TELEDYNE LECROY
Everywhereyoulook™

WaveSurfer 3000 Oscilloscopes
200 MHz – 750 MHz



Key Features

- **200 MHz, 350 MHz, 500 MHz and 750 MHz bandwidths**
- **Up to 4 GS/s sample rate**
- **Long Memory – up to 10 Mpts/Ch**
- **10.1" touch screen display**
- **MAUI - Advanced User Interface**
  - Designed for Touch
  - Built for Simplicity
  - Made to Solve
- **Advanced Anomaly Detection**
  - Fast Waveform Update
  - History Mode
  - WaveScan
- **Capture, Debug, Analyze, Document**
  - LabNotebook
  - Sequence Mode
  - Advanced Active Probe Interface
  - Math and Measure
- **Multi-Instrument Capabilities**
  - Protocol Analysis - Serial Trigger and Decode
  - Waveform Generation - Built-in Function Generator
  - Logic Analysis - 16 Channel MSO
  - Digital Voltmeter
- **Future Proof**
  - Upgradeable Bandwidth
  - Field Upgradable Software and Hardware Options

WaveSurfer 3000 oscilloscopes feature the MAUI advanced user interface with touch screen simplicity to shorten debug time. Quickly identify and isolate anomalies with WaveScan, Fast Display, and History mode for faster troubleshooting; LabNotebook enables easy documentation and convenient collaboration. The advanced probe interface, upgradable bandwidth and multi-instrument capabilities provide maximum versatility and investment protection.

MAUI - A New Wave of Thinking

MAUI is the most advanced oscilloscope user interface. MAUI is designed for touch; all important oscilloscope controls are accessed through the intuitive touch screen. MAUI is built for simplicity; time saving shortcuts and intuitive dialogs simplify setup. MAUI is made to solve; deep set of debug and analysis tools help identify problems and find solutions quickly.

Advanced Anomaly Detection

Combining a fast waveform update rate of 130,000 waveforms/second with History mode waveform playback and WaveScan search and find, the WaveSurfer 3000 is an outstanding tool for waveform anomaly detection.

Capture, Debug, Analyze, Document

The advanced active probe interface gives tremendous flexibility for capturing all types of signals. Debug, analyze and document problems through the use of powerful math and measurement capabilities, sequence mode segmented memory, and LabNotebook.

Multi-Instrument Capabilities

Beyond traditional oscilloscope functionality the WaveSurfer 3000 has a variety of multi-instrument capabilities including, waveform generation with a built-in function generator, protocol analysis with serial data trigger and decode, logic analysis with an available 16 channel mixed signal option and digital voltmeter measurements.

MAUI – A NEW WAVE OF THINKING

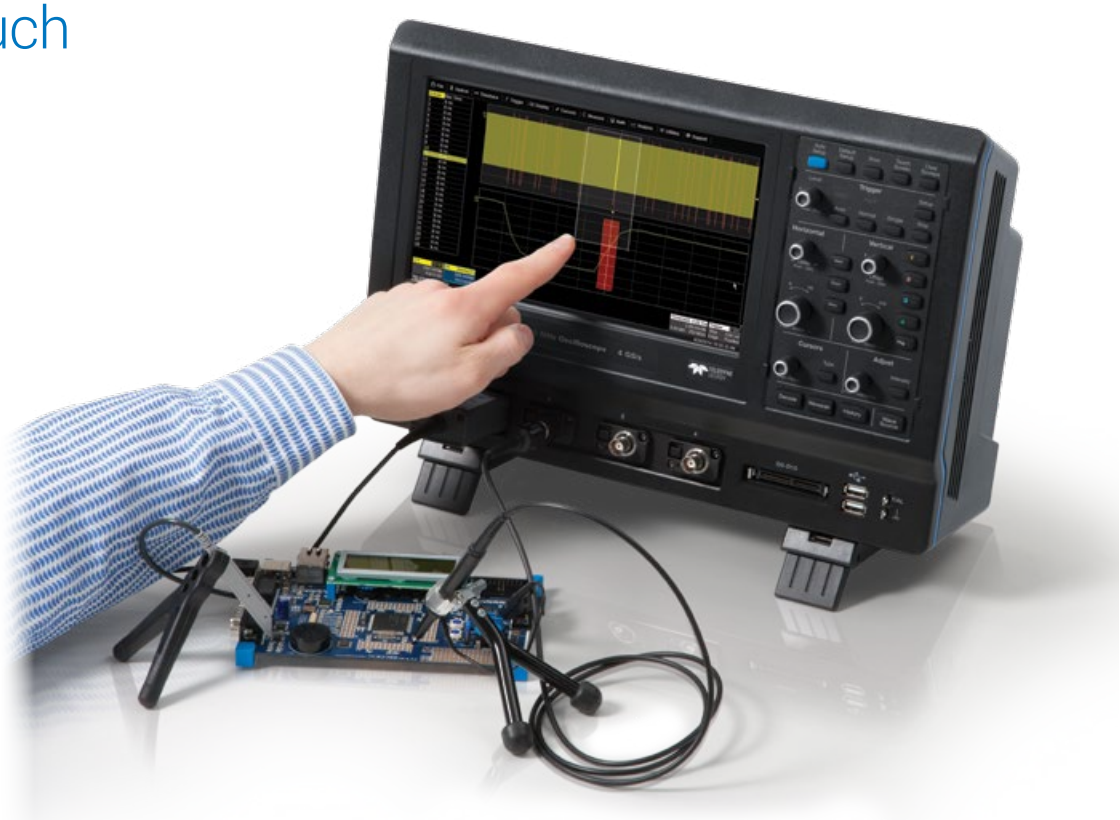
MAUI is the most advanced oscilloscope user interface developed to put all the power and capabilities of the modern oscilloscope right at your fingertips. Designed for touch; all important oscilloscope controls are accessed through the intuitive touch screen. Built for simplicity; time saving shortcuts and intuitive dialogs simplify setup. Made to solve; a deep set of debug and analysis tools helps identify problems and find solutions quickly.

Oscilloscopes are constantly evolving to meet the rapidly changing test and measurement needs of today's cutting edge designs. Additional complexity and capabilities are introduced with each new feature, and in some cases when capabilities of other instruments like a protocol analyzer, function generator or logic analyzer are added. With all this added capability the oscilloscope becomes complex and cumbersome to use. The traditional user interface consisting of knobs, buttons, soft keys and nested menus is unmanageable and more buttons are typically added to access the new functionality.

MAUI solves the complexity problem. MAUI eliminates the overwhelming number of buttons and knobs providing an intuitive user interface that is designed for touch, built for simplicity and made to solve without sacrificing any features or cutting edge test capabilities.

Designed for Touch

MAUI is designed for touch. All important controls for vertical, horizontal and trigger are always one touch away. Touch the waveform to position and drag a box around it to zoom in for more details. Position cursors, configure measurements and interact with tables all through simple touch operation.



Built for Simplicity

MAUI is built for simplicity. Basic waveform viewing and measurement tools as well as advanced math and analysis capabilities are seamlessly integrated in a single user interface. Time saving shortcuts and intuitive dialogs simplify setup and shorten debug time.



A Access shortcuts to analysis tools by touching the waveform.

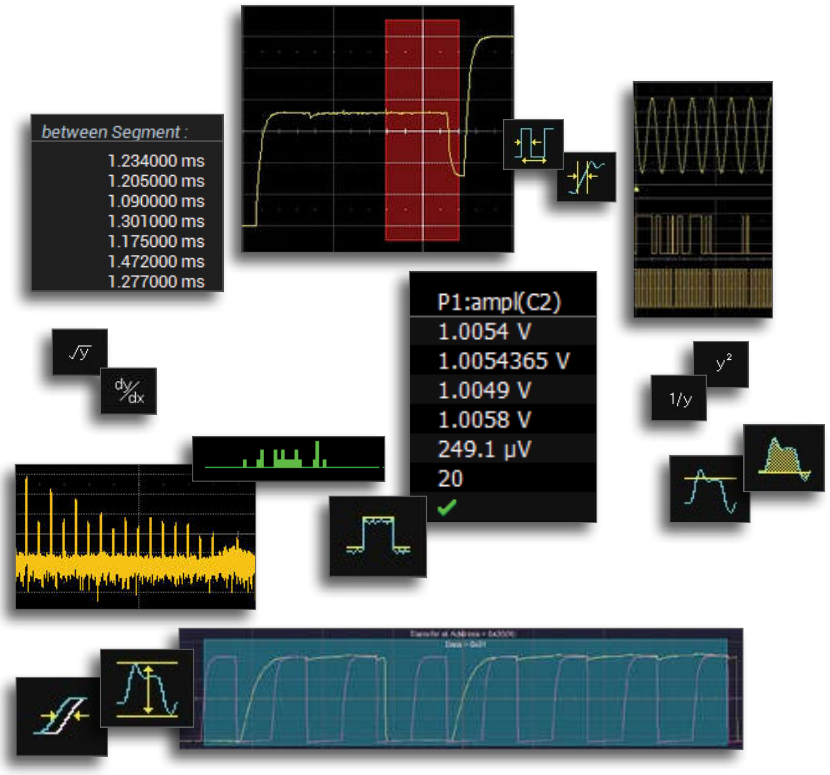
B Configure parameters by touching measurement results.

C Channel, timebase and trigger descriptors provide easy access to controls without navigating menus.

D Shortcuts to commonly used functions are displayed at the bottom of the channel, math and memory menus.

Made to Solve

MAUI is made to solve. Measure all aspects of a waveform to identify problems. Debug with a large set of time saving tools to find the cause of problems. Solve problems fast with powerful analysis tools.



ADVANCED ANOMALY DETECTION

Combining a fast waveform update rate of 130,000 waveforms/second with History mode waveform playback and WaveScan search and find, the WaveSurfer 3000 is an outstanding tool for waveform anomaly detection. A powerful set of triggering capabilities ensures that once a problem is detected it can be isolated and analyzed.



WaveScan Advanced Search

Locate unusual events in a single capture or scan for an anomaly across many acquisitions over a long period of time. WaveScan provides powerful isolation capabilities that hardware triggers cannot provide. Select from more than 20 search modes to find events on any analog or digital channel. Since the scanning modes are not simply copies of the hardware triggers, the utility and capability is much higher. There is no frequency trigger in any oscilloscope, yet WaveScan allows for frequency to be quickly scanned notifying the user upon a shift in frequency. Searching can be done based on measured waveform parameters, runts and non-monotonic edges as well as digital patterns.

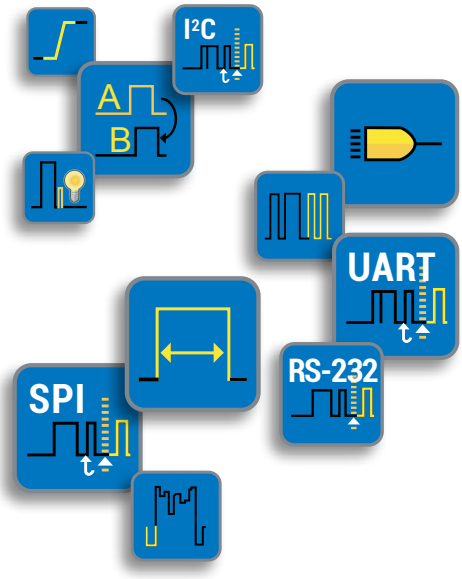
Built on the traditional Teledyne LeCroy strength of fast data processing, WaveScan quickly and efficiently scans millions of events looking for unusual occurrences. Search and scan results can be seen with annotations directly on the waveform or in the interactive table. Quickly zoom to an event to see more details by simply touching it in the table.

Powerful Triggering

Good triggering is essential for effective debug and with a powerful combination basic and advanced triggers the WaveSurfer 3000 ensures that even the most challenging problems can be isolated. Basic triggering like edge and width are great for every day operation. Advanced triggers like runt or interval help isolate anomalies quickly. Qualified triggering allows for configuring a trigger across multiple channels.

With the MSO leadset connected, powerful logic triggering can be set up to catch a parallel pattern of up to 16 digital channels. Analog channels can be added to the pattern trigger to configure an analog-digital cross pattern, mixed signal trigger.

Beyond the standard oscilloscope triggering, unique serial data triggering capabilities for I²C, SPI, UART/RS-232, CAN and LIN add protocol specific triggering to isolate activity on a variety of serial busses.



Fast Waveform Update

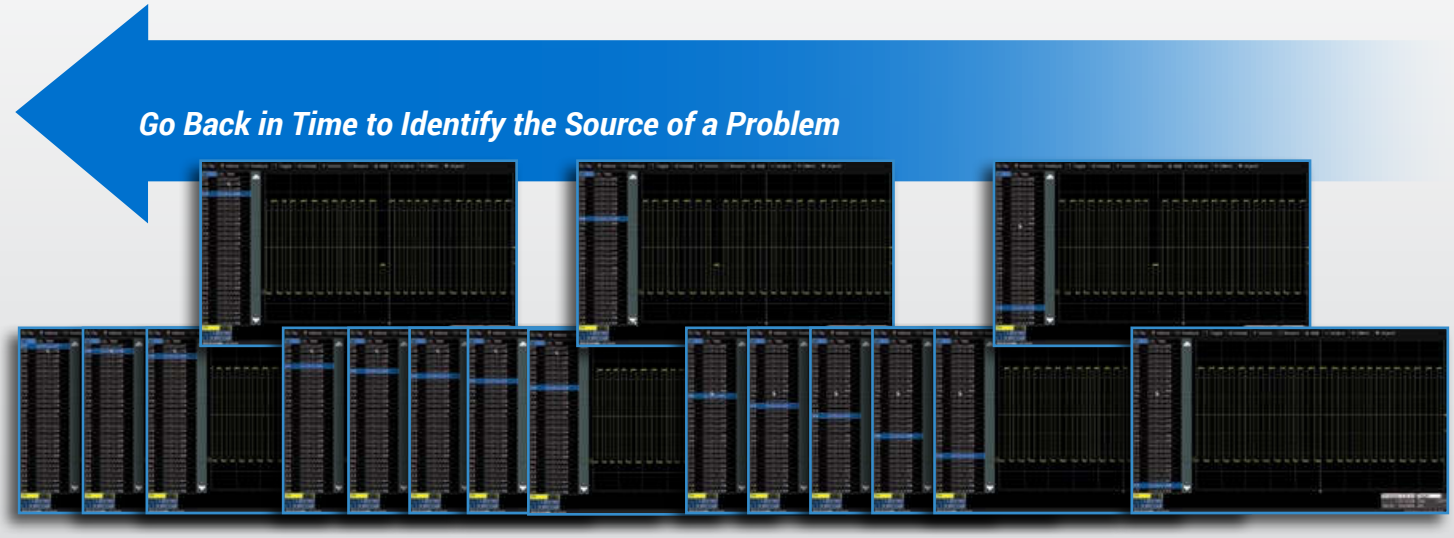
A fast update rate ensures that no waveform variations or details are missed. With an update rate of up to 130,000 waveforms per second the WaveSurfer 3000 is able to easily display random or infrequent events simplifying anomaly detection, identification and debug. Rapidly changing waveforms are easy to see and visually inspect. Changes over time can be seen with the intensity graded persistence display.



Rotating and tilting feet provide four different viewing positions.

History Mode Waveform Playback

Scroll back in time using History Mode to view previous waveforms and isolate anomalies. Use cursors and measurement parameters to quickly find the source of problems. History mode is always available with a single button press, no need to enable this mode and never miss a waveform.



CAPTURE. DEBUG. ANALYZE. DOCUMENT.

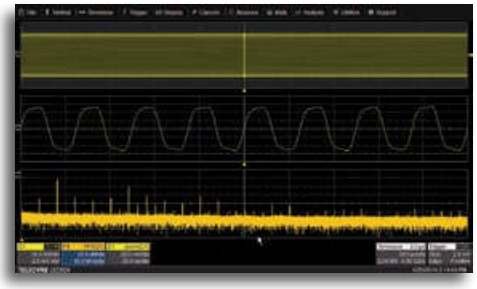


The advanced active probe interface gives tremendous flexibility for capturing all types of signals. Debug, analyze and document problems through the use of powerful math and measurement capabilities, sequence mode segmented memory, and LabNotebook.



Advanced Waveform Capture with Sequence Mode

Use Sequence mode to save waveforms into segmented memory. This is ideal for capturing fast pulses in quick succession or when capturing events separated by long time intervals. Combine Sequence mode with advanced triggers to isolate rare events over time. Trigger times and time between segments are provided for additional insight.



Advanced Math Capabilities

A deep set of 20 math functions adds to the problem solving capability of WaveSurfer 3000. Math functions provide quick insight into waveforms and help point to the cause of the most challenging problems. Functions like the powerful FFT provide details of the frequency domain while averaging effectively filters noise out of the signal.

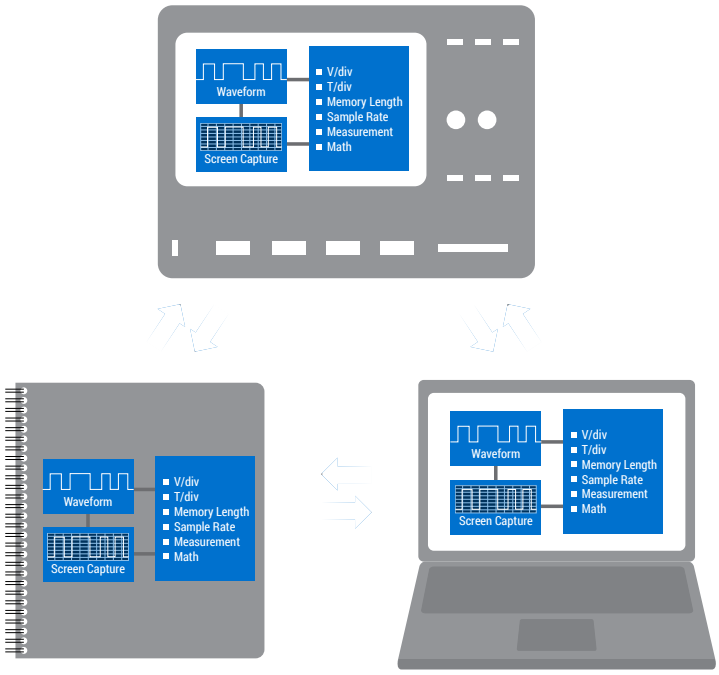


Superior Measurement Tools

With 24 measurement parameters, the WaveSurfer 3000 can measure and analyze every aspect of analog and digital waveforms. Statistics and histicons go beyond traditional measurement tools providing insight to how a waveform changes over time. Measurement data can be trended to create a visual representation of changing measurements.

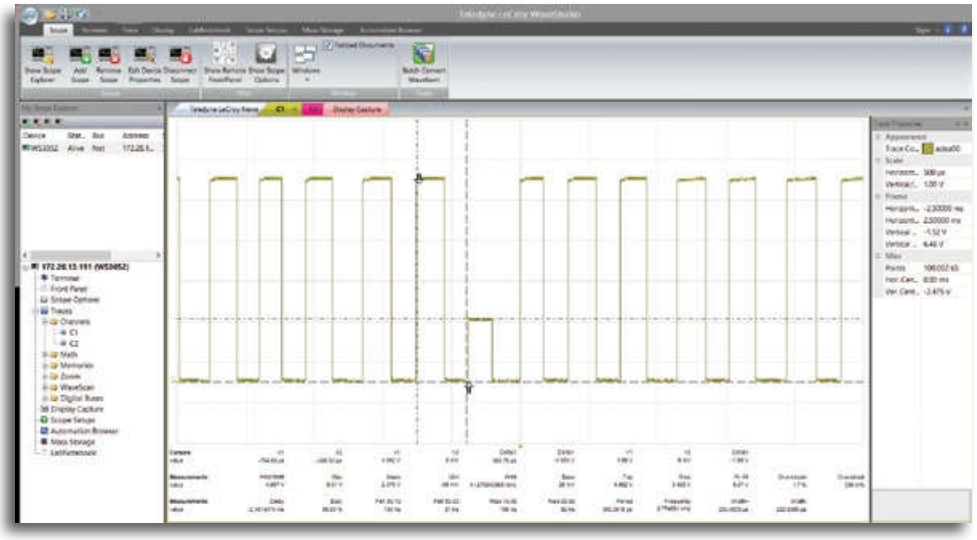
LabNotebook Documentation Tool

LabNotebook is a one-button tool to save and restore waveforms, measurements and settings without navigating multiple menus. Saved waveforms can be measured and analyzed later both on the oscilloscope or offline using the WaveStudio PC Utility.



WaveStudio Offline Analysis Tool

WaveStudio is a fast and easy way to analyze acquired waveforms offline. Offline tools include x and y axis cursors for quick measurements and 21 built-in automatic measurements for more precise and accurate results. WaveStudio can also connect to the oscilloscope for direct data transfer to the PC. Data saved with LabNotebook can be shared with others using WaveStudio for easy collaboration.



Advanced Probe Interface

The advanced active probe interface gives tremendous flexibility for measuring high voltages, high frequencies, currents, or differential signals.

High Impedance Active Probes



High Bandwidth Differential Probes



High Voltage Differential Probes



High Voltage Passive Probes



Current Probes



MULTI-INSTRUMENT CAPABILITIES

Beyond traditional oscilloscope functionality the WaveSurfer 3000 has a variety of multi-instrument capabilities including waveform generation with a built-in function generator, protocol analysis with serial data trigger and decode, and logic analysis with an available 16 channel mixed signal option.

Protocol Analysis with Serial Trigger and Decode

Debugging serial data busses can be confusing and time consuming. Time saving protocol analysis capabilities are provided by the serial trigger and decode tools.

Intuitive, Color-Coded Protocol Decode Overlay

Protocol decoding is shown directly on the waveform with an intuitive, color-coded overlay, and presented in binary, hex or decimal. Decoding is fast even with long memory and zooming in to the waveform shows precise byte by byte decoding.

Powerful Serial Data Triggers

The serial data trigger will quickly isolate events on a bus eliminating the need to set manual triggers hoping to catch the right information. Trigger conditions can be entered in binary or hexadecimal formats and conditional trigger capabilities allow for triggering on a range of different events.



Table Summary and Search

To further simplify the debug process all decoded data can be displayed in a table below the waveform grid. Selecting an entry in the table will display just that event. Additionally, built-in search functionality will find specific decoded values.

Supported Protocols

- I^2C
- SPI
- UART / RS-232
- CAN
- LIN

I2C	Time	Addr Length	Address	R/W	Length	Data
1	-8.09085 µs	10	0x032	W	17	0x00 00 4c 65 43 72 6f 79 20 49 32 43 00 00 32 31 33
2	4.31869 ms	10	0x032	W	0	
3	4.52191 ms	10	0x032	R	17	0x00 00 4c 65 43 72 6f 79 20 49 32 43 00 00 32 31 33
4	43.6751 ms	7	0x34	W	17	0x00 00 4c 65 43 72 6f 79 20 49 32 43 00 00 32 31 34
5	47.9074 ms	7	0x34	W	1	0x00
6	48.1106 ms	7	0x35	R	17	0x00 00 4c 65 43 72 6f 79 20 49 32 43 00 00 32 31 34
7	87.3585 ms	7	0x36	W	17	0x00 00 4c 65 43 72 6f 79 20 49 32 43 00 00 32 31 35
8	91.5907 ms	7	0x36	W	1	0x00
9	91.7939 ms	7	0x37	R	17	0x00 00 4c 65 43 72 6f 79 20 49 32 43 00 00 32 31 35

Digital Voltmeter

The Digital Voltmeter option activates an integrated 4-digit digital voltmeter and 5-digit frequency counter that operates through the same probes already attached to the oscilloscope channels. Real-time measurements can be viewed on the screen at all times or view more details through a dedicated user interface display. Measurements continue to be updated even when the triggering system is stopped.

The DVM license key can be downloaded at no charge from *teledynelecroy.com/redeem/dvm.*





Logic Analysis with 16 Channel Mixed Signal Capability

The 16 integrated digital channels and tools designed to simultaneously view, measure, and analyze both analog and digital signals enable fast debugging of mixed signal designs.

Extensive Triggering

Flexible analog and digital cross-pattern triggering across all 20 channels provides the ability to quickly identify and isolate problems in a mixed signal environment. Event triggering can be configured to arm on an analog signal and trigger on a digital pattern or both analog and digital channels can be incorporated in to a single pattern trigger.

Advanced Digital Debug Tools

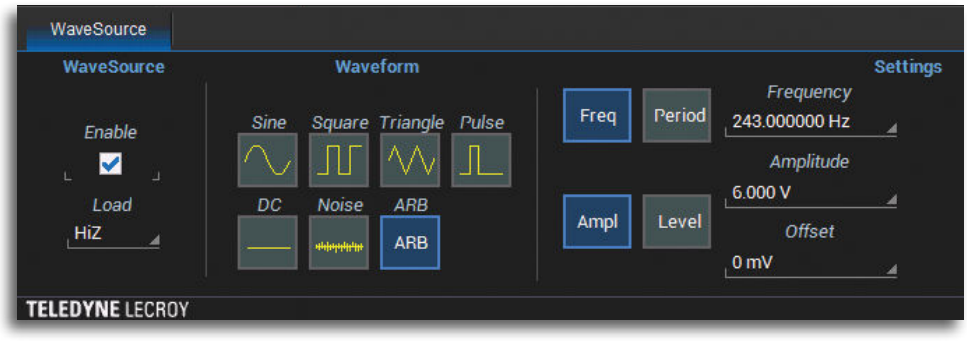
Using the powerful parallel pattern search capability of WaveScan, patterns across many digital lines can be isolated and analyzed. Identified patterns are presented in a table with timestamp information and enables quick searching for each pattern occurrence.

Use a variety of timing parameters to measure and analyze the characteristics of digital busses. Powerful tools like trends, statistics and histicons provide additional insight and help find anomalies in digital waveforms.

Quickly see the state of all the digital lines at the same time using convenient activity indicators.

Waveform Generation with Built-in Function Generator

The built-in WaveSource function generator provides up to 25 MHz and 125 MS/s waveform generation capabilities. The function generator controls are integrated directly into the oscilloscope with a dedicated user interface. The integrated function generator is a convenient time saving tool allowing for quick and easy generation of sine, square, pulse, ramp, triangle, noise and DC waveforms. Additionally, CSV files saved from an oscilloscope



can be uploaded into the WaveSource to generate arbitrary waveforms. Familiar function generator controls are seamlessly integrated in to the WaveSurfer 3000 user interface simplifying the process of generating waveform stimulus and measuring the response with the oscilloscope. A rear panel BNC connector provides easy access to the generator output.

SPECIFICATIONS

	WaveSurfer 3022	WaveSurfer 3024	WaveSurfer 3034	WaveSurfer 3054	WaveSurfer 3074
Analog - Vertical					
Bandwidth (@ 50Ω)	200 MHz		350 MHz	500 MHz	750 MHz
Rise time	1.75 ns typical		1 ns typical	800 ps typical	550 ps typical
Input Channels	2	4			
Vertical Resolution	8-bits				
Sensitivity	50 Ω: 1mV/div - 1 V/div; 1 MΩ: 1 mV/div - 10 V/div				
DC Gain Accuracy	±(1.5%) Full Scale, Offset at 0V, > 5mV/div; ±(2.5%) < 5 mV/div				
BW Limit	20 MHz		20 MHz, 200 MHz		
Maximum Input Voltage	50 Ω: 5 Vrms, ±10 V Peak; 1 MΩ: 400 V max (DC + Peak AC ≤ 10 kHz)				
Input Coupling	50 Ω: DC, GND; 1 MΩ: AC, DC, GND				
Input Impedance	50 Ω ±2.0%, 1 MΩ ±2.0% || 16 pF				
Offset Range	50 Ω: 1 mV - 19.8 mV: ±2 V, 20 mV - 100 mV: ±5 V, 102 mV - 198 mV: ±20 V, 200 mV - 1 V: ±50 V 1 MΩ: 1 mV - 19.8 mV: ±2 V, 20 mV - 100 mV: ±5 V, 102 mV - 198 mV: ±20 V, 200 mV - 1 V: ±50 V, 1.02 V - 1.98 V: ±200 V, 2 V - 10 V: ±400 V				
Offset Accuracy	±(1.0% of offset value + 1.5%FS + 1 mV)				
Analog - Acquisition					
Sample Rate (Single-shot)	2 GS/s (4 GS/s interleaved)				
Sample Rate (Repetitive)	50 GS/s				
Record Length	10 Mpts/ch (all channels)				
Acquisition Modes	Real Time, Roll, RIS (Random Interleaved Sampling), Sequence (Segmented Memory up to 1,000 segments with 1µs minimum intersegment time)				
Real Time Timebase Range	2 ns/div - 50 s/div			1 ns/div - 50 s/div	
RIS Mode Timebase Range	2 ns/div - 10 ns/div			1 ns/div - 10 ns/div	
Roll Mode Timebase Range	Up to 50 s/div (roll mode is user selectable at ≥ 100 ms/div)				
Timebase Accuracy	±10 ppm measured over > 1ms interval				
Digital - Vertical and Acquisition (WS3K-MSO Option Only)					
Input Channels	16 Digital Channels				
Threshold Groupings	Pod 2: D15 - D8, Pod 1: D7 - D0				
Threshold Selections	TTL(+1.4V), 5V CMOS (+2.5V), ECL (-1.3V) or User Defined				
Maximum Input Voltage	±30V Peak				
Threshold Accuracy	±(3% of threshold setting + 100mV)				
Input Dynamic Range	±20V				
Minimum Input Voltage Swing	500mVpp				
Input Impedance (Flying Leads)	100 kΩ || 5 pF				
Maximum Input Frequency	125 MHz				
Sample Rate	500 MS/s				
Record Length	10MS - 16 Channels				
Minimum Detectable Pulse Width	4 ns				
Channel-to-Channel Skew	± (1 digital sample interval)				
User defined threshold range	±10V in 20mV steps				
Trigger System					
Modes	Auto, Normal, Single, Stop				
Sources	Any input channel, External, Ext/5, or line; slope and level unique to each source (except for line trigger)				
Coupling	DC, AC, HFREJ, LFREJ				
Pre-trigger Delay	0-100% of full scale				
Post-trigger Delay	0-10,000 Divisions				
Hold-off	10ns up to 20s or 1 to 100,000,000 events				
Internal Trigger Level Range	±4.1 Divisions				
External Trigger Level Range	Ext: ±610mV, Ext/5: ±3.05V				
Trigger Types	Edge, Width, Logic (Pattern), TV (NTSC, PAL, SECAM, HDTV - 720p, 1080i, 1080p), Runt, Slew Rate, Interval (Signal or Pattern), Dropout, Qualified (State or Edge); External and Ext/5 support edge trigger only.				
Measure, Zoom and Math Tools					
Measurement Parameters	Up to 6 of the following parameters can be calculated at one time on any waveform: Amplitude, Area, Base, Delay, Duty Cycle, Fall Time (90%–10%), Fall Time (80%–20%), Frequency, Maximum, Mean, Minimum, Overshoot+, Overshoot-, Peak-Peak, Period, Phase, Rise Time (10%–90%), Rise Time (20%–80%), RMS, Skew, Standard Deviation, Top, Width+, Width-. Statistics and histicons can be added to measurements. Measurements can be gated.				
Zooming	Use front panel QuickZoom button, or use touch screen or mouse to draw a box around the zoom area.				
Math Functions	Up to 2 of the following functions can be calculated at one time: Sum, Difference, Product, Ratio, Absolute Value, Average, Derivative, Envelope, Floor, Integral, Invert, Reciprocal, Rescale, Roof, SinX/x, Square, Square Root, Trend, Zoom and FFT (up to 1 Mpts with power spectrum output and rectangular, VonHann, and FlatTop windows).				
Probes					
Standard Probes	One PP019 (5mm) per channel		One PP020 (5mm) per channel		
Probing System	BNC and Teledyne LeCroy ProBus for Active voltage, current and differential probes				

SPECIFICATIONS

	WaveSurfer 3022	WaveSurfer 3024	WaveSurfer 3034	WaveSurfer 3054	WaveSurfer 3074

Display System

Display Size	10.1" Wide TFT-LCD Touch-Screen
Display Resolution	1024 x 600

Connectivity

Ethernet Port	10/100Base-T Ethernet interface (RJ-45 connector)
Removable Storage	(1) MicroSD Port - 8 GB micro SD card installed standard
USB Host Ports	(4) USB Ports Total – (2) Front USB Ports
USB Device Port	(1) USBTMC
GPIB Port (Optional)	Supports IEEE – 488.2
External Monitor Port	Standard DB-15 connector (support resolution of 1024x600)
Remote Control	Via Windows Automation, or via Teledyne LeCroy Remote Command Set
Network Communication Standard	GPIB IEEE-488.2, VXI-11 and VICP, USBTMC/USB488

Power Requirements

Voltage	100 - 240 VAC ± 10% at 50-60 Hz +/-5%; 100 - 120 VAC ± 10% at 400 Hz +/- 5%; Automatic AC Voltage Selection
Power Consumption (Nominal)	100 W / 100 VA
Power Consumption (Max)	150 W / 150 VA (with all PC peripherals, digital leadset and active probes connected to 4 channels)

Environmental

Temperature	Operating: 0 °C to 50 °C; Non-Operating: -30 °C to 70 °C
Humidity	Operating: 5% to 90% relative humidity (non-condensing) up to ≤ 30 °C, Upper limit derates to 50% relative humidity (non-condensing) at +50 °C Non-Operating: 5% to 95% relative humidity (non-condensing) as tested per MIL-PRF-28800F
Altitude	Operating: 3,048 m (10,000 ft) max at ≤ 25C; Non-Operating: Up to 12,192 meters (40,000 ft)

Physical

Dimensions (HWD)	10.63"H x 14.96"W x 4.92"D (270 mm x 380 mm x 125 mm)
Weight	4.81 kg (10.6 lbs)

Regulatory

CE Certification	Low Voltage Directive 2006/95/EC; EN 61010-1:2010, EN 61010-2-030:2010 EMC Directive 2004/108/EC; EN 61326-1:2013, EN61326-2-1:2013; RoHS2 Directive 2011/65/EU
UL and cUL Listing	UL 61010-1, UL 61010-2-030:2010, 3rd Edition; CAN/CSA C22.2 No. 61010-1-12

Digital Voltmeter (optional)

Functions	AC_{rms}, DC, DC_{rms}, Frequency
Resolution	ACV/DCV: 4 digits, Frequency: 5 digits
Measurement Rate	100 times/second, measurements update on the display 5 times/second
Vertical Settings Autorange	Automatic adjustment of vertical settings to maximize the dynamic range of measurements

WaveSource Function Generator (optional)

General

Max Frequency	25 MHz
Channels	1
Sample Rate	125 MS/s
Arbitrary Waveform Length	16 kpts
Frequency Resolution	1 µHz
Vertical Resolution	14-bit
Vertical Range	±3V (HiZ); ±1.5V (50 Ω)
Waveform Types	Sine, Square, Pulse, Ramp, Noise, DC

Frequency Specification

Sine	1 µHz - 25 MHz
Square/Pulse	1 µHz - 10 MHz
Ramp/Triangular	1 µHz - 300 KHz
Noise	25 MHz (-3dB)
Resolution	1 µHz
Accuracy	±50 ppm, over temperature
Aging	±3 ppm/year, first year

Output Specification

Amplitude	4 mVpp - 6 Vpp (HiZ); 2 mVpp - 3 Vpp(50 Ω)
Vertical Accuracy	±(0.3dB + 1 mV)
Amplitude Flatness	±0.5dB

DC Offset

Range (DC)	±3V (HiZ); ±1.5V (50 Ω)
Offset Accuracy	±(1% of offset value + 3 mV)

Waveform Output

Impedance	50 Ω ± 2%
Protection	Short-circuit protection

Sine Spectrum Purity

SFDR (Non Harmonic) @1.265Vpp	
DC-1 MHz	-60dBc
1 MHz - 5 MHz	-55dBc
5 MHz - 25 MHz	-50dBc
Harmonic Distortion @1.265Vpp	
DC - 5 MHz	-50dBc
5 MHz - 25 MHz	-45dBc

Square/Pulse

Rise/fall time	24 ns (10% - 90%)
Overshoot	3% (typical - 1 kHz, 1 Vpp)
Pulse Width	50 ns min.
Jitter	500ps + 10ppm of period (RMS cycle to cycle)

Ramp/Triangle

Linearity	0.1% of Peak value output (typical - 1 kHz, 1 Vpp, 100% symmetric)
Symmetry	0% to 100%

SPECIFICATIONS & ORDERING INFORMATION

Specifications

I²C, SPI, UART / RS-232, CAN and LIN Trigger (optional)

I²C	Trigger on START, ReSTART, STOP, ADDR, DATA, ADDR+DATA, Data Length, or Missing ACK. 7 or 10-bit ADDR are supported with full Read, Write, or R/W = "Don't Care". Trigger on ADDR values that include/don't include R/W bit in the value. DATA conditions support ≤, <, =, ≠, >, ≥, in range, out of range. DATA can be setup in either Hexadecimal (0-12 bytes supported and can be defined by nibble) or Binary (any combination of 0, 1, or X for 0-96 bits). DATA patterns can be set to start on any byte in a 2048-byte window (EEPROM mode only). ACK condition can be selected as ACK, NO ACK, and DON'T CARE. Full range of bit rates supported for Standard, Fast, Fast-Mode Plus, and High speed mode. Bit rate is auto-detected. Trigger on any analog (C1 - C4) or digital channel.
SPI	Trigger on DATA. DATA can be setup in either Hexadecimal (0-12 bytes supported and can be defined by nibble) or Binary (any combination of 0, 1, or X for 0-96 bits). All bit rates are supported and are auto-detected. Trigger on any analog (C1 - C4) or digital channel.
UART / RS-232	Trigger on DATA or Parity ERROR.DATA conditions support ≤, <, =, ≠, >, ≥, in range, out of range. DATA can be setup in either Hexadecimal (0-12 bytes supported and can be defined by nibble) or Binary (any combination of 0, 1, or X for 0-96 bits). Data position can be specified anywhere in a 2048 byte sequence. All bit rates are supported between 300 b/s and 10 Mb/s. Trigger on any analog (C1 - C4) or digital channel.
CAN	Trigger on All Frames, Frame ID, ID with DATA, Remote Frames or Error Frames. Specify one Frame ID or a range of Frame IDs. Frame ID and DATA conditions support ≤, <, =, ≠, >, ≥, in range, out of range. DATA can be setup in Hexadecimal (0-8 bytes supported and can be defined by nibble located at any position) or Binary (any combination of 0,1, or X for 0-64 bits located at any position). Standard and custom bit rates between 10 kb/s and 1000 kb/s supported. Trigger on any analog (C1 - C4) or digital channel.
LIN	Trigger on (Sync) Break (Start of Message), Frame ID, Frame ID+DATA, Error Frame (Any combination of Checksum, Header Parity, or Sync Byte error frames). Frame ID and DATA conditions support ≤, <, =, ≠, >, ≥, in range, out of range. DATA can be setup in Hexadecimal (0-8 bytes supported and can be defined by nibble) or Binary (any combination of 0,1, or X for 0-64 bits). Standard and custom bit rates between 1 kb/s and 20 kb/s supported. Trigger on any analog (C1 - C4) or digital channel.

Ordering Information

WaveSurfer 3000 Oscilloscopes

Product Description	Product Code
200 MHz, 4 GS/s, 2 Ch, 10 Mpts/Ch with 10.1" Touch screen Display	WaveSurfer 3022
200 MHz, 4 GS/s, 4 Ch, 10 Mpts/Ch with 10.1" Touch screen Display	WaveSurfer 3024
350 MHz, 4 GS/s, 4 Ch, 10 Mpts/Ch with 10.1" Touch screen Display	WaveSurfer 3034
500 MHz, 4 GS/s, 4 Ch, 10 Mpts/Ch with 10.1" Touch screen Display	WaveSurfer 3054
750 MHz, 4 GS/s, 4 Ch, 10 Mpts/Ch with 10.1" Touch screen Display	WaveSurfer 3074

Included with Standard Configurations

÷10 Passive Probe (Total of 1 Per Channel), 1 Micro SD card (Installed), Micro SD card adapter, Protective Front Cover, Getting Started Guide, Commercial NIST Traceable Calibration with Certificate, Power Cable for the Destination Country, 3-year Warranty

General Accessories

External GPIB Accessory	USB2-GPIB
Soft Carrying Case	WS3K-SOFTCASE
Rack Mount Accessory	WS3K-RACK

Local Language Overlays

German Front Panel Overlay	WS3K-FP-GERMAN
French Front Panel Overlay	WS3K-FP-FRENCH
Italian Front Panel Overlay	WS3K-FP-ITALIAN
Spanish Front Panel Overlay	WS3K-FP-SPANISH
Japanese Front Panel Overlay	WS3K-FP-JAPANESE
Korean Front Panel Overlay	WS3K-FP-KOREAN
Chinese (Tr) Front Panel Overlay	WS3K-FP-CHNES-TR
Chinese (Simp) Front Panel Overlay	WS3K-FP-CHNES-SI
Russian Front Panel Overlay	WS3K-FP-RUSSIAN

Multi-Instrument Options

MSO software option and 16 Channel Digital probe leadset	WS3K-MSO
Function Generator Option	WS3K-FG
CAN and LIN Trigger and Decode Option	WS3K-AUTO
I²C, SPI, UART and RS-232 Trigger and Decode Option	WS3K-EMB

Probes

Product Description	Product Code
250 MHz Passive Probe 10:1, 10 MΩ	PP019
500 MHz Passive Probe 10:1, 10 MΩ	PP020
700 V, 15 MHz High-Voltage Differential Probe	AP031
200 MHz, 3.5 pF, 1 MΩ Active Differential Probe	ZD200
1 GHz, 1.0 pF, 1 MΩ Active Differential Probe	ZD1000
Deskew Calibration Source for CP031 and CP030	DCS015
30 A; 50 MHz Current Probe – AC/DC; 30 A_{rms}; 50 A_{peak} Pulse	CP030
30 A; 100 MHz Current Probe – AC/DC; 30 A_{rms}; 50 A_{peak} Pulse	CP031
150 A; 10 MHz Current Probe – AC/DC; 150 A_{rms}; 500 A_{peak} Pulse	CP150
500 A; 2 MHz Current Probe – AC/DC; 500 A_{rms}; 700 A_{peak} Pulse	CP500
100:1 400 MHz 50 MΩ 1 kV High-voltage Probe	HVP120
10:1/100:1 200/300 MHz, 50 MΩ High-voltage Probe 600 V/1,2 kV Max. Volt. DC	PPE1.2KV
100:1 400 MHz 50 MΩ 2 kV High-voltage Probe	PPE2KV
100:1 400 MHz 50 MΩ 4 kV High-voltage Probe	PPE4KV
1000:1 400 MHz 50 MΩ 5 kV High-voltage Probe	PPE5KV
1000:1 400 MHz 50 MΩ 6 kV High-voltage Probe	PPE6KV
1 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS1000
Set of 4 ZS1000, 1 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS1000-QUADPAK
25 MHz High Voltage Differential Probe	HVD3102
120 MHz High Voltage Differential Probe	HVD3106

Customer Service

Teledyne LeCroy oscilloscopes and probes are designed, built, and tested to ensure high reliability. In the unlikely event you experience difficulties, our digital oscilloscopes are fully warranted for three years and our probes are warranted for one year. This warranty includes:

- No charge for return shipping
- Long-term 7-year support
- Upgrade to latest software at no charge

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Local sales offices are located throughout the world.
Visit our website to find the most convenient location.

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