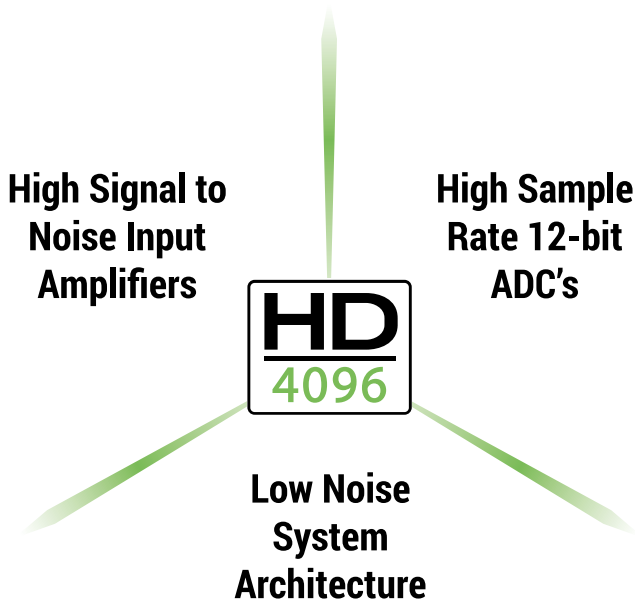


Product Line Card 2018



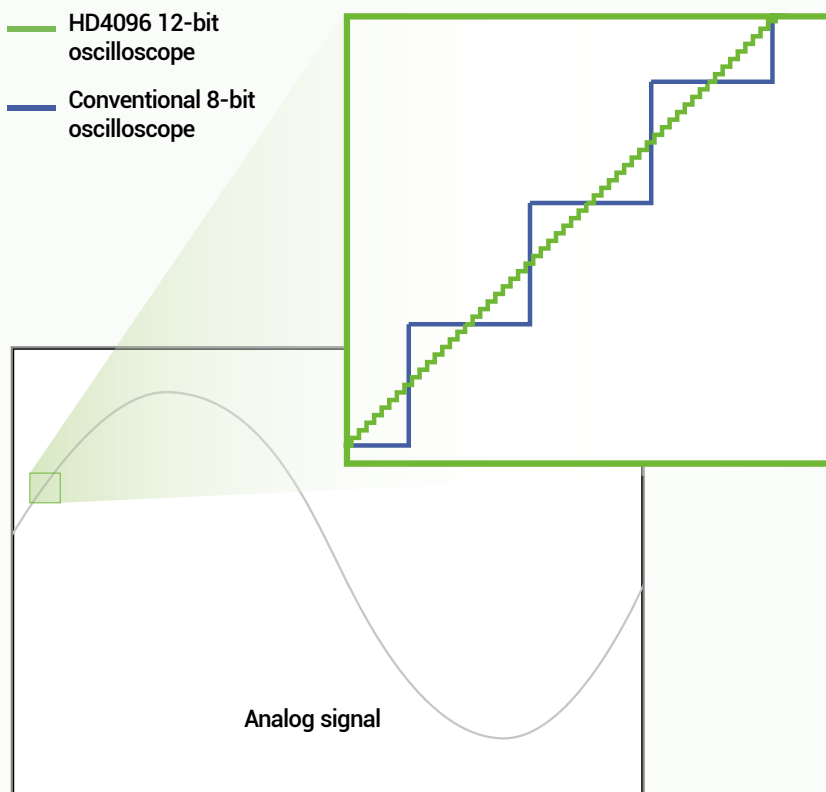
HD4096 TECHNOLOGY – 16X CLOSER TO PERFECT



Teledyne LeCroy high definition 12-bit oscilloscopes use unique HD4096 technology to provide superior and uncompromised measurement performance:

- 12-bit ADCs with high sample rates
- High signal-to-noise amplifiers
- Low noise system architecture (to 8 GHz)

Oscilloscopes with HD4096 technology have higher resolution than conventional 8-bit oscilloscopes (4096 vs. 256 vertical levels) and low noise for uncompromised measurement performance. The 12-bit ADCs support capture of fast signals and oscilloscope bandwidth ratings up to 8 GHz, while 20 GS/s sample rate ensures the highest measurement accuracy and precision. The high performance input amplifiers deliver pristine signal fidelity, and the low-noise system architecture provides an ideal signal path to ensure that signal details are delivered accurately to the oscilloscope display – 16x closer to perfect.



16x Closer to Perfect

16x more resolution

HD4096 technology provides 12 bits of vertical resolution with 16x more resolution compared to conventional 8-bit oscilloscopes. The 4096 discrete vertical levels reduce the quantization error compared to 256 vertical levels. This improves the accuracy and precision of the signal capture and increases measurement confidence.



Experience HD4096 accuracy, detail, and precision and never use an 8-bit oscilloscope again. Whether the application is general-purpose design and debug, high-precision analog, power electronics, automotive electronics, mechatronics, or other specialized applications, the HD4096 technology provides unsurpassed confidence and measurement capabilities.

Clean, crisp waveforms

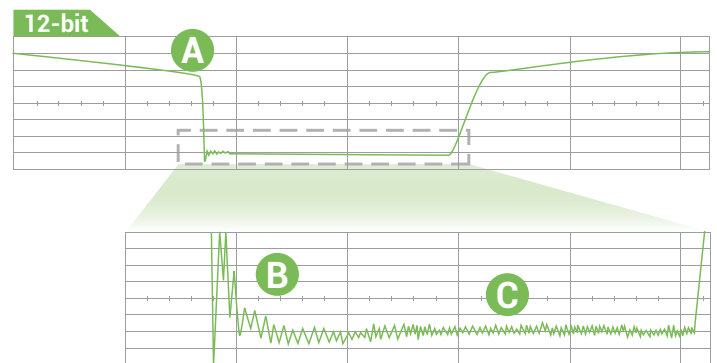
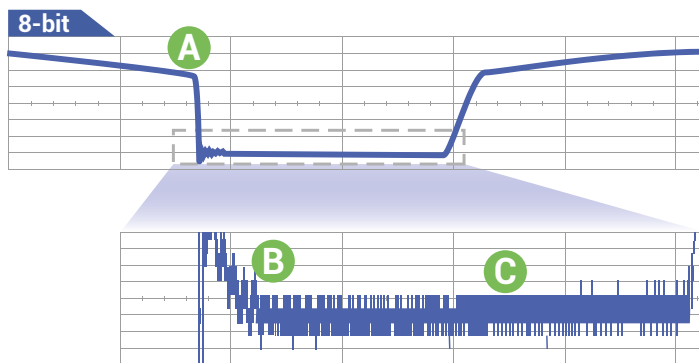
When compared to waveforms acquired and displayed using conventional 8-bit oscilloscopes, waveforms captured with HD4096 12-bit technology are dramatically crisper and cleaner, and are displayed more accurately. Once you see a waveform acquired with HD4096 technology, you will not want to go back to using a conventional 8-bit oscilloscope.

More signal details

16x more resolution provides more signal detail. This is especially helpful for wide dynamic range signals in which a full-scale signal must be acquired while at the same time very small amplitude signal details must be analyzed. 12-bit acquisitions combined with the oscilloscope's vertical and horizontal zoom can be used to obtain unparalleled insight to system behaviors and problems.

Unmatched measurement precision

HD4096 technology delivers measurement precision several times better than conventional 8-bit oscilloscopes. Higher oscilloscope measurement precision provides better ability to assess corner cases and design margins, perform root cause analysis, and create the best possible solution for any discovered design issue.



- A Clean, Crisp Waveforms** | Thin traces show the actual waveform with minimal noise interference
- B More Signal Details** | Waveform details can now be clearly seen on an HD4096 12-bit oscilloscope
- C Unmatched Measurement Precision** | Measurements are more precise and not affected by quantization noise

POWERFUL, DEEP TOOLBOX

Capture		View			Measure		Math		Analyze							Document		
Triggering	Acquire	Display Grids	Display Views	Zooming	Parameters	Parameter Analysis	Functions	Advanced Functions	Pass/Fail	Anomaly Detection	Serial Decode	Serial Message Analysis	Clock & Timing Jitter	Serial Data Jitter	Serial Data Analysis	Application Packages	Document	
1	Exclusion	3	Measurement	4	5 MS/s Ro	11	Multistage	12	Sequence Mode	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>Element Key:</p> <ul style="list-style-type: none"> ▲ Invented by LeCroy ★ Unique to LeCroy <p>Number: 84</p> <p>Category: Noise + Crosstalk</p> <p>MAUI Icon</p> <p>Name</p> </div>							2	Hardcopy
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40-45	46	
47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63-67	68	
69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85-89	90	
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107-114	115	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	
35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	
71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	
89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	
107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	

Our heritage

Teledyne LeCroy's 50+ year heritage is in processing long records to extract meaningful insight. We invented the digital oscilloscope and many of the additional waveshape analysis tools.

Our obsession

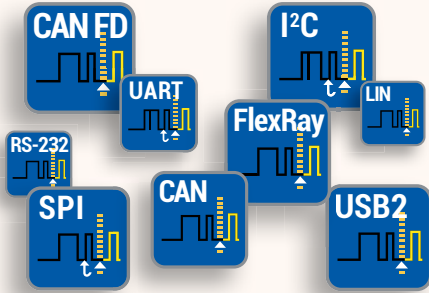
Our tools and operating philosophy are standardized across much of our product line. This deep toolbox inspires insight; and your moment of insight is our reward.

Our invitation

Our Periodic Table of Oscilloscope Tools explains the toolsets that Teledyne LeCroy has deployed in our oscilloscopes. Visit our interactive website to learn more about them. teledyneleeroy.com/tools



MOST COMPLETE SERIAL DATA DEBUG AND VALIDATION



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.



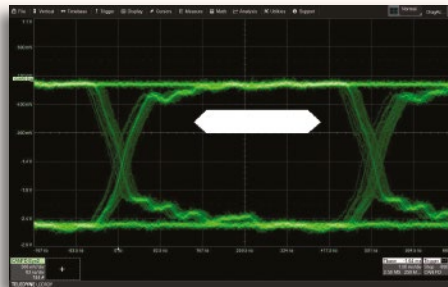
Measure/Graph

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.



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.



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	I ² C	•	•	•	•	
	SPI	•	•	•	•	
	UART-RS232	•	•	•	•	
	USB2-HSIC		•			
Automotive + Industrial	CAN	•	•	•	•	
	CAN FD	•	•	•	•	
	FlexRay	•	•	•	•	
	LIN	•	•	•	•	
Avionics	SENT		•			
	MOST50/150					•
	BroadR-Reach					•
	ARINC429		•	•	•	
High Speed Computing, Storage +Peripherals	MIL-STD-1553	•	•	•	•	
	SPACEWIRE		•			
	Ethernet (10/100Base-T)		•			•
	Ethernet (1000Base-T)					•
	USB 1.1/2.0	•	•	•	•	•
	MD10		•			
	8b/10b	•	•		•	
	Fibre Channel		•			
	SATA (1.5 & 3 Gb/s)	•	•			•
	SAS (1.5 & 3 Gb/s)		•			•
Memory	PCI Express (Gen1)		•			•
	LPDDR2				•	•
	DDR2				•	•
	DDR3				•	•
MIPI	D-PHY/CSI-2/DSI		•		•	•
	DigRF3G		•	•		
	DigRFv4		•	•		
	UniPro		•			
Other	M-PHY		•		•	
	SPM		•			
	Audio (I ² S, LJ, RJ, TDM)	•	•	•		
	Manchester		•			
NRZ	•	•		•		

T D M E

12-BIT UP TO 8 GHz, 20 GS/s, 5 GPTS

WavePro HD

Capture Every Detail with 2.5 GHz to 8 GHz HD Oscilloscopes



WavePro HD High-Definition oscilloscopes employ unique Teledyne LeCroy HD4096 technology to achieve 12-bit resolution at up to 8 GHz bandwidth, for the lowest noise and unmatched signal fidelity. Up to 5 Gpts of highly responsive acquisition memory gives more visibility into system behavior, and the exceptional analysis toolbox enables deep insight.

Key Features

- HD4096 technology provides 12-bit resolution at all times up to 8 GHz and 20 GS/s
- 2.5 GHz – 8 GHz bandwidth
- 20 GS/s sample rate
- Up to 5 Gpts of acquisition memory enables detailed viewing of long events
- 15.6" 1920 x 1080 Full HD capacitive touchscreen
- New ProBus2 input supports up to 8 GHz bandwidth and direct compatibility with a wide variety of existing ProBus probes – 50 Ω and 1 M Ω coupling modes support all input types on a single connector
- MAUI with OneTouch user interface for intuitive and efficient operation
- Deep toolbox enables and simplifies complex analysis
- Intuitive navigation to quickly find important features in long waveforms
- High dynamic range and 0.5 % gain accuracy.

HD4096 High Definition Technology

Next-generation Teledyne LeCroy HD4096 technology enables capture and display of signals with 16 times more resolution than other oscilloscopes, up to 8 GHz bandwidth and 20 GS/s sample rate. Waveforms captured and displayed are cleaner and crisper. The oscilloscopes deliver unmatched measurement precision for improved debug and analysis. High-resolution performance comes with no special operating modes or compromises on bandwidth or sample rate.

5 Gpt Acquisition Memory

With up to 5 Gpts of acquisition memory, WavePro HD 12-bit oscilloscopes capture events occurring over long periods of time, while still maintaining high sample rate for visibility into the smallest details. A sophisticated acquisition and memory management architecture makes even the longest acquisitions

fast and responsive. WavePro HD can capture 250 ms of data at full 20 GS/s sample rate – and always with 12 bits of resolution. Oscilloscopes with less memory require trading off sample rate for acquisition time.



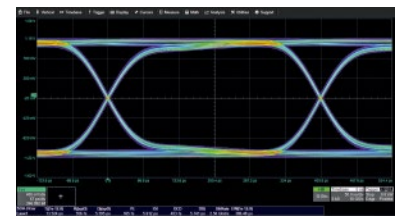
Deeply Embedded Computing Systems Testing

WavePro HD has unsurpassed capabilities to acquire the longest records at the highest resolution for the most comprehensive deeply embedded computing system (analog, digital, serial data and sensor) testing.



Power Integrity Test

WavePro HD's combination of high bandwidth and high resolution provides the capability to validate and debug all aspects of power supply, delivery and consumption – ensuring complete confidence.



Serial Data Jitter and Noise Analysis

WavePro HD 12-bit oscilloscopes bring the high signal fidelity of HD4096 technology to high-speed serial data analysis. 12-bit resolution, exceptionally low noise and 60 fs timebase jitter mean a low jitter measurement floor, for the most accurate serial data jitter and noise measurements possible.

With up to 5 Gpts of acquisition memory, WavePro HD 12-bit oscilloscopes capture events occurring over long periods of time, while still maintaining high sample rate for visibility into the smallest details.



Longest memory

WavePro HD oscilloscopes contain a sophisticated acquisition and memory management architecture that makes 5 Gpt acquisitions fast and responsive. More memory means more visibility into system behavior.

Simple navigation

Long memory and high sample rates capture both millisecond-scale trends and picosecond-scale glitches. WavePro HD oscilloscopes are equipped with an advanced user interface that makes it easy to find features, navigate directly using timebase scale and position knobs, or set up zoom traces – whichever you prefer. Apply analysis tools easily to any type of trace.

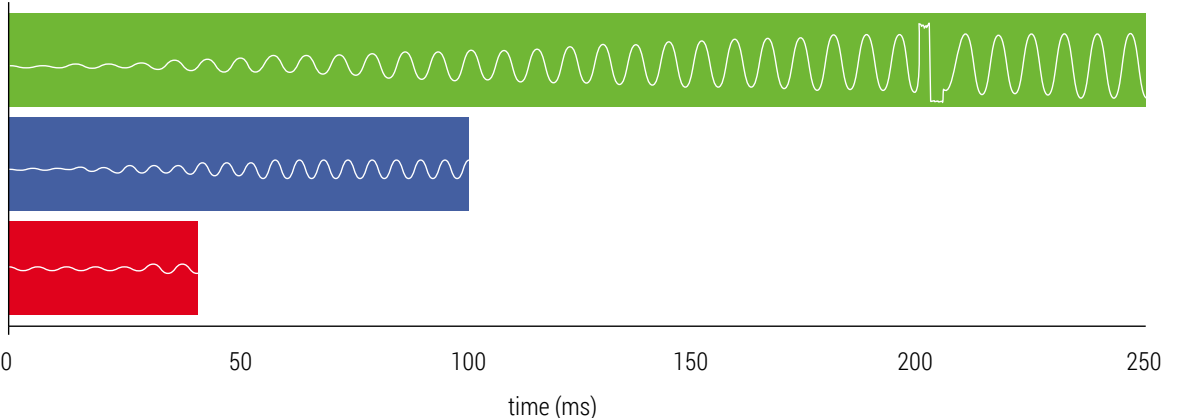
No compromise

WavePro HD can acquire 250 ms of data at full 20 GS/s sample rate – and always with 12 bits of resolution. Oscilloscopes with less memory require trading off sample rate for acquisition time.

WavePro HD
5 Gpts @ 20 GS/s
250 ms acquisition time

Competitor A, 20 GS/s
100 ms acquisition time

Competitor B, 20 GS/s
40 ms acquisition time



HDO9000

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.

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.

Dynamic ADC Reconfiguration

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



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

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

- 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
- 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
- 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

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 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.

12-BIT 8 CHANNEL WITH UP TO 1 GHz

HDO8000A

HD 8-Channel Oscilloscopes up to 1 GHz, 10 GS/s

HDO8000A 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
- 10 GS/s Sample Rate
- 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
- MAUI with OneTouch Gesture Control
- 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 10 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 10 GS/s for capturing fast transients and slow events together over longer periods than ever before possible.

Comprehensive Analysis Tools

HDO8000A 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.

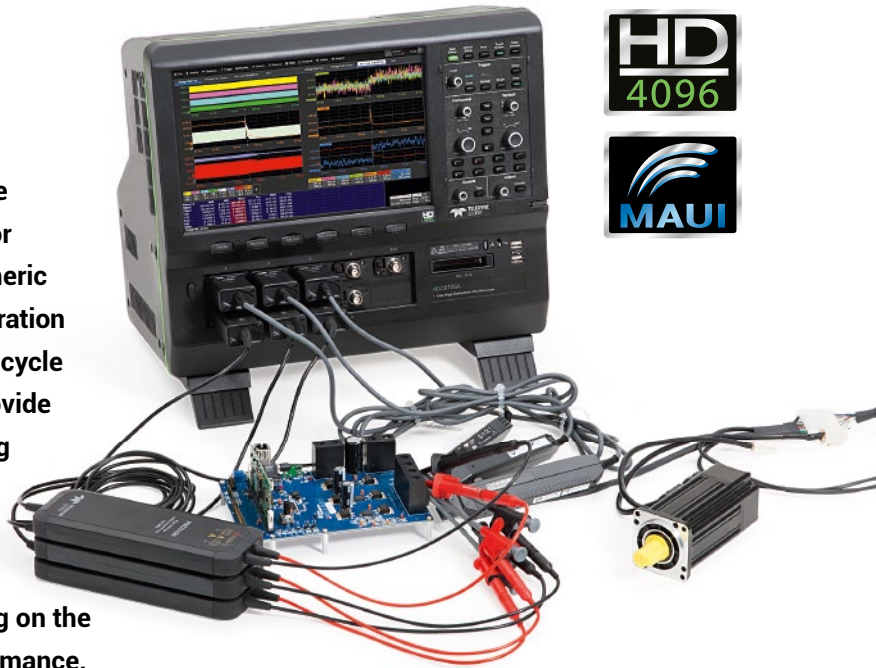


12-BIT 8 CHANNEL MOTOR DRIVE ANALYSIS

MDA800A 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 10 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
- Harmonics Calculations and Filtering (optional)
- Dynamic Drive Response Analysis, From Startup To Overload
- Unique Zoom+Gate Mode
- Line-Line To Line-Neutral Voltage Conversion
- Up to 6000 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.

Zoom+Gate 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 MDA800A 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.



HDO6000A

Highly Accurate Measurements with 12-Bit HD Oscilloscopes up to 1 GHz, 10 GS/s



HDO6000A 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
- 10 GS/s Sample Rate
- Long memory – up to 250 Mpts/Ch
- 12.1" touch screen display
- MAUI with OneTouch Gesture Control
- 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 Toolsets
 - Trigger
 - Decode
 - Measure/Graph
 - Eye Diagram
- 16 digital channels with 1.25 GS/s
 - Analog and digital cross-pattern triggering
 - Digital pattern search and find
 - Analog and digital timing measurements
- Wide probe selection for power electronics, embedded electronics, and mechatronics applications

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

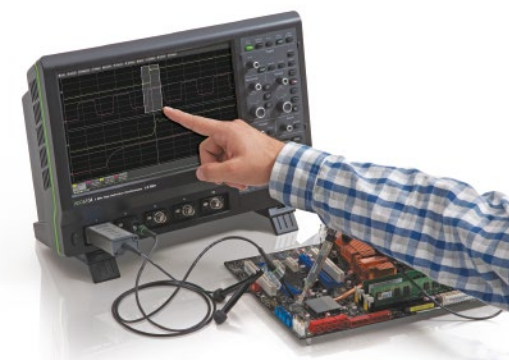
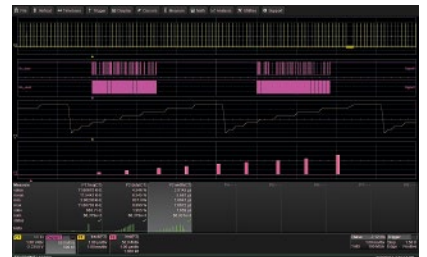
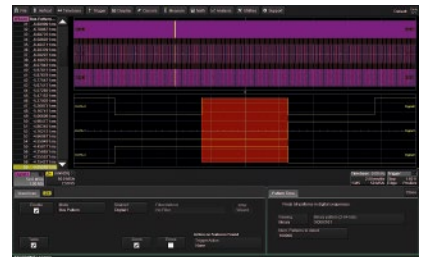
With up to 250 Mpts/Ch of memory the HDO6000A can capture large amounts of data with more precision than other oscilloscopes. The 10 GS/s, 250 Mpts architecture provides the ability to capture a fast transient or a long acquisition.

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 OneTouch user interface is designed for touch screens, which makes navigating the HDO6000A extremely intuitive. Every aspect of the interface is touchable, making channel, timebase and trigger settings only one touch away.



12-BIT UP TO 1 GHz

HDO4000A

Low Noise Measurements with True 12-Bit in HD up to 1 GHz, 10 GS/s



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 HDO4000A 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.



Long Acquisition Window

With up to 50 Mpts of memory the HDO4000A High Definition Oscilloscopes can capture large amounts of data with more precision than other oscilloscopes.

The 10 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 OneTouch user interface is designed for touch screens which makes navigating the HDO4000A extremely intuitive. Every aspect of the interface is touchable, making channel, timebase and trigger settings only one touch away.

Key Features

- 12-bit ADC resolution, up to 15-bit with enhanced resolution
- 200 MHz, 350 MHz, 500 MHz, 1 GHz bandwidths
- 10 GS/s Sample Rate
- Long memory – up to 50 Mpts
- 12.1" touch screen display
- MAUI with OneTouch
 - › Designed for touch
 - › Built for simplicity
 - › Made to solve
- 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.

SENSOR ACQUISITION MODULES



SAM40

The SAM40 provides up to 24 input channels for low frequency (sensor signal) acquisition and analysis. It connects to a 4 or 8 channel Teledyne LeCroy 12-bit resolution high definition oscilloscope (HD4096 HDOs and MDAs) to provide Analog+Digital+Sensor (up to 8+16+24 channel) acquisitions.

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 bandwidth 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.

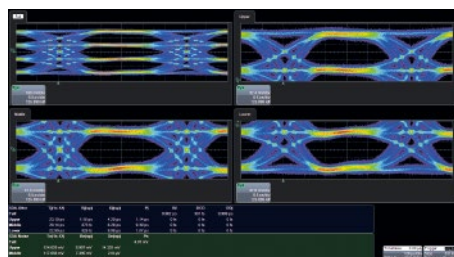
The Fastest Oscilloscope for the Most Demanding Signals

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 User 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.



WaveMaster 8 Zi-B

Exceptional Performance up to 30 GHz, 80 GS/s



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 M Ω 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

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.

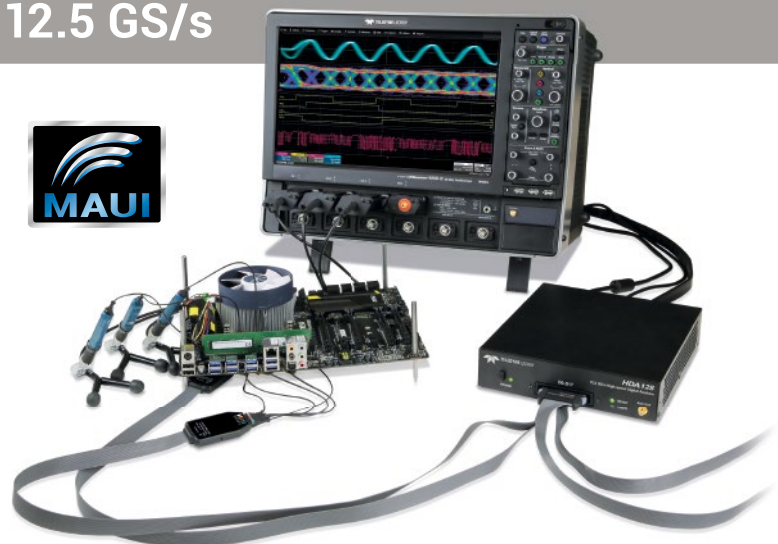
18 DIGITAL CHANNELS AT 12.5 GS/s

HDA125

High-Speed Mixed Signal Testing

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



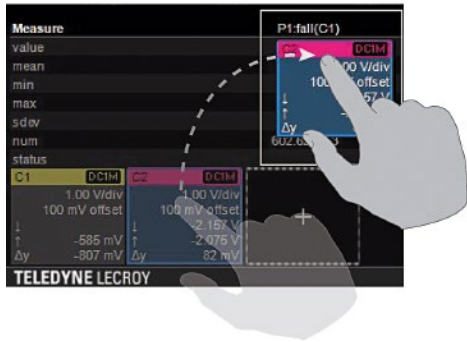
The HDA125 transforms your oscilloscope into the highest-performance, most flexible mixed-signal solution for high-speed digital debug and evaluation. With 12.5 GS/s digital sampling rate on 18 input channels, and the revolutionary QuickLink probing solution allowing seamless transitions from digital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

WaveRunner 8000

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 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



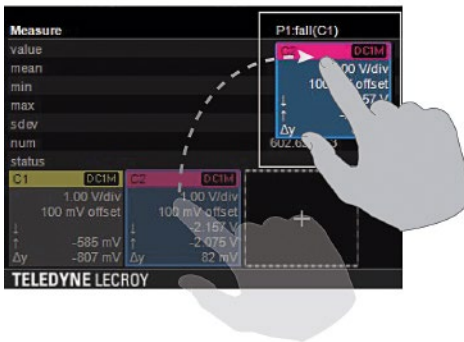
WaveRunner 8000-R 2U Form Factor Models

WaveRunner 8000-R oscilloscopes utilize the WaveRunner 8000 acquisition system to provide a high-performance, 4 GHz oscilloscope in a convenient, low-profile form factor.

WaveSurfer 510

1 GHz Oscilloscope

The WaveSurfer 510 combines the MAUI with OneTouch 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. The 12.1" touch-screen display of the WaveSurfer 510 is the largest in its class and makes viewing waveform abnormalities fast and easy.



Superior User Experience

The WaveSurfer 510 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.

Uncompromised Performance

Many 1 GHz oscilloscopes are available at attractive entry-point prices, however, they are often limited in sample rate, memory or features. The WaveSurfer 510 provides uncompromised 1 GHz performance with up to 10 GS/s per channel and 32 Mpts of memory.

Advanced Debug Tools

Advanced debug tools make the WaveSurfer 510 an unparalleled debug and analysis machine providing 10 GS/s sample rate on 4 channels, 32 Mpts of memory, sequence mode, history mode, advanced math functions, and 2 simultaneous math traces.

Capture Debug, Analyze, Document

Easily accessible measurement, math and debug tools, plus a wide variety of serial data protocol decoders, and active probes ensure the WaveSurfer 510 can capture and analyze any type of waveform and simplify the debug process. The LabNotebook tool provides a fast way to save waveforms, save setups and screen images, report results, and view offline.

Key Features

- 1 GHz, 10 GS/s, up to 16 Mpts/ch
- MAUI – advanced user interface
 - › Designed for touch
 - › Built to simplify
 - › Made to solve
- WaveScan – Advanced Search and Find
- LabNotebook Documentation and Report Generation
- History Mode – Waveform Playback
- Sequence Mode Segmented Memory
- Spectrum Analyzer Mode
- Power Analysis Software
- Serial Trigger and Decode
 - › I²C, SPI, UART
 - › CAN, LIN, FlexRay, SENT
 - › Ethernet 10/100BaseT, USB 1.0/1.1/2.0, USB 2.0-HSIC
 - › Audio (I²S, LJ, RJ, TDM)
 - › MIL-STD-1553, ARINC 429
 - › MIPI D-PHY, DigRF 3G, DigRF v4
 - › Manchester, NRZ

WaveSurfer 3000z

Biggest Touch, Best Value

WaveSurfer 3000z 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.



Superior User Experience

MAUI is the most advanced oscilloscope user interface. It is designed for touch, built for simplicity, and made to solve.

Biggest Touch Display

A large capacitive touch screen enables accessible and responsive touch operation. The 10.1" display is 30 % larger than competitive offerings, providing more waveform viewing area.

Key Features

- 100 MHz, 200 MHz, 350 MHz, 500, and 1 GHz bandwidths
- Up to 4 GS/s sample rate
- Long memory – 20 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 I²C, SPI, UART/RS-232, CAN, CAN FD, I²S, LIN, FlexRay
 - Waveform generation – built-in arbitrary generator
 - Digital Voltmeter DVM
 - Logic analysis – 16 channel MSO
- Power Analyzer Package
 - Automatically and accurately analyze the performance of switched-mode power circuits



Advanced Anomaly Detection

A fast waveform update rate, used in conjunction with history mode, WaveScan, sequence mode, and mask testing facilitates outstanding waveform anomaly detection.

Powerful, Deep Toolbox

The standard collection of math, measurement, debug, and documentation tools provides unsurpassed analysis capabilities.

OSCILLOSCOPES



LabMaster 10 Zi-A
(SDA/DDA Models)



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



WavePro HD

Classification	Modular High End Analysis	High End Analysis	High End Analysis
Bandwidth	20 GHz to 100 GHz	4 GHz to 30 GHz	2,5 GHz to 8 GHz
Resolution	8-bit ADC resolution, 11-bit with ERES	8-bit ADC resolution, 11-bit with ERES	12-bit ADC resolution, 15-bit with ERES
Channels	Up to 80	4	4
MSO Characteristics	–	18/36 Ch Low Speed ¹⁾ 9/18 Ch High Speed ⁴⁾	16 Ch ³⁾
Display	15.3" WXGA Color Touch Screen	15.3" WXGA Color Touch Screen	15.6" Full HD Color Touch Screen
Memory	32 Mpts/Ch to 1.5 Gpts/Ch	64 Mpts to 512 Mpts/Ch	100 Mpts/Ch to 5 Gpts/Ch
Sample Rate	Up to 240 GS/s	Up to 80 GS/s	Up to 20 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 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	345 x 445 x 196 mm



**HDO4000A/
HDO4000A-MS**



WaveSurfer 510



WaveSurfer 3000z



Classification	High Definition Analysis	Bench	Bench
Bandwidth	200 MHz to 1 GHz	1 GHz	100 MHz to 1 GHz
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	4	4	4
MSO Characteristics	16 Ch ²⁾	18 Ch or 36 Ch ¹⁾	16 Ch ³⁾
Display	12.1" WXGA Color Touch Screen	12.1" WXGA Color Touch Screen	10.1" Color Touch Screen
Memory	25 Mpts/Ch to 50 Mpts/Ch	16 Mpts/Ch to 32 Mpts/Ch	20 Mpts/Ch
Sample Rate	10 GS/s (12-bit)	10 GS/s	Up to 4 GS/s
Trigger Types	Basic, SMART, Sequence	Basic, SMART, Sequence	Basic, SMART, Sequence
Serial Data Options	23	23	6
Dimensions (HWD)	291 x 399 x 131 mm	316 x 417 x 238 mm	220 x 350 x 145 mm

¹⁾ compatible with MS-250/500 Options ²⁾ MS Models ³⁾ 16 Digital Channels with MS-Option ⁴⁾ HDA125 Option



WaveRunner 8000	HDO9000	HDO8000A/ MDA800A	HDO6000A/ HDO6000A-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	10 GS/s (12-bit)	10 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

Bench
350 MHz to 500 MHz
8-bit ADC resolution
4
-
7.5" Color Touch Screen
5 Mpts/Ch
2 GS/s
Standard
3
190 x 295 x 102 mm

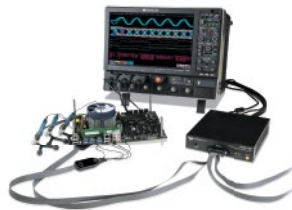
Powerful Mixed Signal Test Solutions



MSO-Models

16 Channel, 1.25 GS/s Mixed Signal probe and accessories for the following oscilloscope series:

HDO4000A, HDO6000A, HDO8000A/MDA800A, HDO9000, WR8000, WS3000z, WavePro HD



HDA125

12.5 GS/s High-Speed Digital Analyzer with 18 ch QuickLink leadset for the following oscilloscope series:

WM8Zi-B, 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/C	500 MHz, 10:1, 10 M Ω , 600 V Passive Probe
PP019	250 MHz, 10:1, 10 M Ω , 500 V Passive Probe
PP020	500 MHz, 10:1, 10 M Ω , 500 V Passive Probe
PP021	500 MHz, 10:1, 10 M Ω , 500 V Passive Probe
PP022	500 MHz, 10:1, 10 M Ω , 500 V Passive Probe
PP023	500 MHz, 10:1, 10 M Ω , 500 V Passive Probe
PP024	500 MHz, 10:1, 10 M Ω , 500 V Passive Probe
PP025	500 MHz, 10:1, 10 M Ω , 500 V Passive Probe
PP026	500 MHz, 10:1, 10 M Ω , 500 V Passive Probe

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■



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 M Ω Active Voltage Probe
ZS1500	1.5 GHz, 0.9 pF, 1 M Ω Active Voltage Probe
ZS2500	2.5 GHz, 0.9 pF, 1 M Ω Active Voltage Probe
ZS4000	4 GHz, 0.9 pF, 1 M Ω Active Voltage Probe

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■



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 M Ω 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

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■



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 M Ω 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

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■



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. CAN) and failure analysis, as well as wireless and data communication design.

Active Voltage/Power Rail Probe

RP4030	4 GHz bandwidth, 1.2x attenuation, ± 30 V offset, ± 800 mV
---------------	--

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■
■	■	■	■	■	■	■



Specifically designed to probe a low impedance power/voltage rail. The RP4030 has 30 V built-in offset adjust, low attenuation (noise), and high DC input impedance with 4 GHz of bandwidth and a wide assortment of tips and leads, including solder-in and U.FL receptacle connections.

High Voltage Fiber Optically-Isolated Probe

HVFO103 60 MHz, Superior Noise and Rejection (140 dB CMRR)

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
	■	■	■	■	■	■



The HVFO103 is a compact, simple, affordable probe for measurement of small signals (gate-drives, sensors, etc.) floating on an HV bus in power electronics designs, or for EMC, EFT, ESD, and RF immunity testing sensor monitoring. Suitable for up to 35 kV common-mode. 140 dB CMRR.

High Voltage Differential Probes

HVD3102A 25 MHz High Voltage Differential Probe, 1,500 V_{p-p} Differential Voltage Range
HVD3106A 120 MHz High Voltage Differential Probe, 1,500 V_{p-p} Differential Voltage Range
HVD3106A-6M 80 MHz High Voltage Differential Probe, 1,500 V_{p-p} Differential Voltage Range, 6 m cable
HVD3206A 2 kV, 120 MHz High Voltage Differential Probe
HVD3605A 6 kV, 100 MHz High Voltage Differential Probe

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
■	■	■	■	■	■	■



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

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
■	■	■	■	■	■	■



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

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
■	■	■	■	■	■	■



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)

D410-A-PB2, D420-A-PB2, D610-A-PB2, D610-A-PL, D620-A-PB2, D620-A-PL, D400A-AT-PB2, D600A-AT-PB2, D600A-AT-PL 4 GHz – 6 GHz
D830-PB2, D830-PL, D1330-PL 8 GHz – 13 GHz
D1605-A-PLA, D2005-A-PLA, D2505-A-2.92MM 16 GHz – 25 GHz

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
■	■	■	■	■	■	■



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.

Probe Adapters

CA10* Programmable Current Sensor to ProBus Adapter for use with third party current sensors
TPA10 TekProbe to ProBus Probe Adapter

WaveJet	WaveSurfer	HDO	WaveRunner	WavePro	WaveMaster	LabMaster
■	■	■	■	■	■	■



* not compatible with WaveSurfer 3000(z)

Versatile and Compact with World-leading Performance

Teledyne SP Devices designs and manufactures world-leading modular data acquisition and signal generation instruments. Our products utilize patented calibration logic, the latest data converters, and state-of-the-art FPGA technology resulting in an unrivaled combination of high sampling rate and resolution. Products are available with a rich set of application-specific features and embedded real-time signal processing.



Overview

Our extensive product portfolio enable cost-optimized system-level solutions and the modular approach allows for compact yet scalable systems that can easily be tailored for specific needs.

The modules offer flexible operation by supporting AC- or DC-coupling, adjustable DC-offset, programmable input voltage range, advanced triggering, and choice of single-ended or differential outputs¹⁾. This helps simplify integration through good matching with most sensors.

Signal Processing Capabilities

All data acquisition and signal generation modules host powerful field-programmable gate arrays (FPGAs) which are made available to the user through optional firmware development kits. This allows for custom real-time signal processing to be performed on the raw data stream – a crucial requirement for many of today's systems. There are also additional stand-alone firmware packages which simplify operation by providing rich sets of application-specific functions without any need for firmware development.

Some data acquisition modules also support peer-to-peer streaming to graphics processing units (GPUs) at

peak rates of up to **6.8 Gbyte/s**.

This offers a great complement to the offered open FPGA architecture.



Peer-to-peer streaming to GPU.

System-Level Features

In addition to the versatile analog functions the modules also include other features that help simplify integration.

The wide range of available form factors offers great flexibility in choosing the most suitable solution for any specific system.

PCIe boards are typically integrated into standard stationary PCs or in compact embedded solutions. This is especially useful for applications which require high throughput and computationally

heavy applications where the digitizer is used in conjunction with a GPU.

PXIe boards are intended for integration into a chassis for modular instrumentation. This type of system is suitable for multi-channel data acquisition and offer synchronization capabilities as well as mechanical robustness.

MTCA.4 boards are typically used for multi-channel applications with high channel count. The boards are also equipped with Ethernet which allows for operation via long-distance fiber and high precision synchronization via White Rabbit.

USB boards offer compact stand-alone operation and can easily be integrated into existing designs. Analog performance can also be optimized by placing the digitizer close to the detector so that cables can be kept short to ensure good signal quality. Data streaming can be done at high rates and combined with data reduction in the open FPGA if required.

A wide range for form factors helps simplify integration.



¹⁾ Depending on product model.

Selected Products

Below is a list of selected product models from SP Devices.

For a full list of products and more please visit our website at www.spdevices.com.

ADQ7 14-bit, 10 GS/s Digitizer



Key Features

- Up to 10 GS/s sampling rate with 14 bits resolution
- Open FPGA for custom real-time signal processing
- Available in PXIe, PCIe, MTCA.4, USB3 and 10 GbE form factors
- Multi-channel synchronization capabilities
- Peer-to-peer streaming to GPU (PCIe only)
- Application-specific firmware helps shorten design time

Example Applications

- Particle physics
- Time-of-flight mass spectrometry
- RF sampling

ADQ14 14-bit, 2 GS/s Digitizer



Key Features

- 0.5, 1, or 2 GS/s sampling rate with 14 bits resolution
- 1, 2, or 4 input channels
- Open FPGA for custom real-time signal processing
- Available in PXIe, PCIe, MTCA.4, USB3 and 10 GbE form factors
- Multi-channel synchronization capabilities
- Peer-to-peer streaming to GPU (PCIe only)
- Application-specific firmware helps shorten design time

Example Applications

- Swept-source OCT
- Thomson scattering
- Lidar

SDR14TX 14-bit, 2 GS/s Arbitrary Waveform Generator (AWG)



Key Features

- Dual-channel with 2 GS/s sample rate and 14 bits resolution
- Open FPGA for custom real-time signal processing
- Available in PXIe and PCIe form factors
- Multi-channel synchronization capabilities
- 1st and 2nd Nyquist operation up to 1.8 GHz
- Programmable waveform sequencing and markers

Example Applications

- Radar
- Quantum technology
- Wireless communication

Verify with Insight on protocol layer

Teledyne LeCroy is a leading provider of protocol analyzers, exercisers/emulators, jammers and verification tools for existing and emerging digital communications standards. Designed to generate, capture, and analyze high-speed communications traffic, Teledyne LeCroy's tools help developers to discover and correct persistent and intermittent errors and flaws in their product design.



Frontline Test Equipment

The Market Leader in Analysis and Test Tools for Wireless Protocols including **Bluetooth®**, **802.11 (Wi-Fi)**, and **Near Field Communication (FNC)**.

- Bluetooth Analyzers
- NFC Analyzer
- USB Analyzer
- 802.11 Analyzer
- SD/SDIO Analyzer
- HSU Analyzer



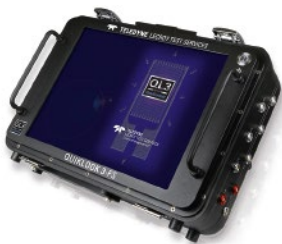
Quantum Data

The Market Leader in Analysis and Test Tools for Video Protocols, including **HDMI** and **SDI**.

- Analyzers & Generators for
 - › HDMI
 - › SDI
 - › MHL
 - › DVI
 - › DisplayPort
 - › Analog RGB & Component Analysis



Teledyne Test Systems



Critical Valve Testing – OEM Torque Sensory & Load Cells – Automotive Torque Testing

With a lineage dating back to the 1930s, the Test Services business unit of Teledyne Instruments has a reputation for high-quality, cost-effective products and technical support services. We have provided equipment and analytical services for use in hostile environments, including temperatures greater than 550 degrees C and ocean depths of 7 kilometers. Our transducers are found in highly diverse applications such as on the Space Shuttle robotic arm, deep-sea oil-drilling risers, natural-gas storage tanks, automobile test vehicles and nuclear power plant valves.