duty Cycle
Waveform Math Operators	Add, Subtract, Multiply, Divide, FFT, Absolute Value, Average, Derivative, Envelope, Integral, Invert, Reciprocal, Rescale, Square, Square Root
Enhanced Resolution (ERRES)	Up to 11-bit resolution
FFT Window Functions	Rectangular, Von Hann (Hanning), Hamming, Blackman-Harris, Flat Top
Pass/Fail Testing	Mask testing and parameter limit testing

Display and User Interface

Display Size	10.1 inches diagonal
Display Type	Color TFT-LCD widescreen
Display Resolution	1024 x 600 pixels
Waveform Display Modes	YT, XY

Connectivity and I/O Interfaces

USB Host Ports	4 ports (2 front, 2 side)
USB Device Ports	1 port (side)
LAN Port	10/100Base-T Ethernet (RJ-45)
External Trigger Input	1 BNC input
Auxiliary Output	Trigger Out, Pass/Fail Out
Calibration Output Signal	1 kHz, 1 Vp-p square wave

Power Requirements

AC Input Voltage Range	100 - 240 VAC ($\pm 10\%$)
Line Frequency Range	50/60 Hz ($\pm 10\%$) at 100 - 240 VAC; 400 Hz ($\pm 10\%$) at 100 - 120 VAC
Power Consumption (Maximum)	150 VA
Power Consumption (Typical)	80 W

Environmental & Safety Compliance

Storage Temperature Range	-20 °C to +60 °C
Operating Humidity Range	5% to 90% RH (non-condensing) up to +30 °C; up to 50% RH at +50 °C
Operating Altitude Limit	3,000 m (9,842 ft) at or below +30 °C

Physical Specifications

Height	243.5 mm
Width	380 mm
Depth	123 mm
Shipping Weight	6.8 kg (approximate)

Probe System

Probe Interface	ProBus
Standard Passive Probe	PP020 (one per channel)

Storage

Standard Storage	16 GB MicroSD Card (removable)
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Display & Interface

External Video Output	HDMI (supports 1024 x 600 resolution)
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Mathematical Functions

Waveform Interpolation	Linear, Sin(x)/x
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Option-Dependent Capabilities

Built-in Function Generator Option	WS3K-FG (25 MHz WaveSource function generator)
Protocol Trigger & Decode Options	I2C, SPI, UART-RS232, CAN, LIN, Audio (I2S, LJ, RJ, TDM), MIL-STD-1553, ARINC 429
Power Analysis Option	WS3K-PWR
Spectrum Analyzer Option	WS3K-SPECTRUM

Standards & Compliance

LXI Compliance	LXI Class C Version 1.4
Environmental Compliance	MIL-PRF-28800F Class 3

Digital Voltmeter & Counter

Built-in Digital Voltmeter (DVM)	4-digit resolution (AC RMS, DC, DC RMS measurements)
Built-in Frequency Counter	5-digit resolution

WaveSource Waveform Generator Option

WaveSource AWG - Output Channels	1 channel (optional)
WaveSource AWG - Sample Rate	125 MS/s (optional)
WaveSource AWG - Vertical Resolution	14-bit (optional)
WaveSource AWG - Waveform Memory	16 kpts (optional)
WaveSource AWG - Max Sine Frequency	25 MHz (optional)

General & Safety Standards

Safety Compliance	UL 61010-1, CAN/CSA C22.2 No. 61010-1, EN 61010-1
EMC Compliance Standards	EN 61326-1, EN 61326-2-1
Calibration Cycle	1 year

Inputs & Outputs

LAN Speed Compatibility	10/100/1000Base-T Ethernet
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TECHNOLOGY

Digital Phosphor Oscilloscope (DPO) / Mixed Signal Oscilloscope (MSO option)

APPLICATIONS

Electronic Design, Debugging, Embedded Systems Testing, Education, Power Analysis

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