Product Line Card 2016

Industry First Motor Drive Analyzer

NEW WaveRunner 8000 with OneTouch

NEW HDO9000 10-Bit, 4 GHz, 40 GS/s

WaveSurfer Oscilloscopes at Great Price

HDO8000 12-Bit HD, 8 Ch., 1 GHz

TELEDYNE LECROY
Everywhereyoulook™

DEBUG IN HIGH DEFINITION UP TO 4 GHz

High Definition Oscilloscopes with HD Technology have a variety of benefits that allow the user to debug with unsurpassed precision. Waveforms displayed by High Definition Oscilloscopes are cleaner and crisper. More signal details can be seen and measured; these measurements are made with unmatched precision resulting in better test results and shorter debug time.

A critical element of the HDO9000 is HD1024 technology, which provides 10-bits of vertical resolution with 4 GHz bandwidth. As with all members of Teledyne LeCroy's HDO family, the HDO9000 utilizes an exceptionally low-noise system architecture that delivers outstanding effective number of bits (ENOB).

Dynamic ADC Reconfiguration

HD1024 technology enables dynamic reconfiguration of the ADCs to achieve 10-bits of vertical resolution. By automatically determining the best ADC configuration under each specific measurement condition, the HDO9000 always provides the optimal resolution. The ADCs can be set to 8-, 9-, or 10-bit configurations.

HD Summary

The HDO9000 conveniently displays an overview of the HD1024 operation which can be accessed via the HD descriptor box.

Optimized Filtering

HD1024 high definition technology makes use of optimized filtering to provide additional resolution beyond 10-bits; extending up to 13.8-bits. When operating in low sample rate conditions, an anti-aliasing filter is automatically applied to reduce excess out-of-band noise. Additionally, resolution can be improved by applying a manual bandwidth limit on an individual channel.

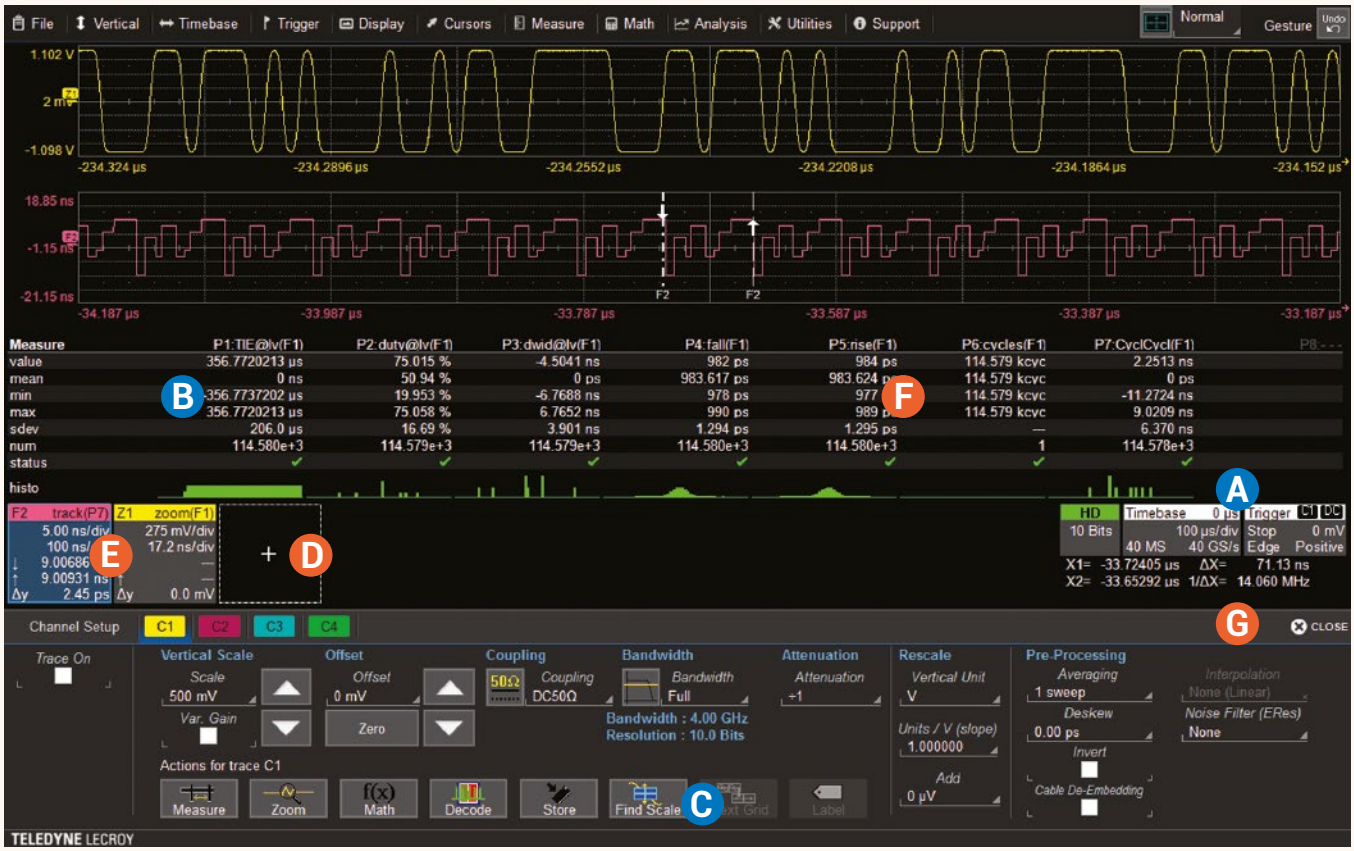
	HDO4000	HDO6000	HDO8000	HDO9000
HD Technology	HD4096 12-Bits	HD4096 12-Bits	HD4096 12-Bits	HD1024 10-Bits
Bandwidth	200 MHz – 1 GHz	350 MHz – 1 GHz	350 MHz – 1 GHz	1 GHz – 4 GHz
Input Channels	2, 4	4	8	4
Sample Rate	2.5 GS/s	2.5 GS/s	2.5 GS/s	40 GS/s
Analysis Capability	Basic	Advanced	Advanced	Exceptional

HD4096 high definition technology consists of high sample rate 12-bit ADCs, high signal-to-noise ratio amplifiers and a low-noise system architecture. This technology enables High Definition Oscilloscopes to capture and display signals of up to 1 GHz with high sample rate and 16 times more resolution than other oscilloscopes.

MAUI – Most Advanced User Interface was 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 user interface. 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.

MAUI with OneTouch

MAUI with OneTouch introduces a new paradigm for oscilloscope user experience. Dramatically reduce setup time with revolutionary drag and drop actions to copy and setup channels, math functions, and measurement parameters without lifting a finger. Use common gestures like drag, drop, and flick to instinctively interact with the oscilloscope. Quickly enable a new channel, math or measurement using the "Add New" button and simply turn off any trace or parameter with a flick of the finger. These OneTouch innovations provide unsurpassed efficiency in oscilloscope operation.

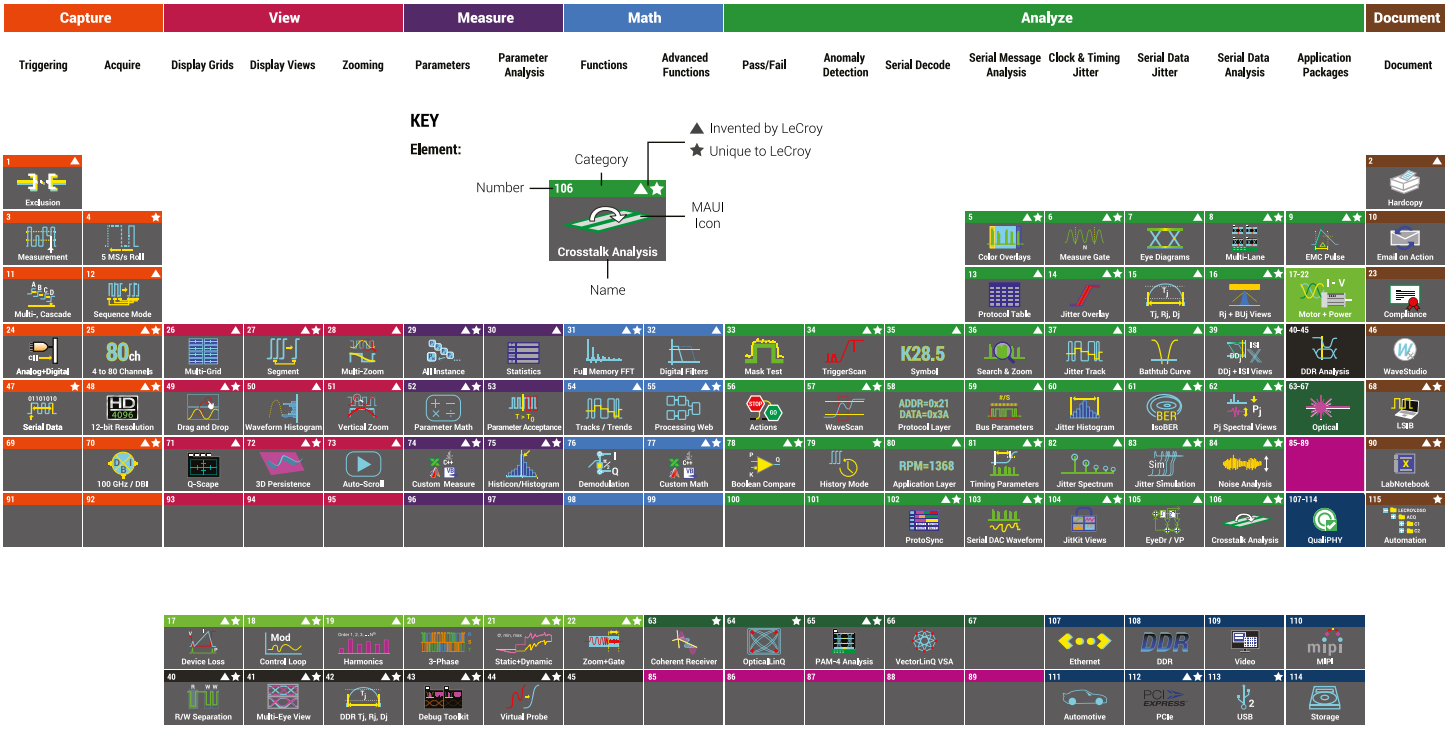


- **A** Channel, timebase, and trigger descriptors provide easy access to controls without navigating menus.
- **B** Configure parameters by touching measurement results.
- **C** Shortcuts to commonly used functions are displayed at the bottom of the channel, math and memory menus.
- **D** Use the "Add New" button for one-touch trace creation.
- **E** Drag to change source, copy setup, turn on new trace, or move waveform location.
- **F** Drag to copy measurement parameters to streamline setup process.
- **G** Drag to quickly position cursors on a trace.

MAUI

Unique to OneTouch

POWERFUL, DEEP TOOLBOX



Our Heritage

Teledyne LeCroy's 50+ year heritage has its origins in the high-speed collection of data in the field of high-energy physics, and the processing of long records to extract meaningful insight. We didn't invent the oscilloscope, but we did invent the digital oscilloscope, which can take full advantage of advanced digital signal processing and waveshape analysis tools to provide unparalleled insight.

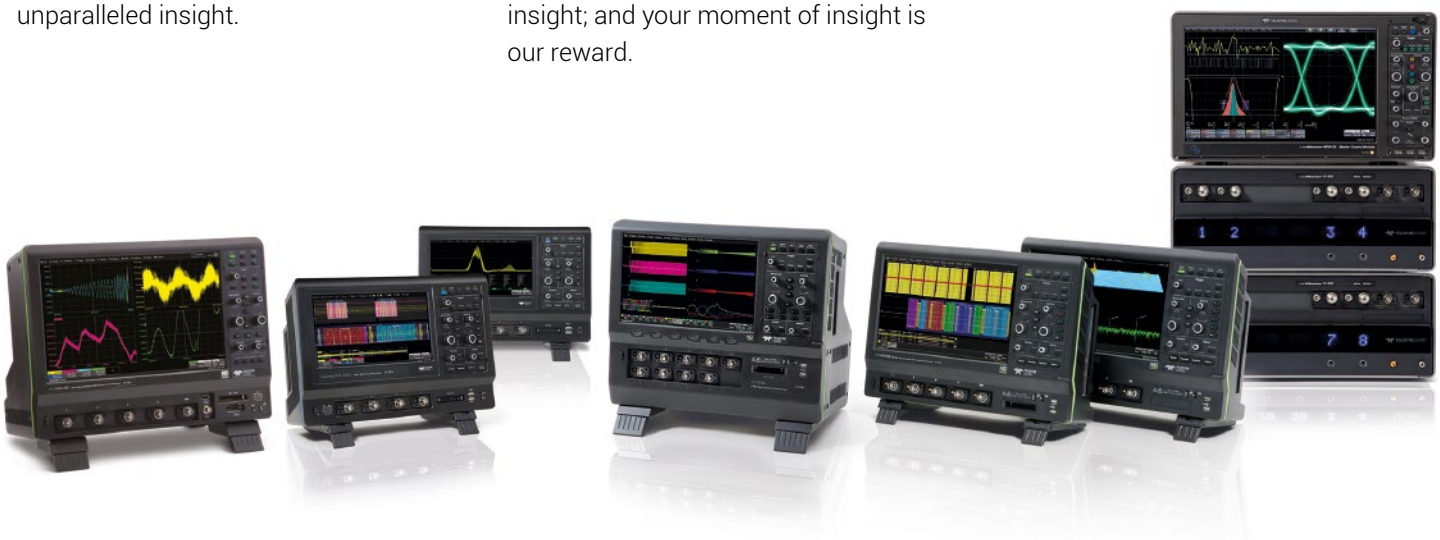
Our Obsession

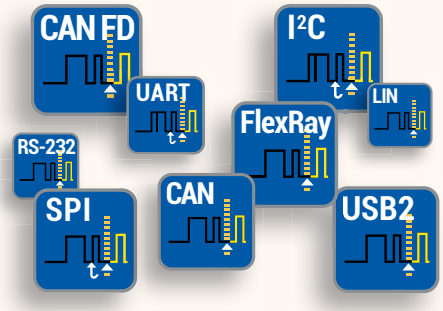
Our developers are true to our heritage – they are more obsessed with making better and smarter tools than anybody else. Our tools and operating philosophy are standardized across much of our product line for a consistent user experience. Our mission is to help you use these tools to understand problems, including the ones you don't even know you have. Our deep toolbox inspires insight; and your moment of insight is our reward.

Our Invitation

Our *Periodic Table of Oscilloscope Tools* provides a framework to understand the toolsets that Teledyne LeCroy has created and deployed in our oscilloscopes. Visit our interactive website to learn more about what we offer and how we can help you develop and debug more efficiently.

teledynelecroy.com/tools



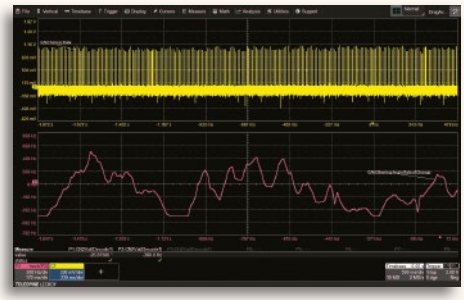


Trigger

Powerful, flexible triggers designed by people who know the standards, with the unique capabilities you want to isolate unusual events. Conditional data triggering permits maximum flexibility and highly adaptable error frame triggering is available to isolate error conditions. Efficiently acquire bursted data using Sequence Mode to maximize the oscilloscope's memory usage. Sequence Mode enables the oscilloscope to ignore idle time and acquire only data of interest.

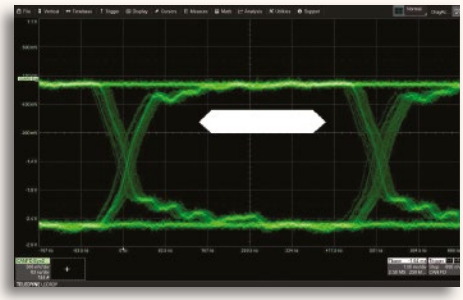
Decode

Decoded protocol information is color-coded to specific portions of the serial data waveform and transparently overlaid for an intuitive, easy-to-understand visual record. All decoded protocols are displayed in a single time-interleaved table. Touch a row in the interactive table to quickly zoom to a packet of interest and select a column header to create filter criteria, as is commonly done in spreadsheets. Easily search through long records for specific protocol events using the built-in search feature.



Measure/Graph

Quickly validate cause and effect with automated timing measurements to or from an analog signal or another serial message. Make multiple measurements in a single long acquisition to quickly acquire statistics during corner-case testing. Serial (digital) data can be extracted to an analog value and graphed to monitor system performance over time, as if it was probed directly. Complete validation faster and gain better insight.



Eye Diagram

Rapidly display an eye diagram of your packetized low-speed serial data signal without additional setup time. Use eye parameters to quantify system performance and apply a standard or custom mask to identify anomalies. Mask failures can be indicated and can force the scope into Stop mode.

SDAII or DDR Debug (optional) create eye diagrams of streaming NRZ serial data or DDR signals, and measure and analyze jitter breakdown.

Serial Data Protocol Support

		Trigger	Decode	Measure/Graph	Eye Diagram	ProtoSync	QualiPHY
Embedded Computing	I²C	•	•	•	•		
	SPI	•	•	•	•		
	UART-RS232	•	•	•	•		
	USB2-HSIC		•				
Automotive + Industrial	CAN	•	•	•	•		
	CAN FD	•	•	•	•		
	FlexRay	•	•	•	•		
	LIN	•	•	•	•		
	SENT		•				
	MOST50/150						•
	BroadR-Reach						•
Avionics	ARINC429		•	•	•		
	MIL-STD-1553	•	•	•	•		
	SPACEWIRE		•				
High Speed Computing, Storage +Peripherals	Ethernet (10/100Base-T)		•				•
	Ethernet (1000Base-T)						•
	USB 2.0	•	•	•	•	•	•
	8b/10b	•	•		•		
	Fibre Channel		•				
	SATA (1.5 & 3 Gb/s)	•	•			•	
	SAS (1.5 & 3 Gb/s)		•			•	
	PCI Express (Gen1)		•			•	
Memory	LPDDR2				•		•
	DDR2				•		•
	DDR3				•		•
MIPI	D-PHY/CSI-2/DSI		•		•		•
	DigRF3G		•	•			
	DigRFv4		•	•			
	UniPro		•				
	M-PHY		•		•		
Other	Audio (I²S, LJ, RJ, TDM)	•	•	•			
	Manchester		•				
	NRZ	•	•		•		

HDO9000 NEW

Exceptional Signal Fidelity with 10-Bit Resolution

HDO9000 High Definition Oscilloscopes leverage HD1024 technology to deliver 10-bits of resolution up to 4 GHz. HD1024 technology ensures that optimal resolution is always provided under each measurement condition for exceptional signal fidelity. The large, bright 15.4" touch screen and MAUI OneTouch user interface results in an unsurpassed user experience. With 40 GS/s sample rate and an extensive toolbox the HDO9000 debugs in high definition to provide uncompromised measurement performance.

Key Features

- **10-bit resolution; up to 13.8-bit with Optimized Filtering**
- **1 GHz – 4 GHz bandwidths**
- **Up to 40 GS/s sample rate**
- **15.4" touch screen**
- **MAUI with OneTouch Gesture Control**
  - Designed for touch
  - Built for simplicity
  - Made to solve
- **Advanced Tools**
  - Jitter and Timing Analysis Capabilities
  - WaveScan – Search and Find
  - LabNotebook Documentation and Report Generation
  - History Mode – Waveform Playback
- **16 digital channels with 1.25 GS/s**
  - Analog and Digital Cross-Pattern Triggering
  - Digital Pattern Search and Find
  - Analog and Digital Timing Measurements
  - Logic Gate Emulation
  - Activity Indicators

HD1024 Technology

HD1024 high definition technology enables 10-bits of vertical resolution with 4 GHz bandwidth. The HDO9000 automatically and dynamically determines the best ADC configuration under each specific measurement condition to always provide the optimal resolution.

HDO9000 is providing the most advanced tools for debug and analysis of serial data.

Dynamic ADC Reconfiguration

HD1024 technology enables dynamic reconfiguration of the ADC to achieve 10-bits of vertical resolution. By automatically determining the best ADC configuration under each specific measurement condition, the HDO9000 always provides the optimal resolution.

Powerful, Deep Toolbox

The standard collection of math, measurement, debug, and documentation tools provides unsurpassed analysis capabilities. Application-specific packages enable streamlined debugging for common design/validation scenarios. The advanced customization option (XDEV) enables user-defined parameters and math functions providing unique and limitless analysis capability.

15.4" Capacitive Touch Screen

The HDO9000 and MAUI OneTouch allows users to perform all common operations with a single touch of the display, optimizing for convenience and efficiency. Meanwhile, the 15.4" high resolution touch screen's bright display and quick responsiveness further enhances the efficiency and intuitiveness of MAUI OneTouch.

Exceptional Serial Data Tools

A wide a variety of application packages are available to meet all serial data test challenges, ranging from automated compliance packages to flexible debug toolkits. A suite of protocol specific measurement and eye diagram packages are available to complement the industry's most intuitive trigger and decode packages.

HDO8000

High Definition 8-Channel Oscilloscopes up to 1 GHz

HDO8000 High Definition Oscilloscopes have more channels, more resolution, more bandwidth and more memory than any other midrange oscilloscope. Ideal for debugging and troubleshooting three-phase power electronics, automotive electronics, and embedded/mechatronic designs with high resolution sensor signals. Comprehensive digital logic (MSO), low-speed serial data trigger, decode and analysis toolsets, and the widest variety of probes and application packages complete the solution. Get the most intuitive long-memory analysis using the unique Q-Scape multi-tab display architecture.

Key Features

- 8 analog channels
- 12-bit ADC resolution, up to 15-bit with enhanced resolution
- 350 MHz, 500 MHz, and 1 GHz bandwidths
- Long memory – up to 250 Mpts/Ch
- 16 digital channel MSO option
- Q-Scape™ multi-tab display architecture
- 12.1" touch screen display with Super HD WQXGA 3840 x 2160 pixel extended-desktop mode
- Wide probe selection for power electronics, embedded electronics, and mechatronics applications
- Advanced analysis and reporting toolsets
- Advanced triggering supplemented with TriggerScan and measurement trigger
- Serial data trigger & decode and debug toolkit options

True 12-Bit Technology

HD4096 high definition technology consists of 12-bit ADCs with 2.5 GS/s sample rates, high signal-to-noise (55dB) input amplifiers and a low-noise system architecture. This technology enables high definition oscilloscopes to capture and display signals of up to 1 GHz with 16 times more resolution than conventional 8-bit oscilloscopes.

Long Memory

Capture large amounts of data with more precision using the 250 Mpts/Ch of acquisition memory. Zoom in for detail, use Roll Mode for extremely long time periods, or 2.5 GS/s for capturing fast transients and slow events together over longer periods than ever before possible.

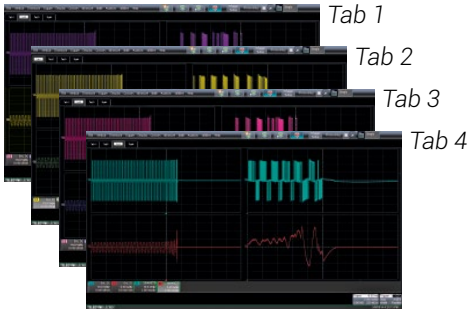
Comprehensive Analysis Tools

HDO8000 has the most comprehensive trigger, decode, math, measurement, and application toolsets available.

Use tracks, trends and histograms to enhance understanding of complex behaviors. LabNotebook concisely documents and stores your results.

Q-Scape Multi-tab Display Architecture

More waveforms requires new display architectures. Unique Q-Scape multi-tab display architecture speeds the understanding of your design with 4x the display area. Quickly move waveforms to different tabs through drag-and-drop. Extended desktop supports WQXGA 3840 x 2160 pixel displays.



Powerful Analysis Capabilities

Up to 250 Mpts/Ch of acquisition memory allows many seconds of data capture. Display simultaneously up to 40 waveforms (12 math, 12 zoom, 12 memory) and 12 measurement parameters.

MDA800 Series

Motor Drive Analyzers

Motor Drive Analyzers provide complete three-phase power analysis from motor drive input through motor mechanical output, with results in a convenient numeric table format. Motor speed, position, and torque integration are the most complete available. Long memory, per-cycle "synthesized" Waveforms and Zoom+Gate mode provide powerful dynamic drive and motor analysis. 8 analog input channels (MSO optional) with high resolution of 12-bits, sample rate up to 2.5 GS/s, bandwidth up to 1 GHz and memory up to 250 Mpt/Ch provide unique capability to perform complete system debug on the motor drive power section, motor mechanical performance, and embedded drive control system operation.

Key Features

- Complete Motor Drive System Debug and Validation in One Instrument
- Three-Phase Power Measurements; Real, Apparent, Reactive Power
- Efficiency Measurements
- User-Configurable Power Table
- Two- and Three-Wattmeter Methods Supported
- Per-Cycle Time-Correlated Waveforms From Power Values
- Dynamic Drive Response Analysis, From Startup To Overload
- Unique Zoom+Gate Mode
- Line-Line To Line-Neutral Voltage Conversion
- 1000 V_{RMS} Isolation with HVD Series Differential Probes
- Easily Interface Other Current Measurement Devices
- Complete Motor Integration (Torque, Speed, Position)
- Flexible Setup Capability
- Graphical User Interface

Complete Drive System Debug

The Motor Drive Analyzer acquires drive power section, power transistor, and embedded control system signals, and performs three-phase power analysis of the power section waveforms. Correlation of drive system behaviors to embedded control loop signals enables debug and analysis of all aspects of the complete motor drive.

Numerics Measurement Table

Various voltage, current, power (real, apparent, and reactive), phase angle/power factor, and efficiency parameters are calculated on acquired voltage and current waveforms and displayed in a table. The table is displayed along with the acquisition waveforms.

Dynamic Analysis

Capture long acquisitions and Zoom+Gate with instant table value updates and views of dynamic three-phase power and motor drive performance.

Most Complete Motor Mechanical Integration

Simple integration is provided for nearly any type of speed, rotation or position sensor, including analog and digital (pulse) tachometers, Brushless DC (BLDC) Hall sensor, Quadrature Encoder Interface (QEI), and Resolvers. Additionally, Hall sensor and QEI signals can be integrated through digital inputs, preserving valuable analog input channels for other signals.

Detailed Waveforms

In addition to the mean table values, a waveform showing any per-cycle measurement parameter variation can be displayed by simply selecting a table value. This waveform is time-correlated with other waveforms acquired by the HDO8000 oscilloscope and can be used to correlate complex drive behaviors to other control or power system waveforms, and to debug drive system problems. Statistical detail of the measurement set can also be displayed. This additional information goes well beyond what is provided by a Power Analyzer.

HDO6000

Highly Accurate Measurements with 12-Bit HD Oscilloscopes

HD06000 uses Teledyne LeCroy's HD4096 high definition true 12-bit technology, long memory, a compact form factor, 12.1" touch screen display, powerful measurement and analysis tools, and mixed signal capability. It is the ideal oscilloscope for circuit validation, system debug and waveform analysis.
The powerful feature set provides analytical tools and unique application packages to streamline the testing process. Tools such as WaveScan Search and Find and History Mode, combined with advanced triggering, identify and isolate problems while Spectrum Analyzer Mode provides analysis tools in the frequency domain.

Key Features

- **12-bit ADC resolution, up to 15-bit with enhanced resolution**
- **350 MHz, 500 MHz, and 1 GHz bandwidths**
- **Long memory – up to 250 Mpts/Ch**
- **12.1" touch screen display**
- **Advanced tools**
  - Spectrum Analyzer Option
  - WaveScan – search and find
  - LabNotebook documentation and report generation
  - History Mode – waveform playback
- **Advanced triggering with TriggerScan and measurement trigger**
- **Power Analyzer Option**
- **Serial data trigger, decode and debug toolkit options**
- **16 digital channels with 1.25 GS/s**
  - Analog and digital cross-pattern triggering
  - Digital pattern search and find
  - Analog and digital timing measurements
  - Logic gate emulation
  - Activity indicators

True 12-Bit Technology

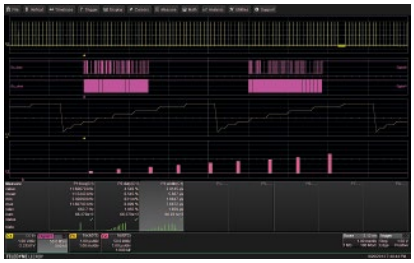
HD4096 high definition technology combines high sample rate 12-bit ADCs, high signal-to-noise input amplifiers and a low-noise system architecture. This technology enables high definition oscilloscopes to capture and display signals of up to 1 GHz with high sample rate and 16 times more resolution than other oscilloscopes.

Long Memory

With up to 250 Mpts/Ch of memory the HDO6000 can capture large amounts of data with more precision than other oscilloscopes. The 2.5 GS/s, 250 Mpts architecture provides the ability to capture a fast transient or a long acquisition.

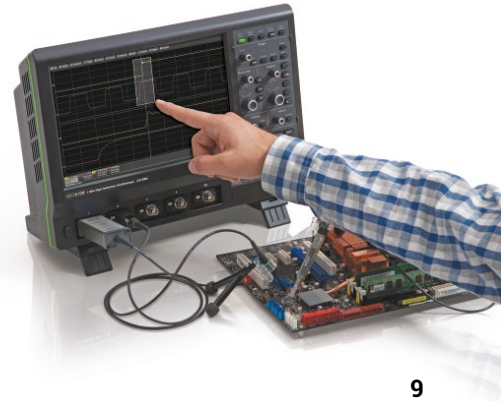
Comprehensive Analysis Tools

Advanced math and measurement parameters quantify analog and digital waveforms while tracks, trends and histograms show how they change over time. Advanced triggering with TriggerScan and Measurement Trigger ensures that even the most complicated signals are captured.



Large 12.1" Touch Screen

Navigating complicated user interfaces is a thing of the past thanks to the large touch screen display. The MAUI user interface is designed for touch screens, which makes navigating the HDO6000 extremely intuitive. Every aspect of the interface is touchable, making channel, timebase and trigger settings only one touch away.



HDO4000

Measure with True 12-Bit in HD up to 1 GHz

Combining HD4096 high definition technology with long memory, a compact form factor, 12.1" touch screen display, powerful debug tools, and mixed signal capability, the HDO4000 is the ideal oscilloscope for precise measurements and fast debugging. Tools such as WaveScan Search and Find, LabNotebook Report Generator, and History Mode help to identify and to isolate problems for faster troubleshooting.

Key Features

- **12-bit ADC resolution, up to 15-bit with enhanced resolution**
- **200 MHz, 350 MHz, 500 MHz, 1 GHz bandwidths**
- **Long memory – up to 50 Mpts**
- **12.1" touch screen display**
- **Multi-language user interface**
- **WaveScan – search and find**
- **LabNotebook documentation and report generation**
- **History Mode**
- **Spectrum Analyzer Option**
- **Power Analysis Option**
- **Serial data trigger and decode**
- **16 digital channels with 1.25 GS/s**
  - Analog and digital cross-pattern triggering
  - Digital pattern search and find
  - Analog and digital timing measurements
  - Activity indicators

True 12-Bit Technology

HD4096 high definition technology consists of high sample rate 12-bit ADCs, high signal-to-noise input amplifiers and a low-noise system architecture. This technology enables high definition oscilloscopes to capture and display signals of up to 1 GHz with high sample rate and 16 times more resolution than other oscilloscopes.

Long Acquisition Window

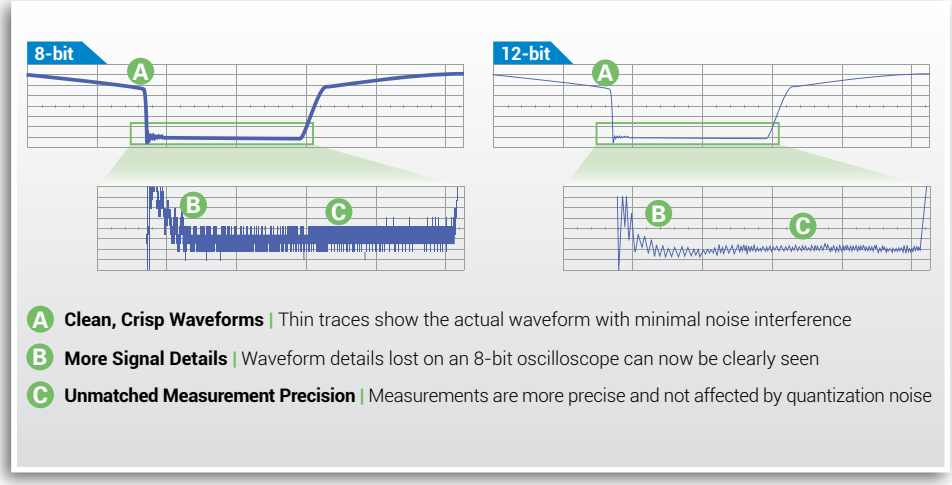
With up to 50 Mpts of memory the HDO4000 High Definition Oscilloscopes can capture large amounts of data with more precision than other oscilloscopes. The 2.5 GS/s, 50 Mpts architecture provides the ability to capture a fast transient or a long acquisition.

Large 12.1" Touch Screen

Navigating complicated user interfaces is a thing of the past thanks to the large touch screen display. The MAUI user interface is designed for touch screens which makes navigating the HDO4000 extremely intuitive. Every aspect of the interface is touchable, making channel, timebase and trigger settings only one touch away.

Compact Form Factor

The HDO4000 builds upon Teledyne LeCroy's history of "Large Screen, Small Footprint" with its 12.1" wide touch screen display and a depth of only 5". Additionally, the innovative rotating, tilting feet enable the HDO4000 to be placed in 4 different viewing positions ensuring optimal viewing no matter where it is being positioned in the lab.



LabMaster 10 Zi-A

World's Highest Bandwidth Real-Time Oscilloscope 100 GHz, 240 GS/s

Key Features

- Up to 100 GHz bandwidth, 240 GS/s sample rate, 80 Ch, 1.5 Gpts/Ch of analysis memory
- Modular – start with four channels and expand your system over time
- Wide bandwidth upgrade range provides investment protection
- Single trigger circuit for all modules eliminates additive trigger jitter
- Simple – connect and acquire – Teledyne LeCroy has done the hard work for you
- 15.3" widescreen touch screen display – or external monitor with up to WQXGA 2560 x 1600 pixels
- Highly stable timebase over long acquisitions, low jitter and Rj noise floor
- Eye Doctor™ II and Virtual Probe Signal Integrity Toolsets provide real-time de-embedding, emulation, and equalization on serial data channels
- Seamless MATLAB Analysis – Run custom scripts in real-time
- Superior Analysis Capabilities
  - Eye, Jitter and Noise Analysis with SDAIII-CompleteLinQ
  - Optical Modulation Analysis with Optical-LinQ

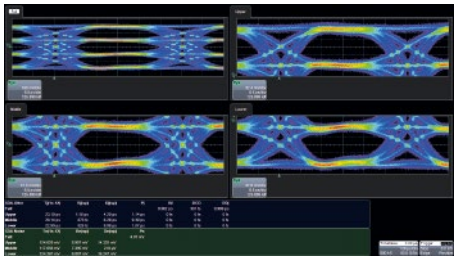
The LabMaster 10 Zi-A series of real-time oscilloscopes boasts the world's highest bandwidh and fastest sampling rate at 100 GHz and 240 GS/s. This world-leading performance is key to acquiring, analyzing and understanding the fastest phenomena found in R&D labs, where engineers are working on next-generation communication systems, high bandwidth electrical components and fundamental scientific research.

The Fastest Oscilloscope for the Most Demanding Signals

Whether working on communications technology capable of terabit/s symbol rates, analyzing the quickest and most energetic laser pulses, or building links using very high speed NRZ or PAM4 signals, the LabMaster 10 Zi-A Series oscilloscopes can acquire and analyze the waveforms.

Sophisticated Software for Sophisticated Analysis

The LabMaster 10 Zi-A Series offers an extensive set of standard math tools and add-on software packages that integrate seamlessly into the oscilloscope's "MAUI" interface. LabMaster 10 Zi-A oscilloscopes excel at performing in-depth analysis of complicated signals. For NRZ signals, the SDAIII-CompleteLinQ package compares eye, jitter and noise on up to four lanes, simultaneously. With the Optical-LinQ package, analyze coherent optical signals such as DP-QPSK, DP-16QAM. Additionally, the PAM4 Signal Analysis package performs eye, jitter and noise measurements on PAM4 signals. Since the fastest signals often require custom analysis, LabMaster 10 Zi-A also comes standard with the ability to run MATLAB scripts in-stream.



PAM4 signaling is seen as the next step in the evolution of serial data signal formats, allowing two bits of information to be transmitted per UI rather than one.

The Most Powerful, Flexible Optical Toolset

Teledyne LeCroy offers the most complete set of tools available for the development of leading-edge optical communications systems and components. The highest-bandwidth oscilloscopes, highest-performance optical modulation analyzers, and most flexible integrated software enable faster development and reduced time-to-market.

1.5 GHz – 30 GHz

WaveMaster 8 Zi-B

Exceptional Performance up to 30 GHz, 80 GS/s

WaveMaster 8 Zi-B combines high bandwidth and high sample rate with superior signal fidelity performance and 20 GHz on all four input channels.

Availability of models from 4 to 30 GHz with complete bandwidth upgradability throughout the entire product range makes it easy and affordable to stay current with emerging high-speed technologies and serial data standards.

Key Features

- **Up to 30 GHz bandwidth, 80 GS/s sample rate, 512 Mpts/Ch of analysis memory**
- **The industry's only true hardware 14.1 Gb/s serial pattern trigger**
- **Low Jitter Measurement Floor and exceptional timebase stability**
- **Comprehensive set of serial data analysis, debug, validation and compliance tools**
- **Integrated 50 Ω and 1 MΩ inputs for true connection and probing flexibility**
- **Multi-lane serial data eye, jitter and crosstalk analysis**
- **Real-time de-embedding, emulation, and equalization**
- **15.3" touch screen display**

WavePro 7 Zi-A

The Complete Debug Solution up to 6 GHz

Combining excellent signal fidelity with an architecture that maximizes speed in every performance aspect, the WavePro 7 Zi-A Series presents a great oscilloscope experience from 1.5 to 6 GHz bandwidths.

Experience 50 Ω and 1 MΩ inputs for every channel and four inputs into high-speed front end amplifiers and analog to digital converters.

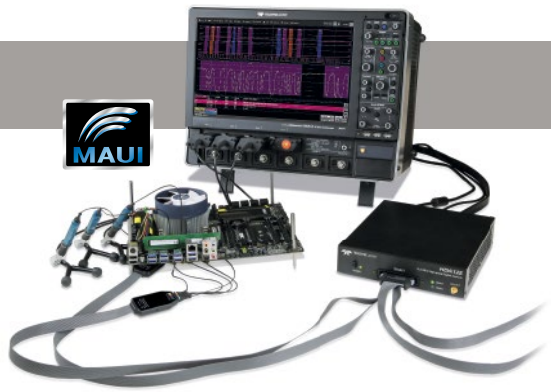
Key Features

- **1.5 GHz – 6 GHz bandwidth, 40 GS/s sample rate, 256 Mpts/Ch of analysis memory**
- **Deepest toolbox with more measurements, more math, more power**
- **Exceptional instrument responsiveness, even at maximum acquisition memory (256 Mpts)**
- **325 MB/s data transfer rate from oscilloscope to PC with LSIB option**
- **15.3" touch screen display**
- **Largest selection of serial triggers and decoders**
- **50 Ω and 1 MΩ inputs**
- **SDAIII "LinQ" options provide four simultaneous eye diagrams and jitter calculations for multi-lane or single-lane, multiple location serial data analysis**

18 Digital Channels at 12.5 GS/s

HDA125

High-speed Digital Analyzer



The HDA125 transforms your oscilloscope into the highest-performance, most flexible mixed-signal solution for high-speed digital debug and evaluation. With 12.5 GS/s digital sampling rate on 18 input channels, and the revolutionary QuickLink probing solution allowing seamless transitions from digital to high-bandwidth analog acquisitions, validation of challenging interfaces such as DDR4 has never been simpler or more comprehensive.

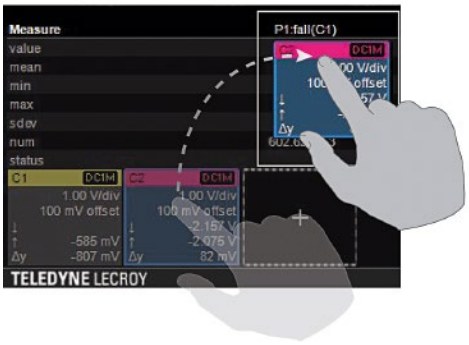
Key Features

- **12.5 GS/s sampling rate for 80 ps timing accuracy**
- **3 GHz leadset for capturing digital signals up to 6 Gb/s**
- **Unique QuickLink probing system**
  - Easy access to difficult test points with differential solder-in tips with 9-inch lead
  - Ultra low loading for superior performance
  - Unmatched acquisition flexibility

WaveRunner 8000 NEW

Extremely Powerful. Incredibly Easy.

The WaveRunner 8000 combines a superior oscilloscope experience with an extensive toolbox to shorten debug time. MAUI with OneTouch includes the most unique touch features on any oscilloscope providing unsurpassed efficiency in oscilloscope operation. Offering 500 MHz – 4 GHz of bandwidth, 40 GS/s sample rate, long memory, MAUI – Most Advanced User Interface, and a versatile toolset make the WaveRunner 8000 unbelievably powerful and incredibly easy to use.



Superior User Experience

The WaveRunner 8000 with MAUI OneTouch sets the standard for oscilloscope user experience by providing the most unique touch features on any oscilloscope. Common gestures are used to instinctively interact with the oscilloscope and dramatically reduce setup time. Convenience and efficiency are optimized – all common operations can be performed with one touch and do not require opening and closing of pop-up dialogs or menus.

Exceptional Serial Data Tools

A wide a variety of application packages are available to meet all serial data test challenges, ranging from automated compliance packages to flexible debug toolkits. A suite of protocol specific measurements and eye diagram packages are available to complement the industry's most intuitive trigger and decode packages.

Powerful, Deep Toolbox

The standard collection of math, measurement, debug, and documentation tools provides unsurpassed analysis capabilities. Application-specific packages enable streamlined debugging for common design/validation scenarios. The advanced customization option (XDEV) enables user-defined parameters and math functions providing unique and limitless analysis capability.

Key Features

- **500 MHz – 4 GHz bandwidths**
- **Up to 40 GS/s sample rate**
- **up to 128 Mpts/Ch of analysis memory**
- **12.1" touch screen display**
- **MAUI with OneTouch**
  - Designed for touch
  - Built for simplicity
  - Made to solve
- **Advanced Tools**
  - Jitter and Timing Analysis Capabilities
  - WaveScan – Search and Find
  - LabNotebook Documentation and Report Generation
  - History Mode – Waveform Playback
- **Optional Software Packages**
  - Advanced Customization
  - Digital Filtering
  - Spectrum Analysis
  - Device and Switching Power
- **Supply Analysis**
  - Comprehensive set of serial data analysis, debug, validation and compliance tools
- **16 digital channels with 1.25 GS/s**
  - Analog and Digital Cross-Pattern Triggering
  - Digital Pattern Search and Find
  - Analog and Digital Timing Measurements
  - Logic Gate Emulation
  - Activity Indicators

WaveRunner 8000 combines Serial Bus Trigger, Decode, Measure/Graph, and now also Eye Diagrams

WaveSurfer 3000

Designed to Touch, Built for Simplicity, Made to Solve

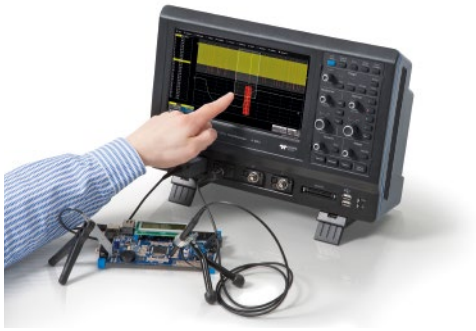
WaveSurfer 3000 oscilloscopes feature the MAUI advanced user interface with touch screen simplicity to shorten debug time. Quickly identify and isolate anomalies with WaveScan, Fast Display, and History mode for faster troubleshooting; LabNotebook enables easy documentation and convenient collaboration.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

Key Features

- **200 MHz, 350 MHz, 500, and 750 MHz bandwidths**
- **Up to 4 GS/s sample rate**
- **Long memory – 10 Mpts/Ch**
- **10.1" touch screen display**
- **MAUI – advanced user interface**
  - Designed for touch
  - Built to simplify
  - Made to solve
- **Advanced anomaly detection**
  - Fast waveform update
  - History Mode
  - WaveScan
- **Superior toolset**
  - LabNotebook
  - Sequence Mode
  - Advanced active probe interface
  - Math and measure
- **Multi-instrument capabilities**
  - Protocol analysis – Serial trigger and decode I^2C, SPI, UART / RS-232, CAN, CAN FD, LIN, FlexRay
  - Waveform generation – built-in arbitrary generator
  - Digital Voltmeter DVM
  - Logic analysis – 16 channel MSO
- **Future proof**
  - Upgradeable bandwidth
  - Field upgradable software and hardware options

MAUI – A New Wave of Thinking

MAUI advanced user interface is designed for touch. All important controls are accessed through the intuitive touch control. MAUI is made for simplicity; time saving shortcuts and intuitive dialogs simplify setup. MAUI is built to solve. A 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 arbitrary generator, a digital voltmeter DVM, protocol analysis with serial data trigger and decode, and logic analysis with a 16 channel mixed signal option.

1 GHz

WaveSurfer 10

1 GHz Power at Great Price

The WaveSurfer 10 combines the MAUI advanced user interface with powerful waveform processing, in addition to advanced math, measurement and debug tools, to quickly analyze and find the root cause of problems.

Key Features

- 1 GHz, 10 GS/s, up to 32 Mpts/Ch
- WaveScan – advanced search and find
- LabNotebook documentation & report generation
- 10.4" touch screen display

350 MHz – 500 MHz

WaveJet Touch

Bench Oscilloscopes

The WaveJet Touch provides the performance, features, and touch screen user interface to simplify operation and shorten debug time.

Key Features

- 350 MHz/1GHz, 2 GS/s, up to 5 Mpts/Ch
- 7.5" touch screen display
- 26 measurement parameters
- Standard pass/fail mask and measurement testing
- Standard I²C, SPI, and UART serial triggers

40 MHz – 300 MHz

WaveAce 1000/2000

Efficient Debugging Tools

The WaveAce™ combines long memory, a color display, extensive measurement capabilities, advanced triggering, and excellent connectivity.

Key Features

- 40 MHz, 60 MHz, 70 MHz, 100 MHz, 200 MHz, and 300 MHz bandwidths
- Sample rates up to 2 GS/s
- Long waveform memory — up to 2 Mpts/Ch
- Advanced triggering — edge, pulse width, video, slope
- 7" color display on all models
- 32 automatic measurements
- Four math functions plus FFT

WAVEFORM GENERATOR

WaveStation AWG

Performance and Flexibility

With 5 standard signal types, and over 40 built-in arbitrary waveforms the WaveStation is a versatile waveform generator up to 160 MHz. The large color display and simple user interface make it easy to generate a wide range of waveforms.

Key Features

- 10 MHz, 25 MHz, 50 MHz, 80 MHz, 120 MHz, 160 MHz bandwidth
- High performance and signal fidelity – accurate waveform creation due to high resolution (14-bit), fast sample rate (125 MS/s), and low distortion
- Extensive waveform library – 5 basic functions and over 40 built-in arbitrary waveforms
- Variety of modulation schemes – built-in modulation capabilities, such as, AM, PM, FM, ASK, PSK, FSK, and PWM

LabMaster 10 Zi-A (SDA/DDA Models)

WaveMaster 8 Zi-B (SDA/DDA 8 Zi-B)

WavePro 7 Zi-A (SDA/DDA 7 Zi-A)

	LabMaster 10 Zi-A (SDA/DDA Models)	WaveMaster 8 Zi-B (SDA/DDA 8 Zi-B)	WavePro 7 Zi-A (SDA/DDA 7 Zi-A)
Classification	Modular High End Analysis	High End Analysis	High End Analysis
Bandwidth	20 GHz to 100 GHz	4 GHz to 30 GHz	1.5 GHz to 6 GHz
Resolution	8-bit ADC resolution, 11-bit with ERES	8-bit ADC resolution, 11-bit with ERES	8-bit ADC resolution, 11-bit with ERES
Channels	Up to 80	4	4
MSO Characteristics	–	18/36 Ch Low Speed[1)] 9/18 Ch High Speed[4)]	18/36 Ch Low Speed[1)] 9/18 Ch High Speed[4)]
Display	15.3" WXGA Color Touch Screen	15.3" WXGA Color Touch Screen	15.3" WXGA Color Touch Screen
Memory	32 Mpts/Ch to 1.5 Gpts/Ch	64 Mpts to 512 Mpts/Ch	32 Mpts/Ch to 256 Mpts/Ch
Sample Rate	Up to 240 GS/s	Up to 80 GS/s	Up to 40 GS/s
Trigger Types	Basic, SMART, Sequence, High Speed Serial Protocol, Measurement	Basic, SMART, Sequence, High Speed Serial Protocol, Measurement	Basic, SMART, Sequence, High Speed Serial Protocol, Measurement
Serial Data TD Options	37	37	37
Dimensions (HWD)	MCM-Zi: 277 x 462 x 396 mm LabMaster 10-xxZi Acq. Module: 202 x 462 x 660 mm	355 x 467 x 406 mm	355 x 467 x 289 mm

HDO4000/ HDO4000-MS

WaveSurfer 10

WaveSurfer 3000

	HDO4000/ HDO4000-MS	WaveSurfer 10	WaveSurfer 3000
Classification	High Definition Analysis	Bench	Bench
Bandwidth	200 MHz to 1 GHz	1 GHz	200 MHz – 750 MHz
Resolution	12-bit ADC resolution, 15-bit with ERES	8-bit ADC resolution, 11-bit with ERES	8-bit ADC resolution, 11-bit with ERES
Channels	2 / 4	4	2 / 4
MSO Characteristics	16 Ch[2)]	18 Ch or 36 Ch[1)]	16 Ch[3)]
Display	12.1" WXGA Color Touch Screen	10.4" SVGA Color Touch Screen	10.1" Color Touch Screen
Memory	25 Mpts/Ch to 50 Mpts/Ch	16 Mpts/Ch to 32 Mpts/Ch	10 Mpts/Ch
Sample Rate	2.5 GS/s (12-bit)	Up to 10 GS/s	Up to 4 GS/s
Trigger Types	Basic, SMART, Sequence	Basic, SMART, Sequence	Basic, SMART, Sequence
Serial Data TD Options	20	20	6
Dimensions (HWD)	291 x 399 x 131 mm	260 x 340 x 152 mm	220 x 350 x 145 mm

[1)] 18/36 Digital Channels with MS-250/500 Options [2)] MS Models [3)] 16 Digital Channels with MS-Option [4)] HDA125 Option

WaveRunner 8000	HDO9000	HDO8000/ MDA800	HDO6000/ HDO6000-MS
Advanced Analysis	Advanced High Definition Analysis	8-Channel High Definition Analysis	Advanced High Definition Analysis
500 MHz to 4 GHz	1 GHz to 4 GHz	350 MHz to 1 GHz	350 MHz to 1 GHz
8-bit ADC resolution, 11-bit with ERES	10-bit ADC resolution, up to 13.8-bit with optimized filtering	12-bit ADC resolution, 15-bit with ERES	12-bit ADC resolution, 15-bit with ERES
4	4	8	4
16 Ch[3]	16 Ch[3] 9/18 Ch High Speed[4]	16 Ch[3]	16 Ch[2]
12.1" WXGA Color Touch Screen	15.4" WXGA Color Touch Screen	12.1" WXGA Color Touch Screen	12.1" WXGA Color Touch Screen
32 Mpts/Ch to 128 Mpts/Ch	128 Mpts/Ch	50 Mpts/Ch to 250 Mpts/Ch	50 Mpts/Ch to 250 Mpts/Ch
Up to 40 GS/s	Up to 40 GS/s	2.5 GS/s (12-bit)	2.5 GS/s (12-bit)
Basic, SMART, Sequence, Measurement	Basic, SMART, Sequence, Measurement	Basic, SMART, Sequence, Measurement	Basic, SMART, Sequence, Measurement
37	37	24	24
316 x 417 x 238 mm	358 x 445 x 242 mm	374 x 417 x 280 mm	291 x 399 x 131 mm

WaveJet Touch	WaveAce 1000/2000
Bench	Economy
350 MHz to 500 MHz	40 MHz to 300 MHz
8-bit ADC resolution	8-bit ADC resolution
4	2 / 4
–	–
7.5" Color Touch Screen	7" WQVGA Color Display
5 Mpts/Ch	24 kpts/Ch to 2 Mpts/Ch
2 GS/s	1 GS/s to 2 GS/s
Standard	Standard
3	–
190 x 295 x 102 mm	163 x 360 x 124 mm

Powerful Mixed Signal Test Solutions

MSO-Models

16 Channel, 1.25 GS/s Mixed Signal probe and accessories for the following oscilloscope series:
HDO4000, HDO6000, HDO8000/ MDA800, HDO9000, WR8000, WS3000

MS-250/500

18/36 Channel, 2 GS/s Mixed Signal Oscilloscope Option for the following oscilloscope series:
WM8Zi-B, WP7Zi-A, WR6Zi, HDO9000, WS10

HDA125

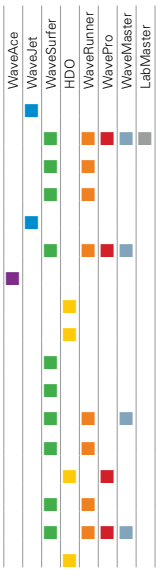
12.5 GS/s High-speed Digital Analyzer with 18 ch QuickLink leadset for the following oscilloscope series:
WM8Zi-B, WP7Zi-A, WR6Zi, HDO9000

OSCILLOSCOPE PROBES

The right probe is essential for accurate signal capture. Teledyne LeCroy offers an extensive range of probes to meet virtually every probing need.

Passive Probes

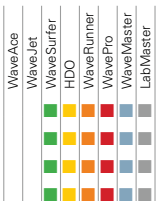
PP006A	500 MHz, 10:1, 10 MΩ, 600 V Passive Probe
PP007	500 MHz, 10:1, 10 MΩ, 400 V Passive Probe
PP008	500 MHz, 10:1, 10 MΩ, 400 V Passive Probe
PP009	500 MHz, 10:1, 10 MΩ, 400 V Passive Probe
PP010	200 MHz, 10:1, 10 MΩ, 600 V Passive Probe
PP011	500 MHz, 10:1, 10 MΩ, 400 V Passive Probe
PP016	300 MHz, 10:1, 10 MΩ, 600 V Passive Probe
PP017	250 MHz, 10:1, 10 MΩ, 600 V Passive Probe
PP018	500 MHz, 10:1, 10 MΩ, 600 V Passive Probe
PP019	250 MHz, 10:1, 10 MΩ, 500 V Passive Probe
PP020	500 MHz, 10:1, 10 MΩ, 500 V Passive Probe
PP021	500 MHz, 10:1, 10 MΩ, 500 V Passive Probe
PP022	500 MHz, 10:1, 10 MΩ, 500 V Passive Probe
PP023	500 MHz, 10:1, 10 MΩ, 500 V Passive Probe
PP024	500 MHz, 10:1, 10 MΩ, 500 V Passive Probe
PP025	500 MHz, 10:1, 10 MΩ, 500 V Passive Probe
PP026	500 MHz, 10:1, 10 MΩ, 500 V Passive Probe



Teledyne LeCroy passive probes automatically scale the oscilloscope waveforms without user input. Passive probes are the ideal tool for low frequency signals since circuit loading at these frequencies is minimized. Passive probes are designed to handle voltages of up to 400 V, some as high as 600 V.

ZS Series High Impedance Active Probes

ZS1000	1 GHz, 0.9 pF, 1 MΩ Active Voltage Probe
ZS1500	1.5 GHz, 0.9 pF, 1 MΩ Active Voltage Probe
ZS2500	2.5 GHz, 0.9 pF, 1 MΩ Active Voltage Probe
ZS4000	4 GHz, 0.9 pF, 1 MΩ Active Voltage Probe



The ZS Series probes provide high impedance and an extensive set of probe tips and accessories to handle a wide range of probing scenarios. The high 1 MΩ input resistance and low 0.9 pF input capacitance mean this probe is ideal for all frequencies.

Current Probes

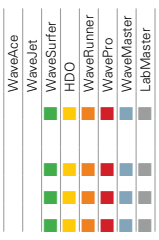
CP030A	30A; 50 MHz High Sensitivity Current Probe – AC/DC; 30 A rms; 50 A Peak Pulse
CP030	30 A; 50 MHz Current Probe – AC/DC; 30 A rms; 50 A Peak Pulse
CP031A	30A; 100 MHz High Sensitivity Current Probe – AC/DC; 30 A rms; 50 A Peak Pulse
CP031	30 A; 100 MHz Current Probe – AC/DC; 30 A rms; 50 A Peak Pulse
CP150	150 A, 10 MHz Current Probe – AC/DC; 150 A rms, 500 A Peak Pulse
CP500	500 A, 2 MHz Current Probe – AC/DC; 500 A rms, 700 A Peak Pulse

Available current probes reach bandwidths of 100 MHz, peak currents of 700 A and sensitivities of 1 mA/div. Use multiple current probes to make measurements on three phase systems or a single current probe with a voltage probe to make instantaneous power measurements.

Highlight – High sensitivity current probes for accurate measurements down to 1 mA/div

Differential Probes

ZD200	200 MHz, 3.5 pF, 1 MΩ Active Differential Probe, ±20 V
ZD500	500 MHz, 1.0 pF Active Differential Probe, ±8 V
ZD1000	1 GHz, 1.0 pF Active Differential Probe, ±8 V
ZD1500	1.5 GHz, 1.0 pF Active Differential Probe, ±8 V



High bandwidth, excellent common-mode rejection ratio (CMRR) and low noise make these active differential probes ideal for applications such as automotive development (e.g. FlexRay) and failure analysis, as well as wireless and data communication design.

High Voltage Differential Probes

ADP300	20 MHz High-Voltage Differential Probe, 1,400 V
HVD3102	25 MHz High Voltage Differential Probe, 1,500 V_{p-p} Differential Voltage Range
ADP305	100 MHz High-Voltage Differential Probe, 1,400 V
HVD3106	120 MHz High Voltage Differential Probe, 1,500 V_{p-p} Differential Voltage Range
HVD3106-6M	80 MHz High Voltage Differential Probe, 1,500 V_{p-p} Differential Voltage Range, 6 m cable
HVD3206	2 kV, 120 MHz High Voltage Differential Probe
HVD3605	6 kV, 100 MHz High Voltage Differential Probe

Low cost active differential probes are intended for measuring higher voltages. The differential techniques employed permit measurements to be taken at two points in a circuit without reference to the ground, allowing the oscilloscope to be safely grounded without the use of opto-isolators or isolating transformers.

High Voltage Passive Probes

HVP120	400 MHz High Voltage Passive Probe, 900 ps Rise time, 1000 V_{rms} Max. Input, Up to 6 kV Transient Overvoltage
PPE4KV	400 MHz, 100:1, 50 MΩ High-Voltage Probe 4kV Max. Volt. DC
PPE5KV	400 MHz, 100:1, 50 MΩ High-Voltage Probe 5kV Max. Volt. DC
PPE6KV	400 MHz, 1000:1, 5 MΩ/50 MΩ High-Voltage Probe, 6kV Max. Volt. DC

The High Voltage Passive Probes product range includes fixed-attenuation probes covering a range from 1 kV to 6 kV. All fixed-attenuation, standard probes automatically rescale compatible Teledyne LeCroy oscilloscopes for the appropriate attenuation of the probe.

High Performance Differential Amplifier

DA1855A	1 Ch, 100 MHz Differential Amplifier with Precision Voltage Source
DA1855-PR2	2 Ch, 100 MHz, Differential Amplifier with Precision Voltage Source

The DA1855A is a stand-alone, high-performance differential amplifier providing the fastest overdrive recovery of any commercially available product. This unique capability allows the amplifier to make measurements that would normally be limited by oscilloscope overdrive recovery.

WaveLink® Differential Probes (4 GHz – 25 GHz)

D610/D620, D410/D420, D600A-AT, D400A-AT, D610-PS, D620-PS, D410-PS, D420-PS
4 GHz – 6 GHz
D830, D830-PS, D1030, D1030-PS, D1330, D1330-PS, D1305-A, D1305-A-PS,
8 GHz – 13 GHz
D1605-A, D1605-A-PS, D2005-A, D2005-APS, D2505-A, D2505-A-PS
16 GHz – 25 GHz

WaveLink® probes provide industry leading technology for wideband signal connection to test instruments. The first differential probes to employ SiGe technology, they deliver full system bandwidth of the connected oscilloscopes up to 25 GHz.

PROTOCOL ANALYZERS

Learn More: teledynelecroy.com/protocolanalyzer

PCI Express®

Summit T34 Analyzer

2.5 GT/s ✓ 5 GT/s ✓ 8 GT/s ✓

The Summit T34 provides a low-cost and extremely portable analyzer that fully supports PCI Express 3.0 protocol analysis. The Summit T34 can capture up to 4 lanes of traffic and is configurable up to 32 GB trace depth with a single unit. Larger trace depths can be achieved by cascading a second unit, providing up to 64 GB of trace memory.

Summit T2x Analyzer Series

2.5 GT/s ✓ 5 GT/s ✓

With advanced features such as support for PCI Express Spec 2.0, data rates of both 2.5 and 5 Gb/s, lane widths from x1 to x8, and a full 2 GB of trace memory, the Summit T2x provides unmatched capability and flexibility for developers and users of advanced PCI Express products. The Summit T2x is the most cost effective PCI Express Analyzer available in the market today.

Interposers and Probes for PCI Express®

Teledyne LeCroy offers the industry's widest range of PCI Express interposers and probes, including a wide variety of specialty probes designed to make it simple and easy to probe sophisticated high-speed serial designs.

M.2 Interposer

90 Degree Server Interposer

AMC Interposer

VPX Interposer

External Cable Interposer

ExpressCard Interposer

SFF-8639 Interposer

Active Slot Interposer

Passive Slot Interposer

Mini Card Interposer

XMC Interposer

ExpressModule Interposer

Multi-lead Probe (solder down)

Mid-bus Probe

HP Blade Server Interposer

Compact PCI Serial Interposer

High-Speed Fabric & SAN

SierraNet™ M408

Ethernet: 10 G ✓ 25 G ✓ 40 G ✓ Fibre Channel: 1 G ✓ 2 G ✓ 4 G ✓ 8 G ✓ 16 G ✓

The Teledyne LeCroy SierraNet M408 is the most advanced fully-integrated 10 G/40 G Ethernet and 16 G Fibre Channel protocol verification system available. The SierraNet M408 provides 100 % recording of all traffic at full line rates, while maintaining the link integrity through customdesigned pass-through probe technology. The Sierra M408 provides integrated 40 G QSFP ports and adds InFusion error injection capability in addition to protocol analysis.

Universal Serial Bus (USB)

Voyager™ M310C Verification System

1.5 M ✓ 12 M ✓ 480 M ✓ 5 G ✓ 10 G ✓

The Voyager M310C is Teledyne LeCroy's USB protocol verification system designed for the latest evolution of universal serial bus, USB Type-C. Leveraging Teledyne LeCroy's extensive expertise in high-speed serial data analysis, the Voyager M310C provides traffic generation and recording of USB 3.1, 3.0 and 2.0 at data rates up to 10 Gb/s.

Mercury T2/T2C

1.5 M ✓ 12 M ✓ 480 M ✓

The Mercury T2 is the industry's smallest, most affordable hardware-based USB 2.0 protocol analyzer that combines the defacto standard CATC Trace display with powerful analysis features. The pocket-sized Mercury T2 is bus powered and is controlled using any Windows PC. With comprehensive triggering, the Mercury T2 provides much of the same lab quality protocol analysis capabilities offered in Teledyne LeCroy's top-of-the-line USB analyzers.

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teledynelecroy.com

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