TELEDYNE LECROY
Everywhere**you**look™

WaveMaster 8 Zi-B Oscilloscopes
4 GHz–30 GHz

Key Features

- Up to 30 GHz bandwidth and 80 GS/s sample rate

- Most advanced oscilloscope user interface makes configuring complex measurements easy

- The industry's only true hardware 14.1 Gb/s serial pattern trigger

- Add the Teledyne LeCroy HDA125 High-speed Digital Analyzer to create the most powerful, flexible mixed-signal test solution available

- 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

- Integrated standard and custom measurements and math functions for unrivaled analysis capability

- Multi-lane serial data eye, jitter and crosstalk analysis

The WaveMaster 8 Zi-B combines the performance, signal fidelity and feature set needed for today's high-speed measurements with the ease-of-use of a standard benchtop oscilloscope. Featuring the highest-speed serial data triggers, the only complete multi-lane serial data analysis and eye diagram solution, and the most comprehensive set of compliance packages, the WaveMaster 8 Zi-B simplifies the most complex testing.

Exceptional Performance

With up to 30 GHz bandwidth, 80 GS/s sample rate, low noise, an extremely stable time base and a 14.1 Gb/s serial trigger the WaveMaster 8 Zi-B has the hardware performance to capture today's high-speed signals.

Most Advanced User Interface

Teledyne LeCroy's MAUI user interface puts the deepest measurement toolset of any oscilloscope at your fingertips. Coupled with the WaveMaster 8Zi-B's 15.3" high-resolution touchscreen, MAUI makes advanced analysis easy to set up and use. A flat menu structure puts the most common tools in the easiest reach. Sophisticated multi-grid displays are simple to configure. Vertical, horizontal and acquisition setting changes are made without obscuring waveform display.

Advanced Waveform Processing

A powerful PC with a 3.1 GHz quad core processor and up to 32 GB of RAM enables fast waveform processing for the most advanced analysis. User-defined mathematical functions and measurements are available natively, or through seamless integration with external environments like MATLAB.

Complete Characterization, Compliance Testing and Debug

The WaveMaster 8 Zi-B provides the most powerful analysis tools. SDAIII-CompleteLinQ simultaneously displays eye diagrams and breaks down jitter on four signals. EyeDrII and VirtualProbe options analyze lane interactions using S-parameter files. Crosstalk tools analyze amplitude noise. QualiPHY software simplifies and automates compliance testing and reporting for a wide range of serial data standards.

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. 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.

Designed for Touch

MAUI is designed for touch. Operate the oscilloscope just like a phone or tablet with the most unique touch screen features on any oscilloscope. All important controls are always one touch away. Touch the waveform to position or zoom in for more details using intuitive actions.

Built for Simplicity

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

Made to Solve

MAUI is made to solve. A deep set of integrated debug and analysis tools help identify problems and find solutions quickly. Unsurpassed integration provides critical flexibility when debugging. Solve problems fast with powerful analysis tools.

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.

● MAUI   ● Unique to OneTouch
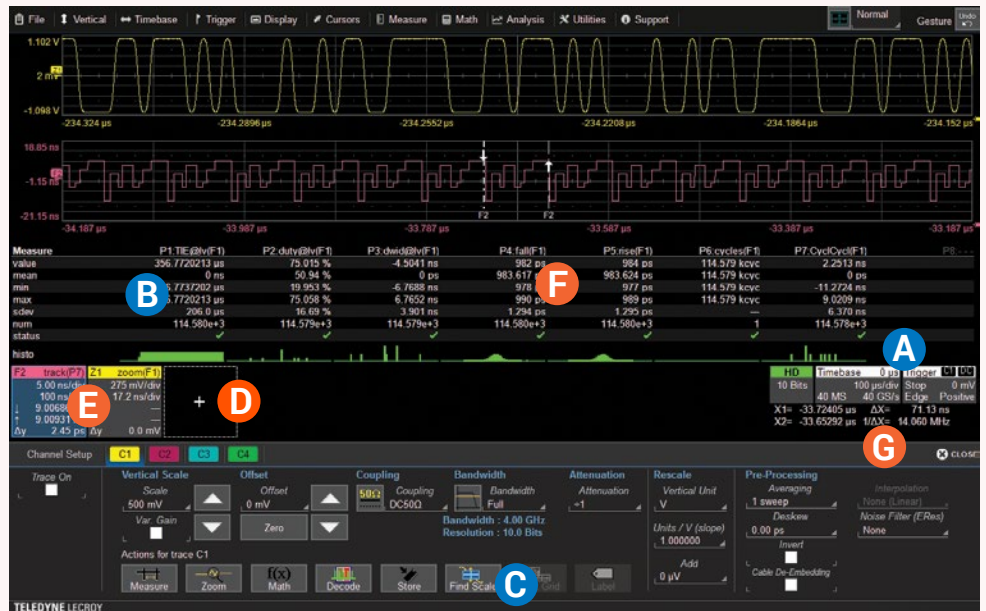
A Channel, timebase, and trigger descriptors provide easy access to controls without navigating menus.

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.

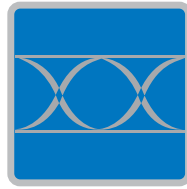**G** Drag to quickly position cursors on a trace.
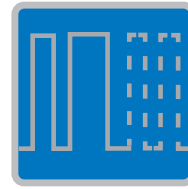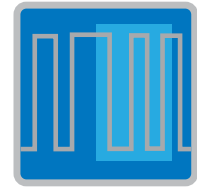
Serial Data Analyzer
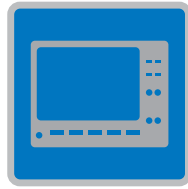
= WaveMaster 8 Zi-B + SDAIII Eye and Jitter Analysis + Extended Acquisition Memory + High-speed Serial Triggering

With its combination of high bandwidth, excellent signal fidelity, and the most complete toolset in its class, the WaveMaster 8 Zi-B is the ideal platform for high-speed serial data analysis. The SDA 8 Zi-B models have been specifically configured to handle today's most challenging serial data applications:
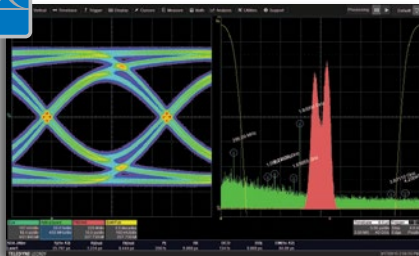
The SDA 8 Zi-B comes standard with the SDAIII core toolset, providing tightly-integrated and comprehensive eye diagram and jitter analysis for NRZ signals. SDAIII easily emulates complex clock recovery and PLL behavior, and quickly renders eye diagrams using all acquired unit intervals. Jitter analysis includes Rj - Dj separation, Tj extrapolation, measurements of DDJ, ISI, and Pj, and visualization using histograms, tracks, and jitter spectra.
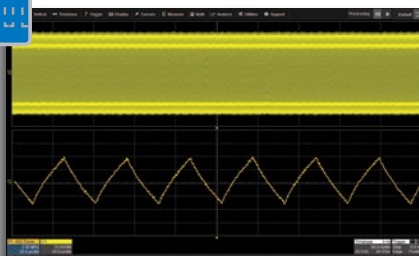
With 64 Mpts on all four input channels, the SDA 8Zi-B doubles the WaveMaster's standard acquisition memory. Serial data analysis puts a particular set of demands on an oscilloscope's timebase capabilities. Decoding up to protocol level typically requires the acquisition of long waveforms. Likewise, slowly-varying physical-layer characteristics such as Spread-Spectrum Clocking (SSC) must be analyzed over periods of milliseconds.
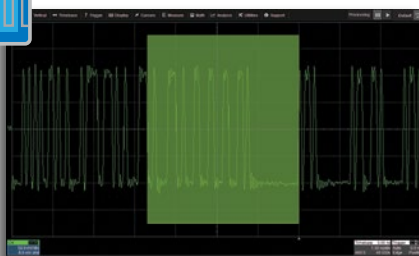
The SDA 8Zi-B comes standard with a true hardware high-speed serial pattern trigger, to ensure capture of even the rarest pattern at up to 6.5 Gb/s. The trigger also natively triggers on 8b/10b and 64b/66b words, with corresponding decoders included in the SDA configuration. And if 6.5 Gb/s is not enough, the high-speed serial trigger can be upgraded to an industry-leading 14.1 Gb/s.

The WaveMaster 8 Zi-B is built on an exceptionally accurate acquisition system, with pristine signal fidelity and high timebase stability. Coupled with the most flexible set of inputs and the highest-performance serial trigger, it represents the most versatile platform in its class.

- Pristine high-bandwidth performance:
  - Up to 30 GHz bandwidth, 80 GS/s sample rate, 512 Mpts of analysis memory on 2 channels
  - Up to 20 GHz bandwidth, 40 GS/s sample rate, 256 Mpts of analysis memory on 4 channels
  - Exceptionally accurate and stable timebase - 100fs (rms) timebase jitter
- Bandwidth upgrade capability from 4 GHz to 30 GHz to maximize investment leverage
- Hardware serial triggering up to 14.1 Gb/s
  - The highest speed true-hardware serial trigger provides capability for 80-bit NRZ serial pattern triggering, 8b/10b and 64b/66b symbol triggering.
  - Teledyne LeCroy's true hardware trigger means even infrequently-occurring patterns can be reliably triggered on and captured. Competing software "serial triggers" risk missing rare events.
  - A 6.5 Gb/s serial trigger is included standard with SDA 8 Zi-B models, upgradeable to 14.1 Gb/s. Either serial trigger may be added to WaveMaster 8 Zi-B and DDA 8 Zi-B models.
- The only high-bandwidth oscilloscope to support both 50 Ω and 1 MΩ inputs on the same instrument without the use of cumbersome external adapters.
- Add HDA125 High-speed Digital Analyzer via the integrated LBUS connector to give 18 digital channels at 12.5 GS/s each - for the most advanced mixed-signal test system available.

The WaveMaster 8 Zi-B's MAUI advanced user interface combines the deepest toolset with simple operation, making it easy to configure sophisticated measurements. The operating software is seamlessly integrated with the hardware platform, providing the best responsiveness and ease of use in its class.

- The most complete set of measurement and analysis tools in the industry leverage powerful processing capability to provide deeper insight in less time.

- Intel® Core™ i7-4770S Quad-core, 3.1 GHz (per core, up to 3.9 GHz in Turbo mode) CPU with 8 GB of RAM (upgradeable to 32 GB)

- High resolution 15.3" WXGA widescreen color touch screen display.

- X-Stream II streaming architecture — 10-100 times faster analysis and better responsiveness than other oscilloscopes

- QualiPHY serial data compliance packages - speed up testing times and reduce complexity with fully automated compliance packages for PCI Express®, DDR memory, USB 3.0, and many other standards.

- Crosstalk and Vertical Noise Analysis

- SDAIII "LinQ" options provide four simultaneous eye diagrams and jitter calculations for multi-lane serial data link analysis, or for single-lane, multiple location analysis

- Eye Doctor™ II and Virtual Probe Signal Integrity Toolsets provide real-time de-embedding, emulation, and equalization on serial data channels and complex networks

- 325 MB/s data transfer rate from oscilloscope to PC with Teledyne LeCroy Serial Interface Bus (LSIB) option

Key Features

- **12.5 GS/s sampling rate for 80ps timing accuracy**

- **3 GHz leadset for capturing digital signals up to 6 Gb/s**

- **Add high-speed mixed-signal capability to your Teledyne LeCroy high-bandwidth oscilloscope**
  - **LBUS connection for precise timing synchronization**
  - **USB 3.1 for fast data transfer**

- **Unique QuickLink probing system**
  - **Differential solder-in tips with 9-inch lead simplify access to difficult test points**
  - **Ultra low loading for superior performance**
  - **8 GHz bandwidth tips are compatible with both HDA digital leadset and Teledyne LeCroy WaveLink differential analog probes for unmatched acquisition flexibility**
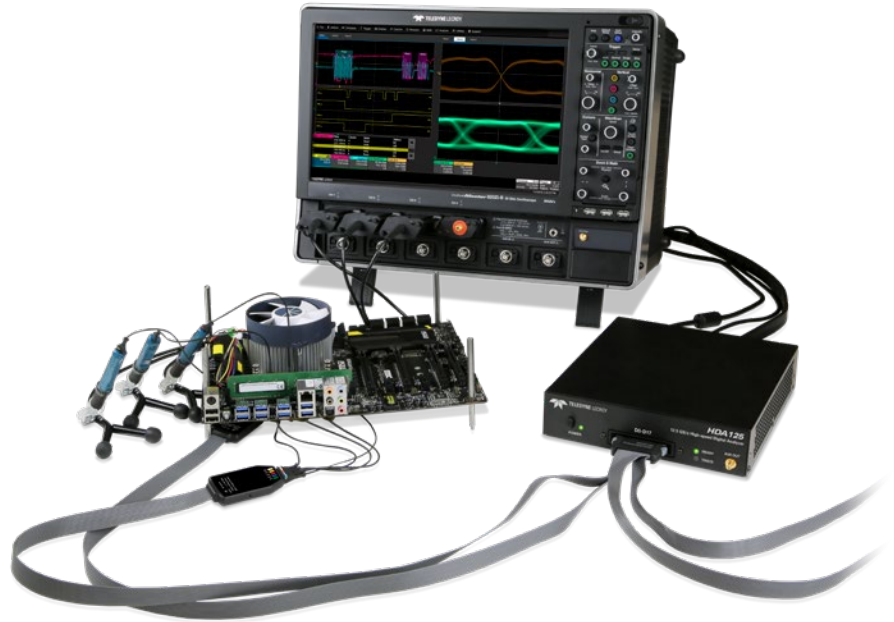
The HDA125 transforms your Teledyne LeCroy oscilloscope into the highest-performance, most flexible mixed-signal solution for high-speed digital debug and evaluation. With 12.5 GS/s digital sampling rate on 18 input channels, and the revolutionary QuickLink probing solution allowing seamless transitions from digital to high-bandwidth analog acquisitions, validation of challenging interfaces such as DDR4 has never been simpler or more comprehensive.

Complete Embedded System Debug

Modern embedded systems increasingly utilize high-speed digital buses, posing new and evolving challenges to validation and debug engineers. While analog signal-integrity characterization is a critical part of this process, the ability to decode and trigger on related digital buses is becoming a vital capability. The HDA125 High-speed Digital Analyzer addresses this need with the most flexible solution available.

Unique probing solution

One of the most challenging aspects of high-speed embedded test is simply getting the signals from the system under test to the instrumentation with

sufficient fidelity. The HDA125 is built around Teledyne LeCroy's revolutionary QuickLink probing concept - enabling high signal quality, easy access to remote test points, and simple transitions from digital to analog probing.

Enhanced DDR Debug

Teledyne LeCroy already offers the industry's only dedicated DDR Debug Toolkit, designed to simplify challenging memory interface validation. Adding the HDA125 allows the DDR command bus to be directly acquired and integrated into the analysis, enabling advanced command triggering and sophisticated, searchable bus state viewing.

PCIe Gen3 Link Equalization testing using the SDA8Zi-B and the PeRT³ Phoenix.

The SDA 8Zi-B is configured specifically for testing serial data signals. With high-speed serial triggering capability and the most comprehensive analysis software, the SDA 8Zi-B is the obvious choice for the most challenging test and debug tasks:

DDR Memory

Verifying DDR memory operation is one of the most common challenges in high-speed electronics today. The SDA 8Zi-B is the ideal platform for validating and debugging DDR implementations.

- Teledyne LeCroy's unique DDR Debug toolkit is the ultimate DDR analysis package. Perform Read/Write burst separation and display eye diagrams, jitter analysis, and measurements specific to DDR, allowing for a quick understanding of system performance with a push of a button.

- QualiPHY-DDR packages perform automated JEDEC compliance testing for DDR2, DDR3, DDR4, LPDDR2, and LPDDR3.

- Unique probing solutions solve the challenge of probing DDR signals.

PCI Express®

The SDA 8Zi-B is the basis of the industry's most complete PCI Express test solution:

- Automated transmitter and receiver compliance testing using QualiPHY.

- The only certified solution for Link Equalization testing (required for PCI-SIG compliance) using the PeRT³ Phoenix.

- Comprehensive PCIe debug capability:

  – SDAIII eye and jitter analysis with built-in PCIe clock recovery emulation and eye masks

  – Protocol-layer decode correlated to physical-layer traces

  – PCIe-specific measurements.

Automated Compliance Testing

Teledyne LeCroy's QualiPHY software is the ideal solution for physical layer compliance testing, making it easy to produce a comprehensive report of test results including screenshots. QualiPHY reduces the time and effort needed to perform compliance testing on a wide array of serial standards including:

- PCI Express (1.0, 2.0, 3.0)
- USB1, USB2, USB 3.0, USB 3.1
- DDR2, LPDDR2, DDR3, LPDDR3, DDR4
- SAS2, SAS3, SATA
- MIPI D-PHY and M-PHY
- 10/100/100 BASE-T, 10GBASE-T, 10GBASE-KR, SFI
- HDMI 1.4, HDMI 2.0, DisplayPort, eDP
- MOST50, MOST150, BroadR-Reach

SDAIII SERIAL DATA ANALYSIS TOOLKIT
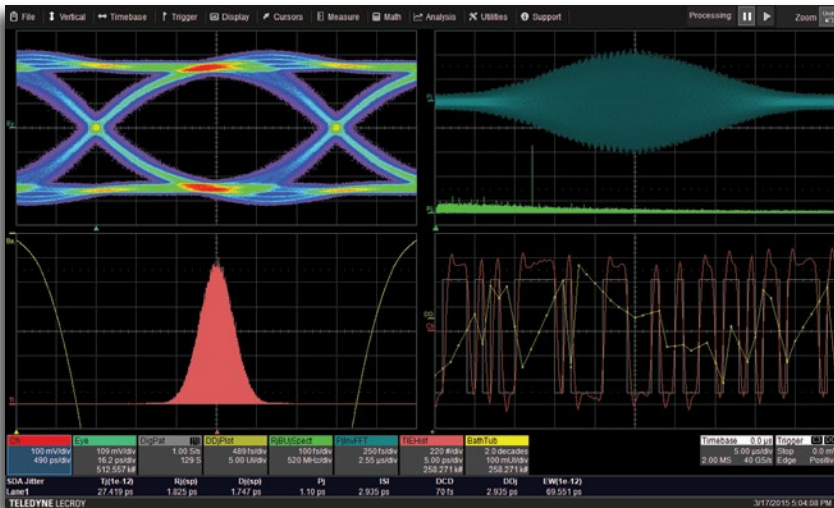
The Teledyne LeCroy SDAIII-CompleteLinQ
Serial Data Analysis products include
multi-lane eye and jitter analysis, LaneScape™
comparison modes, vertical noise
measurements, and crosstalk analysis tools.
These capabilities provide the deepest insight
into the behavior of multi- or single-lane serial
data systems.

SDAIII Core Toolset

Teledyne LeCroy provides the most complete
toolset in the industry for jitter measurements
and eye diagram/jitter analysis. Rj and Dj are
separated and Dj is decomposed using one of three dual-dirac algorithms. Eye diagrams containing all acquired unit intervals
are rendered 10-100x faster than competitive systems. Eye diagram analysis tools, such as the extrapolated IsoBER plot, aid
insight. Multiple additional tools, such as Tracks, Histograms, and Spectrum waveforms, enhance the understanding of jitter
causes. Sophisticated pattern analysis tools like Intersymbol Interference (ISI) measurements and plots provide deep insight
into Data Dependent Jitter (DDj) behavior.

Measure up to 4 Lanes Simultaneously

"LinQ" products provide extensive multi-lane
analysis capabilities. Quickly understand
lane-to-lane differences in jitter measurements,
eye diagrams, and jitter analysis. Perform
aggressor on/off analysis, and see the results from
both scenarios simultaneously. Save the analysis
of a particular scenario to the Reference Lane,
and configure a LaneScape™ Comparison mode
to compare the Reference to either one, two or all
lanes. Each "lane" can be a different serial data
lane, or a different analysis of data from a single
serial data lane - ideal for comparing different
equalization schemes (using Eye Doctor II option) or examining system behaviors
at different locations in the link (using probes or the VirtualProbe option).
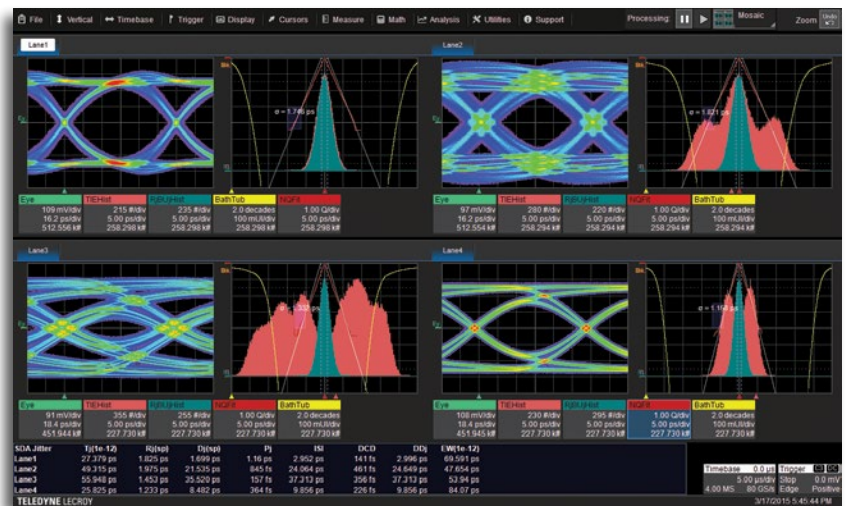
Learn More:
teledynelecroy.com/SDAIII

CompleteLinQ Does it All

The CompleteLinQ user interface framework provides easy access to all features described above, and also integrates
EyeDoctorII and VirtualProbe capabilities for Tx/Rx equalization and fixture/channel de-embedding/emulation. Order SDAIII-
CompleteLinQ to equip your oscilloscope with all of Teledyne LeCroy's Serial Data Analysis and Signal Integrity tools.
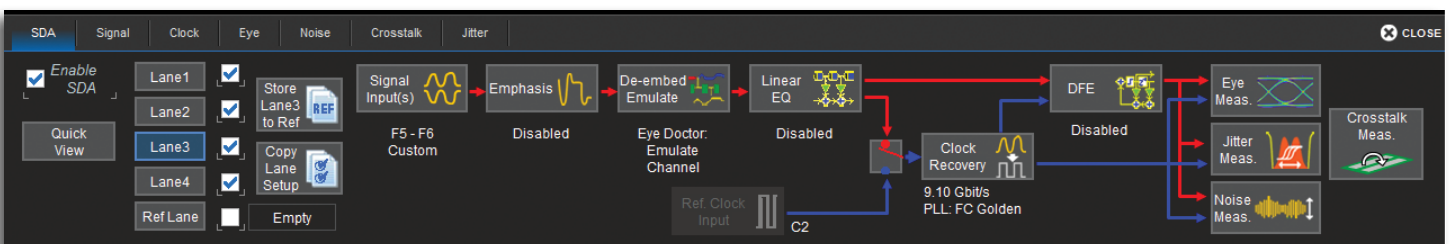
EyeDoctorII

Many high-speed measurements require removing the effects of a fixture, applying a channel model, and emulating the operation of a receiver equalizer on an acquired signal. The EyeDoctorII package includes easy configuration of basic de-embed/emulation scenarios, CTLE, DFE and FFE equalizers, and transmitter emphasis/de-emphasis.

VirtualProbe

The VirtualProbe package expands the capabilities of EyeDoctorII. Configure a multi-block circuit using S-parameters, and VirtualProbe will display the signal as it would appear before or after any block in the circuit. The electrical behavior of a block to reflect and transmit signals can be included, added or removed. Probe loading effects can also be removed.

VirtualProbe shows you the signal where the probe is not located:

TRANSMITTER | 1 Fixture | 2 Backplane | 3 Connector | 4 Trace | RECEIVER

Virtually probe the signal at the transmitter with the fixture present, and then de-embed its effects form the measurement.

View the signal between structures to understand losses, ISI and crosstalk caused by backplanes, interconnects and connectors.

See what the eye looks like at the receiver - even if it is not in reach of a differential probe.

Use EyeDoctor to open the eye by modeling CTLE, FFE and DFE equalizers used by your receiver.

Vertical Noise and Crosstalk

The Crosstalk and CrossLinQ packages provide vertical noise measurements and crosstalk analysis tools for complete aggressor/victim analysis. Use one of three dual-Dirac models to measure and separate noise into total (Tn), random (Rn) and deterministic (Dn) components, and further decompose Dn into Intersymbol Interference Noise (ISIn) and Periodic Noise (Pn). Only Teledyne LeCroy performs this analysis on real-time oscilloscopes. Similar to jitter analysis, noise can be viewed as a noise track, histogram and spectrum, providing insight into the vertical noise resulting from coupling to other active serial data lanes or other interference sources. The Crosstalk Eye shows the probabilistic extent of noise both inside and outside the eye, quickly showing the impact of excessive noise that is not possible to see in a traditional eye diagram.
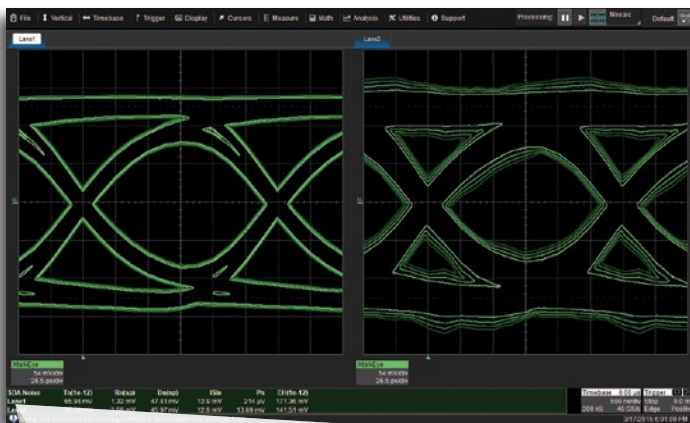
SDA Noise	Tn(1e-12)	Rn(sp)	Dn(sp)	ISIn	Pn
Lane1	65.94 mV	1.32 mV	47.41 mV	12.9 mV	214 µV
Lane2	96.52 mV	3.59 mV	45.97 mV	12.9 mV	13.69 mV

Key Features

- PAM4 Eye Diagrams

- Eye Height and Eye Width @BER for upper, middle and lower eyes

- Tj, Rj, and Dj Jitter Decomposition

- Tn, Rn, and Dn Noise Decomposition

- IsoBER Contour Plot

- Jitter and Noise Tracks, Histograms, and Spectra

- Level Measurements

- LaneScape™ Mode Comparisons

- Equalization of PAM4 Signals using EyeDoctorII

- Simulation of PAM4 Waveforms with Jitter Sim
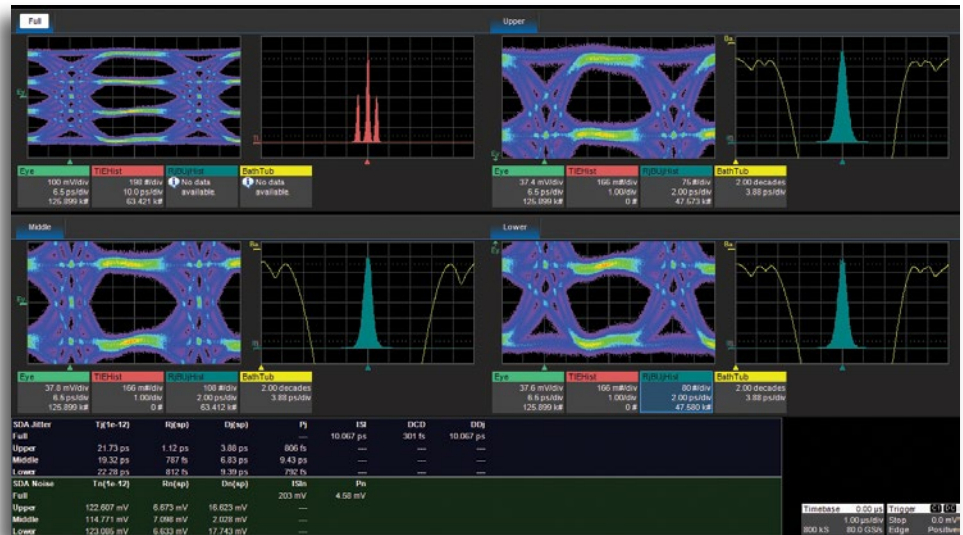
PAM4 represents a new step in the evolution of serial data signaling formats, overcoming some fundamental limitations of traditional NRZ signaling. But with new signal types come new measurement needs. Teledyne LeCroy's PAM4 analysis package meets these needs by leveraging industry-leading eye, jitter, and noise analysis capabilities to fully characterize PAM4 signals.

PAM4 signaling is being closely considered by standards organizations as the successor to NRZ signaling for the next generation of communication standards.

As with NRZ signal analysis, engineers working with PAM4 require sophisticated tools to measure how effects such as frequency-dependent losses and ISI impair signals and close the eye openings. But unlike NRZ signaling, the science of measuring PAM4 signals is new and evolving quickly to keep pace with the rapid advances in this technology.

Teledyne LeCroy's PAM4 Signal Analysis gives high-speed design engineers the same familiar NRZ analysis toolkit, but with sophisticated new measurement algorithms specific to the complexities of PAM4.

The PAM4 Signal Analysis package performs a complete analysis of PAM4 waveforms. It analyzes the signals, creates eye diagrams, measures eye closure in voltage and time, and predicts closure as a function of BER. It is fully integrated into Teledyne LeCroy's sophisticated MAUI user interface, allowing for advanced capabilities like channel emulation and de-embedding.

Data Rate Configuration Chart

Standard	Bit Rate	Minimum Bandwidth	Recommended Oscilloscope
PCI Express Gen1	2.5 Gb/s	6 GHz	SDA 806Zi-B or Above
InfiniBand	2.5 Gb/s		
Serial Rapid I/O	2.5 Gb/s		
DisplayPort 1.1	2.7 Gb/s	8 GHz	SDA 808Zi-B or Above
SAS Gen1	3 Gb/s		
Serial Rapid I/O	3.125 Gb/s		
XAUI	3.125 Gb/s		
HDMI 1.4	3.4 Gb/s		
SATA Gen2	3 Gb/s	10 GHz	
DDR4	4 GT/s		
Fibre Channel 4GFC	4.25 Gb/s		
Serial Rapid I/O	4.25 Gb/s		
InfiniBand	5 Gb/s	13 GHz	SDA 813Zi-B or Above
PCI Express Gen2	5 Gb/s		
PCI Express Gen3	8 Gb/s		
Serial Rapid I/O	5 Gb/s		
USB 3.0	5 Gb/s		
DisplayPort 1.2	5.4 Gb/s		
GDDR5	6 Gb/s	16 GHz	SDA 816Zi-B or Above
SAS Gen2	6 Gb/s		
SATA Gen3	6 Gb/s		
Serial Rapid I/O	6.25 Gb/s		
QPI (Quick Path Interconnect)	6.4 Gb/s		
USB 3.1	10 Gb/s		
10GBase-KR	10.3125 Gb/s	20 GHz	SDA 820Zi-B or Above
SFI/SFP+	10.3125 Gb/s		
CEI-11	11 Gbps	25 GHz	SDA 825Zi-B or Above
SAS12	12 Gb/s		
InfiniBand	25.78125 Gb/s	30 to 100 GHz	SDA 830Zi-B, LabMaster 9 Zi-B or LabMaster 10 Zi up to 100 GHz
CEI-25/28	25−28 Gb/s		

PeRT[3] Phoenix – Protocol Enabled Receiver and Transmitter Tolerance Tester

Modern high-speed electronics test demands a set of instruments that goes beyond the oscilloscope, for applications such as receiver tolerance testing and interconnect characterization. Teledyne LeCroy addresses these challenges with innovative instruments which are both powerful and easy to use, simplifying test and reducing time-to-market.

Modern serial data standards such as PCI Express 3.0 require negotiation of equalization parameters to ensure interoperability. Truly testing a receiver's operation demands an instrument which perform more than just the basic BERT functions of pattern generation and error detection. Teledyne LeCroy's PeRT[3] is the industry's first Protocol-enabled Receiver Tester, a totally new class of instrument designed to overcome these difficult test challenges. The combination of the PeRT[3] and the SDA 8Zi-B represents the most complete serial data test system available.

WaveLink High Bandwidth Differential Probes

Ultra-wideband Architecture with Superior Signal Fidelity

Teledyne LeCroy's WaveLink® high bandwidth differential probes utilize advanced amplifier architecture to achieve superior analog broadband performance. Exceptional noise characteristics mean the combination of the probe and the oscilloscope results in measurement performance that is nearly identical to that of a cable input.

Versatile High Bandwidth Probe Tips up to 25 GHz

Solder-In tips with 25 GHz bandwidth and system (probe + oscilloscope) rise times equal to that of the oscilloscope alone. The most compact positioner tip browser with bandwidth up to 22 GHz makes probing in confined areas easy.

Superior Probe Impedance Minimizes Circuit Loading

Circuit and signal loading is reduced by more than 50% compared to competitive probes. In the mid-band frequency range, the difference is even more apparent.

D2505-A-PS 25 GHz probe system with Solder-In lead and browser positioner tip.

	D1305-A-PS	D1605-A-PS	D2005-A-PS	D2505-A-PS
Bandwidth	Dxx05-SI and Dxx05-PT Tips 13 GHz	Dxx05-SI and Dxx05-PT Tips 16 GHz	Dxx05-SI and Dxx05-PT Tips 20 GHz	Dxx05-SI Lead 25 GHz Dxx05-PT Tip 22 GHz typical 20 GHz guaranteed
Rise Time (10–90%)	Dxx05-SI and Dxx05-PT Tips 32.5 ps (typical)	Dxx05-SI and Dxx05-PT Tips 28 ps (typical)	Dxx05-SI and Dxx05-PT Tips 20 ps (typical)	Dxx05-SI Lead 17.5 ps (typical) Dxx05-PT Tip 19 ps (typical)
Rise Time (20–80%)	Dxx05-SI and Dxx05-PT Tips 24.5 ps (typical)	Dxx05-SI and Dxx05-PT Tips 21 ps (typical)	Dxx05-SI and Dxx05-PT Tips 15 ps (typical)	Dxx05-SI Lead 13 ps (typical) Dxx05-PT Tip 14 ps (typical)
Noise (Probe)	< 14 nV/√Hz (1.6 mV$_{rms}$) (typical)	< 14 nV/√Hz (1.8 mV$_{rms}$) (typical)	< 18 nV/√Hz (2.5 mV$_{rms}$) (typical)	< 18 nV/√Hz (2.8 mV$_{rms}$) (typical)
Input Dynamic Range	2.0 V$_{pk-pk}$, (±1.0 V) (nominal)			
Input Common Mode Voltage Range	±4 V (nominal)			
Input Offset Voltage Range	±2.5 V Differential (nominal)			
Impedance (mid-band, typical)	Dxx05-SI Lead: 300 Ω at 6 GHz, 525 Ω at 13 GHz, 600 Ω at 16 GHz, 300 Ω at 20 GHz, 120 Ω at 25 GHz Dxx05-PT Tip: 160 Ω at 6 GHz, 450 Ω at 13 GHz, 240 Ω at 16 GHz, 210 Ω at 20 GHz			

Other WaveLink Probing Solutions

With bandwidths from 4 GHz to 13 GHz, wide input dynamic range, exceptionally low loading and versatile tip selections, the Medium- and Low Bandwidth WaveLink Differential Probe Systems are ideal for many applications - including the often-challenging probing of DDR memory signals.

WaveLink Low Bandwidth Differential Probes

- 4 and 6 GHz models
- Solder-In, Browser, Quick Connect, Square Pin, Positioner Tip, QuickLink adapter and HiTemp Cables

WaveLink Medium Bandwidth Differential Probes

- 8, 10, and 13 GHz models
- 3.5 V$_{p-p}$ Input Dynamic Range
- ±4 V Offset
- Solder-in, Positioner (Browser), Square Pin, QuickLink adapter, Hi-Temp cables, and SMA/SMP lead connection

BROAD RANGE OF PROBING SOLUTIONS

WaveMaster 8 Zi-B oscilloscopes support a broad range of probes for a variety of applications.

ZS Series High Impedance Active Probes

- 1 GHz (ZS1000), 1.5 GHz (ZS1500) and 2.5 GHz (ZS2500) bandwidths
- High Impedance (0.9 pF, 1 MΩ)
- Extensive standard and available probe tip and ground connection accessories
- ±12 Vdc offset (ZS1500)
- Teledyne LeCroy ProBus system

High-Voltage Passive Probes

- Suitable for safe, accurate high-voltage measurements
- Fixed-attenuation probes covering a range from 1 kV to 6 kV and varying transient overvoltage ratings
- Works with any 1 MΩ input oscilloscope

Current Probes

- Range of probes from 30 A_{rms} (50 A_{peak}) to 500 A_{rms} (700 A_{peak})
- 2 MHz to 100 MHz bandwidths
- Small form factor accommodates large conductors with small jaw size
- Teledyne LeCroy ProBus system

ZD Series Differential Probes

- 200 MHz, 500 MHz, 1 GHz and 1.5 GHz bandwidths
- Wide range of probing accessories
- Teledyne LeCroy ProBus system

High-Voltage Differential Probes

- 20 MHz and 100 MHz bandwidth
- 1,000 V_{rms} common mode voltage
- 1,400 V_{peak} differential voltage
- EN 61010 CAT III
- 80 dB CMRR at 50/60 Hz
- Teledyne LeCroy ProBus system

Optical-to-Electrical Converters

- OE6250G-M - 36GHz converter for NRZ and PAM4 signals up to 28 Gbaud and beyond
- OE695G - 9.5 GHz converter for signals up to 12.5 Gb/s
- Fully calibrated and integrated into the oscilloscope software
- Broad wavelength range
- Low noise

2 GS/s Mixed Signal Oscilloscope Options (MS-250/MS-500)

The Mixed Signal options allow the WaveMaster 8 Zi-B to operate as a mixed signal oscilloscope with up to 36 digital channels with 2 GS/s digital sample rate and 50 Mpts/Ch.

SPECIFICATIONS

Vertical System	WaveMaster 804Zi-B (SDA)	WaveMaster 806Zi-B (SDA/DDA)	WaveMaster 808Zi-B (SDA/DDA)	WaveMaster 813Zi-B (SDA)
Analog Bandwidth @ 50 Ω (-3 dB) (ProLink Input)	4 GHz (≥ 10 mV/div)	6 GHz (≥ 10 mV/div)	8 GHz (≥ 10 mV/div)	13 GHz (≥ 10 mV/div)
Analog Bandwidth @ 50 Ω (-3 dB) (ProBus Input)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)
Analog Bandwidth @ 1 MΩ (-3 dB) (ProBus Input)	500 MHz (typical, ≥ 2 mV/div)			
Rise Time (10−90%, 50 Ω)	95 ps (test limit, flatness mode)	63 ps (test limit, flatness mode)	49 ps (test limit, flatness mode)	32.5 ps (test limit, flatness mode)
Rise Time (20−80%, 50 Ω)	71 ps (flatness mode)	47 ps (flatness mode)	37 ps (flatness mode)	24.5 ps (flatness mode)
Input Channels	4 (Any combination of ProLink and ProBus inputs)			
Bandwidth Limiters	20 MHz, 200 MHz, 1 GHz	20 MHz, 200 MHz, 1 GHz, 4 GHz	20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz	20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz
Input Impedance	**ProLink Inputs:** 50 Ω ±2% for ≤ 100 mV/div, 50 Ω ±3% for > 100 mV/div **ProBus Inputs:** 50 Ω ±2% or 1 MΩ ‖ 16 pF, 1 MΩ ‖ 11 pF with supplied Probe			
Input Coupling	**ProLink Inputs:** 50 Ω: DC, GND **ProBus Inputs:** 1 MΩ: AC, DC, GND; 50 Ω: DC, GND			
Maximum Input Voltage	**50 Ω (ProLink):** ±2 V max. @ ≤ 100 mV/div, 5.5 V_{rms} @ > 100 mV/div **50 Ω (ProBus):** ±5 V max., 3.5 V_{rms} **1 MΩ (ProBus):** 250 V max. (peak AC: < 10 kHz + DC)			
Channel-Channel Isolation	**DC to 10 GHz:** 50 dB (> 315:1) **10 to 15 GHz:** 46 dB (> 200:1) **15 to 20 GHz:** 40 dB (> 100:1) (For any two ProLink input channels, same or different v/div settings, typical)			
Vertical Resolution	8 bits up to 11 bits with enhanced resolution (ERES)			

SPECIFICATIONS

Vertical System	WaveMaster 816Zi-B (SDA)	WaveMaster 820Zi-B (SDA, DDA)	WaveMaster 825Zi-B (SDA)	WaveMaster 830Zi-B (SDA)
Analog Bandwidth @ 50 Ω (-3 dB) (2.92 mm input)			25 GHz	30 GHz
Analog Bandwidth @ 50 Ω (-3 dB) (ProLink Input)	16 GHz (≥ 10 mV/div)	20 GHz (≥ 10 mV/div)	20 GHz (≥ 10 mV/div)	20 GHz (≥ 10 mV/div)
Analog Bandwidth @ 50 Ω (-3 dB) (ProBus Input)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)
Analog Bandwidth @ 1 MΩ (-3 dB) (ProBus Input)	500 MHz (typical, ≥ 2 mV/div)			
Rise Time (10−90%, 50 Ω)	28.5 ps (test limit, flatness mode)	22 ps (test limit, flatness mode)	17.5 ps (test limit, flatness mode)	15.5 ps (test limit, flatness mode)
Rise Time (20−80%, 50 Ω)	21.5 ps (flatness mode)	16.5 ps (flatness mode)	13 ps (flatness mode)	11.5 ps (flatness mode)
Input Channels	4 (Any combination of ProLink and ProBus inputs)		4 (Any combination of 20 GHz ProLink inputs or 3.5 GHz ProBus inputs), 3 (1 @ full BW, 2 with ProLink or ProBus input), or 2 (@ full BW)	
Bandwidth Limiters	**40 GS/s mode:** 20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 13 GHz **80 GS/s Mode:** 13 GHz	**40 GS/s mode:** 20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 13 GHz, 16 GHz **80 GS/s Mode:** 13 GHz, 16 GHz	**For ≤ 20 GHz Mode:** 20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 13 GHz, 16 GHz **For > 20 GHz Mode:** 20 GHz	**For ≤ 20 GHz Mode:** 20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 13 GHz, 16 GHz **For > 20 GHz Mode:** 20 GHz, 25 GHz
Input Impedance	**ProLink Inputs:** 50 Ω ±2% for ≤ 100 mV/div, 50 Ω ±3% for > 100 mV/div **ProBus Inputs:** 50 Ω ±2% or 1 MΩ || 16 pF, 1 MΩ || 11 pF with supplied Probe		**2.92 mm Inputs:** 50 Ω ±2% for ≤ 79 mV/div, 50 Ω ±3% for > 79 mV/div **ProLink Inputs:** 50 Ω ±2% for ≤ 100 mV/div, 50 Ω ±3% for > 100 mV/div **ProBus Inputs:** 50 Ω ±2% or 1 MΩ || 16 pF, 1 MΩ || 11 pF with supplied Probe	
Input Coupling	**ProLink Inputs:** 50 Ω: DC, GND **ProBus Inputs:** 1 MΩ: AC, DC, GND; 50 Ω: DC, GND		**2.92 mm Inputs:** 50 Ω: DC, GND **ProLink Inputs:** 50 Ω: DC, GND **ProBus Inputs:** 1 MΩ: AC, DC, GND; 50 Ω: DC, GND	
Maximum Input Voltage	**50 Ω (ProLink):** ±2 V max. @ ≤ 100 mV/div, 5.5 V$_{rms}$ @ > 100 mV/div **50 Ω (ProBus):** ±5 V max., 3.5 V$_{rms}$ **1 MΩ (ProBus):** 250 V max. (peak AC: < 10 kHz + DC)		**2.92 mm Inputs:** ±2 Vmax @ ≤ 100 mV/div, 5.5 V$_{rms}$ @ > 100 mV/div **50 Ω (ProLink):** ±2 Vmax @ ≤ 100 mV/div, 5.5 V$_{rms}$ @ > 100 mV/div **50 Ω (ProBus):** ±5 Vmax, 3.5 V$_{rms}$ **1 MΩ (ProBus):** 250 Vmax (peak AC: < 10 kHz + DC)	
Channel-Channel Isolation	**DC to 10 GHz:** 50 dB (> 315:1) **10 to 15 GHz:** 46 dB (> 200:1) **15 to 20 GHz:** 40 dB (> 100:1) (For any two ProLink input channels, same or different v/div settings, typical)		**DC to 10 GHz:** 50 dB (> 315:1) **10 to 15 GHz:** 46 dB (> 200:1) **15 to 20 GHz:** 40 dB (> 100:1) **20 GHz to Max BW:** 30 dB (> 32:1) (For any two ProLink or 2.92 mm input channels, same or different v/div settings, typical)	
Vertical Resolution	8 bits up to 11 bits with enhanced resolution (ERES)			

Vertical System (cont'd)	WaveMaster 804Zi-B (SDA)	WaveMaster 806Zi-B (SDA/DDA)	WaveMaster 808Zi-B (SDA/DDA)	WaveMaster 813Zi-B (SDA)
Sensitivity	**50 Ω (ProLink):** 2 mV−1 V/div, fully variable (2−9.9 mV/div via zoom) **50 Ω (ProBus):** 2 mV−1 V/div, fully variable **1 MΩ (ProBus):** 2 mV−10 V/div, fully variable			
DC Vertical Gain Accuracy (Gain Component of DC Accuracy)	±1% F.S. (typical), offset at 0 V; ±1.5% F.S. (test limit), offset at 0 V			
Vertical Noise Floor (50 mV/div)	0.75 mV$_{rms}$ (typical)	0.93 mV$_{rms}$ (typical)	1.05 mV$_{rms}$ (typical)	1.21 mV$_{rms}$ (typical)
Offset Range	**50 Ω (ProLink):** ±500 mV @ 2−100 mV/div ±4 V @ > 100 mV/div−1 V/div **50 Ω (ProBus):** ±750 mV @ 2−100 mV/div ±4 V @ > 100 mV/div−1 V/div **1 MΩ:** ±1 V @ 2−140 mV/div ±10 V @ 142 mV−1.40 V/div ±100 V @ 1.42 V−10 V/div			
DC Vertical Offset Accuracy	±(1.5% of offset setting + 1.5% F.S. + 1 mV) (test limit)			

Horizontal System

Timebases	Internal time base common to 4 input channels			
Time/Division Range	20 ps/div−128 s/div, depending on memory length **Real-time Mode:** 20 ps/div−64 s/div; **RIS Mode:** 20 ps/div−10 ns/div; user selectable at ≤ 10 ns/div; **Roll Mode:** 100 ms/div up to 128 s/div, user selectable at ≥ 100 ms/div and ≤ 5 MS/s			
Clock Accuracy	< 1 ppm + (aging of 0.5 ppm/yr from last calibration)			
Sample Clock Jitter	Up to 10µs Acquired Time Range: 100 fsrms (Internal Timebase Reference) Up to 6.4ms Acquired Time Range: 150 fsrms (Internal Timebase Reference)			
Delta Time Measurement Accuracy	$\sqrt{2} * \sqrt{\left(\dfrac{Noise}{SlewRate}\right)^2 + (Sample\ Clock\ Jitter_{rms})^2}\ + (clock\ accuracy * reading)$			
Jitter Measurement Floor	$\sqrt{\left(\dfrac{Noise}{SlewRate}\right)^2 + (Sample\ Clock\ Jitter_{rms})^2}$			
Jitter Between Channels (TIE, typical, measured at maximum bandwidth)	<500 fs$_{rms}$	<450 fs$_{rms}$	<425 fs$_{rms}$	<325 fs$_{rms}$
Trigger and Interpolator Jitter	< 0.1 ps$_{rms}$ (typical, software assisted), 2 ps$_{rms}$ (typical, hardware)			
Channel-Channel Deskew Range	±9 x time/div. setting or 25 ns max. (whichever is larger), each channel			
External Time base Reference (Input)	10 MHz; 50 Ω impedance, applied at the rear input			
External Time base Reference (Output)	10 MHz; 50 Ω impedance, output at the rear			

SPECIFICATIONS

Vertical System (cont'd)	WaveMaster 816Zi-B (SDA)	WaveMaster 820Zi-B (SDA, DDA)	WaveMaster 825Zi-B (SDA)	WaveMaster 830Zi-B (SDA)
Sensitivity	**50 Ω (ProLink) at 40 GS/s:** 2 mV−1 V/div, fully variable (2-9.9 mV/div via zoom) **50 Ω (ProLink) at 80 GS/s:** 2 mV−1 V/div, fully variable (2-19.9 mV/div via zoom) **50 Ω (ProBus):** 2 mV−1 V/div, fully variable **1 MΩ (ProBus):** 2 mV−10 V/div, fully variable		**50 Ω (2.92 mm):** 10 mV−500 mV/div, fully variable **50 Ω (ProLink):** 2 mV−1 V/div, fully variable (2−9.9 mV/div via zoom) **50 Ω (ProBus):** 2 mV−1 V/div, fully variable **1 MΩ (ProBus)** 2 mV−10 V/div, fully variable	
DC Vertical Gain Accuracy (Gain Component of DC Accuracy)	±1% F.S. (typical), offset at 0 V; ±1.5% F.S. (test limit), offset at 0 V			
Vertical Noise Floor (50 mV/div)	1.28 mV$_{rms}$ (typical)	1.44 mV$_{rms}$ (typical)	1.88 mV$_{rms}$ (typical)	2.12 mV$_{rms}$ (typical)
Offset Range	**50 Ω (ProLink):** ±500 mV @ 2−100 mV/div ±4 V @ > 100 mV/div−1 V/div **50 Ω (ProBus):** ±750 mV @ 2−100 mV/div ±4 V @ > 100 mV/div−1 V/div **1 MΩ:** ±1 V @ 2−140 mV/div ±10 V @ 142 mV−1.40 V/div ±100 V @ 1.42 V−10 V/div		**50 Ω (2.92 mm):** ±500 mV @ 10−79 mV/div ±4 V @ 80 mV/div−500 mV/div **50 Ω (ProLink):** ±500 mV @ 2−100 mV/div ±4 V @ >100 mV/div−1 V/div **50 Ω (ProBus):** ±750 mV @ 2−100 mV/div ±4 V @ >100 mV/div−1 V/div **1 MΩ:** ±1 V @ 2−128 mV/div ±10 V @ 130 mV−1.28 V/div ±100 V @ 1.3 V−10 V/div	
DC Vertical Offset Accuracy	±(1.5% of offset setting + 1.5% F.S. + 1 mV) (test limit)			

Horizontal System

Timebases	Internal time base common to 4 input channels			
Time/Division Range	**Real-time Mode at 80 GS/s:** 20 ps/div−640 µs/div, depending on memory length **Real-time Mode at other sample rates:** 20 ps/div−128 s/div, depending on memory length **Real-time Mode:** 20 ps/div−64 s/div; **RIS Mode:** 20 ps/div−10 ns/div; user selectable at ≤ 10 ns/div; **Roll Mode:** 100 ms/div up to 128 s/div, user selectable at ≥ 100 ms/div and ≤ 5 MS/s		**For ≥ 25 GHz Mode:** **Real-time Mode:** 20 ps/div−640 µs/div, depending on memory length **For ≤ 20 GHz Mode:** 20 ps/div−128 s/div, depending on memory length **Real-time Mode:** 20 ps/div−64 s/div; **RIS Mode:** 20 ps/div−10 ns/div, user selectable at ≤10 ns/div; **Roll Mode:** 100 ms/div up to 128 s/div, user selectable at ≥ 100 ms/div and ≤ 5 MS/s	
Clock Accuracy	< 1 ppm + (aging of 0.5 ppm/yr from last calibration)			
Sample Clock Jitter	Up to 10µs Acquired Time Range: 100 fsrms (Internal Timebase Reference) Up to 6.4ms Acquired Time Range: 150 fsrms (Internal Timebase Reference)			
Delta Time Measurement Accuracy	$\sqrt{2} * \sqrt{\left(\dfrac{Noise}{SlewRate}\right)^2 + (Sample\ Clock\ Jitter_{rms})^2} + (clock\ accuracy * reading)$			
Jitter Measurement Floor	$\sqrt{\left(\dfrac{Noise}{SlewRate}\right)^2 + (Sample\ Clock\ Jitter_{rms})^2}$			
Jitter Between Channels (TIE, typical, measured at maximum bandwidth)	<300 fs$_{rms}$	<250 fs$_{rms}$		
Trigger and Interpolator Jitter	< 0.1 ps$_{rms}$ (typical, software assisted), 2 ps$_{rms}$ (typical, hardware)			
Channel-Channel Deskew Range	±9 x time/div. setting or 25 ns max. (whichever is larger), each channel			
External Time base Reference (Input)	10 MHz; 50 Ω impedance, applied at the rear input			
External Time base Reference (Output)	10 MHz; 50 Ω impedance, output at the rear			

SPECIFICATIONS

Acquisition System	WaveMaster 804Zi-B (SDA)	WaveMaster 806Zi-B (SDA/DDA)	WaveMaster 808Zi-B (SDA/DDA)	WaveMaster 813Zi-B (SDA)
Single-Shot Sample Rate/Ch	40 GS/s on 4 Ch (80 GS/s on 2 Ch using optional WM8Zi-2X80GS External Interleaving Device)			
Random Interleaved Sampling (RIS)	200 GS/s for repetitive signals (20 ps/div to 10 ns/div)			
Maximum Trigger Rate	1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)			
Intersegment Time	1 µs			
Maximum Acquisition Memory	256 Mpts/Ch			
Standard Memory	WaveMaster: 32 Mpts, 5,000 segments max SDA models: 64 Mpts, 15,000 segments max DDA models: 128 Mpts, 15,000 segments max (Memory and Sample Rate can be doubled in 1 or 2 Ch mode with use of WM8Zi-2X80GS External Interleaving Device)			
Memory Options				

Option	Mem/Ch	Max Segments
M-64	64 Mpts	15,000
L-128	128 Mpts	15,000
VL-256	256 Mpts	15,000

(Memory and Sample Rate can be doubled in 1 or 2 Ch mode with use of WM8Zi-2X80GS External Interleaving Device)

Acquisition Processing

Averaging	Summed averaging to 1 million sweeps continuous averaging to 1 million sweeps
Enhanced Resolution (ERES)	From 8.5 to 11 bits vertical resolution
Envelope (Extrema)	Envelope, floor, or roof for up to 1 million sweeps
Interpolation	Linear or Sin x/x

Triggering System

Modes	Normal, Auto, Single, and Stop
Sources	Any input channel, Aux, Aux/10, Line, or Fast Edge. Slope and level unique to each source (except line trigger)
Coupling Mode	DC, AC, HFRej, LFRej
Pre-trigger Delay	0–100% of memory size (adjustable in 1% increments of 100 ns)
Post-trigger Delay	0–10,000 divisions in real time mode, limited at slower time/div settings or in roll mode
Hold-off by Time or Events	From 2 ns up to 20 s or from 1 to 99,999,999 events
Internal Trigger Range	±4.1 div from center
Trigger Sensitivity with Edge Trigger 2.92mm Inputs	Not Applicable
Trigger Sensitivity with Edge Trigger (Ch 1–4) ProBus Inputs	2 div @ < 3.5 GHz 1.5 div @ < 1.75 GHz 1.0 div @ < 200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω)

Trigger Sensitivity with Edge Trigger (Ch 1–4) ProLink Inputs	2 div @ < 4 GHz, 1.5 div @ < 3 GHz, 1.0 div @ < 200 MHz, (for DC, AC, LFRej coupling, ≥ 10 mV/div, 50 Ω)	2 div @ < 6 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRej coupling, ≥ 10 mV/div, 50 Ω)	2 div @ < 8 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRej coupling, ≥ 10 mV/div, 50 Ω)	3 div @ < 13 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRej coupling, ≥ 10 mV/div, 50 Ω)

SPECIFICATIONS

Acquisition System	WaveMaster 816Zi-B (SDA)	WaveMaster 820Zi-B (SDA, DDA)	WaveMaster 825Zi-B (SDA)	WaveMaster 830Zi-B (SDA)
Single-Shot Sample Rate/Ch	40 GS/s on 4 Ch 80 GS/s on 2 Ch		40 GS/s on 4 Ch (80 GS/s on 2 Ch when operated in ≥ 25 GHz Mode)	
Random Interleaved Sampling (RIS)	200 GS/s for repetitive signals (20 ps/div to 10 ns/div)		For ≥ 25 GHz Mode: Not applicable For < 25 GHz Mode: 200 GS/s for repetitive signals (20 ps/div to 10 ns/div)	
Maximum Trigger Rate	1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)			
Intersegment Time	1 µs			
Maximum Acquisition Memory	512 Mpts/Ch (2 Ch operation)		512 Mpts/Ch (2 Ch operation)	
Standard Memory	4 channels: 32 Mpts, 5,000 segments max (SDA: 64 Mpts, 15,000 segments max) (DDA: 128 Mpts, 15,000 segments max) 2 channels: (SDA: 128 Mpts, 15,000 segments max) (DDA: 256 Mpts, 15,000 segments max)		4 channels: 32 Mpts, 5,000 segments max (SDA: 64 Mpts, 15,000 segments max) (DDA: 128 Mpts, 15,000 segments max) 2 channels: (SDA: 128 Mpts, 15,000 segments max) (DDA: 256 Mpts, 15,000 segments max)	

Memory Options

816Zi-B / 820Zi-B:

Option	Mem/Ch	Max Segments
M-64	64 Mpts	15,000
L-128	128 Mpts	15,000
VL-256	256 Mpts	15,000

825Zi-B / 830Zi-B:

	4 channels		2 channels	
Option	Mem/Ch	Max Segments	Mem/Ch	Max Segments
M-64	64 Mpts	15,000	128 Mpts	10,000
L-128	128 Mpts	15,000	256 Mpts	15,000
VL-256	256 Mpts	15,000	512 Mpts	15,000

Acquisition Processing

Averaging	Summed averaging to 1 million sweeps continuous averaging to 1 million sweeps
Enhanced Resolution (ERES)	From 8.5 to 11 bits vertical resolution
Envelope (Extrema)	Envelope, floor, or roof for up to 1 million sweeps
Interpolation	Linear or Sin x/x

Triggering System

Modes	Normal, Auto, Single, and Stop
Sources	Any input channel, Aux, Aux/10, Line, or Fast Edge. Slope and level unique to each source (except line trigger)
Coupling Mode	DC, AC, HFRej, LFRej
Pre-trigger Delay	0–100% of memory size (adjustable in 1% increments of 100 ns)
Post-trigger Delay	0–10,000 divisions in real time mode, limited at slower time/div settings or in roll mode
Hold-off by Time or Events	From 2 ns up to 20 s or from 1 to 99,999,999 events
Internal Trigger Range	±4.1 div from center
Trigger Sensitivity with Edge Trigger 2.92mm Inputs	Not Applicable (816Zi-B, 820Zi-B) — 3 div @ < 15 GHz / 1.5 div @ < 3 GHz / 1.0 div @ < 200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω) (825Zi-B, 830Zi-B)
Trigger Sensitivity with Edge Trigger (Ch 1–4) ProBus Inputs	2 div @ < 3.5 GHz 1.5 div @ < 1.75 GHz 1.0 div @ < 200 MHz (for DC coupling,≥ 10 mV/div, 50 Ω)
Trigger Sensitivity with Edge Trigger (Ch 1–4) ProLink Inputs	3 div @ < 13 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRej coupling, ≥ 10 mV/div, 50 Ω) — 3 div @ < 15 GHz 1.5 div @ < 3 GHz 1.0 div @< 200 MHz (for DC, AC, LFRej coupling, ≥ 10 mV/div, 50 Ω)

Triggering System (cont'd)	WaveMaster 804Zi-B (SDA)	WaveMaster 806Zi-B (SDA/DDA)	WaveMaster 808Zi-B (SDA/DDA)	WaveMaster 813Zi-B (SDA)
External Trigger Sensitivity (Edge Trigger)	2 div @ < 1 GHz 1.5 div @ < 500 MHz 1.0 div @ < 200 MHz (for DC, coupling)			
Max. Trigger Frequency, SMART Trigger	2.0 GHz @ ≥ 10 mV/div (minimum triggerable width 200 ps)			
External Trigger Input Range	Aux (±0.4 V); Aux/10 (±4 V)			

Basic Triggers

Edge	Triggers when signal meets slope (positive, negative, or either) and level condition
Window	Triggers when signal exits a window defined by adjustable thresholds
TV-Composite Video	Triggers NTSC or PAL with selectable line and field HDTV (720p, 1080i, 1080p) with selectable frame rate (50 or 60 Hz) and Line or CUSTOM with selectable Fields (1–8), Lines (up to 2000), Frame Rates (25, 30, 50, or 60 Hz), Interlacing (1:1, 2:1, 4:1, 8:1), or Synch Pulse Slope (Positive or Negative)

SMART Triggers™

State or Edge Qualified	Triggers on any input source only if a defined state or edge occurred on another input source. Holdoff between sources is selectable by time or events
Qualified First	In Sequence acquisition mode, triggers repeatably on event B only if a defined pattern, state, or edge (event A) is satisfied in the first segment of the acquisition. Holdoff between sources is selectable by time or events
Dropout	Triggers if signal drops out for longer than selected time between 1 ns and 20 s
Pattern	Logic combination (AND, NAND, OR, NOR) of 5 inputs (4 channels and external trigger input). Each source can be high, low, or don't care. The High and Low level can be selected independently. Triggers at start or end of the pattern

SMART Triggers with Exclusion Technology

Glitch	Triggers on positive or negative glitches with widths selectable as low as 200 ps to 20 s, or on intermittent faults
Width (Signal or Pattern)	Triggers on positive, negative, or both widths with widths selectable as low as 200 ps to 20 s, or on intermittent faults
Interval (Signal or Pattern)	Triggers on intervals selectable between 1 ns and 20 s
Timeout (State/Edge Qualified)	Triggers on any source if a given state (or transition edge) has occurred on another source. Holdoff between sources is 1 ns to 20 s, or 1 to 99,999,999 events
Runt	Trigger on positive or negative runts defined by two voltage limits and two time limits. Select between 1 ns and 20 ns
Slew Rate	Trigger on edge rates. Select limits for dV, dt, and slope. Select edge limits between 1 ns and 20 ns
Exclusion Triggering	Trigger on intermittent faults by specifying the expected behavior and triggering when that condition is not met

Cascade (Sequence) Triggering

Capability	Arm on "A" event, then Trigger on "B" event. Or Arm on "A" event, then Qualify on "B" event, and Trigger on "C" event. Or Arm on "A" event, then Qualify on "B" then "C" event, and Trigger on "D" event
Types	Cascade A then B: Edge, Window, Pattern (Logic) Width, Glitch, Interval, Dropout, or Measurement. Measurement can be on Stage B only. Cascade A then B then C (Measurement): Edge, Window, Pattern (Logic), Width, Glitch, Interval, Dropout, or Measurement. Measurement can be on Stage C only. Cascade A then B then C: Edge, Window, Pattern (Logic). Cascade A then B then C then D: Edge, Window, Pattern (Logic), or Measurement. Measurement can be on Stage D only.
Holdoff	Holdoff between A and B, B and C, C and D is selectable by time (1ns to 20s) or number of events. Measurement trigger selection as the last stage in a Cascade precludes a holdoff setting between the prior stage and the last stage.

High-speed Serial Protocol Triggering

Data Rates	Option WM8Zi-6GBIT-80b-SYMBOL-TD: 600 Mb/s to 6.5 Gb/s, Channel 4 input only
	Option WM8Zi-14GBIT-80b-SYMBOL-TD: 600 Mb/s to 14.1 Gb/s, Channel 4 input only
	(Standard on SDA models: 600 Mb/s to 6.5 Gb/s, Channel 4 input only.
	Option SDA8Zi-UPG-14GBIT-80b-SYMBOL-TD: 600 Mb/s to 14.1 Gb/s, Channel 4 input only)
Pattern Length	80 bits NRZ, eight 8b/10b symbols, 64b/66b symbol
Clock and Data Outputs	No Clock and Data Recovery outputs provided

Low Speed Serial Protocol Triggering (Optional)

I^{2}C, SPI (SPI, SSPI, SIOP), UART-RS232, CAN, LIN, FlexRay, MIL-STD-1553, AudioBus

Measurement Trigger

Select from a large number of measurement parameters trigger on a measurement value with qualified limits. Can be used as only trigger or last event in a Cascade Trigger.

SPECIFICATIONS

Triggering System (cont'd)	WaveMaster 816Zi-B (SDA)	WaveMaster 820Zi-B (SDA, DDA)	WaveMaster 825Zi-B (SDA)	WaveMaster 830Zi-B (SDA)
External Trigger Sensitivity (Edge Trigger)	2 div @ < 1 GHz 1.5 div @ < 500 MHz 1.0 div @ < 200 MHz (for DC, coupling)			
Max. Trigger Frequency, SMART Trigger	2.0 GHz @ ≥ 10 mV/div (minimum triggerable width 200 ps)			
External Trigger Input Range	Aux (±0.4 V); Aux/10 (±4 V)			

Basic Triggers

Edge	Triggers when signal meets slope (positive, negative, or either) and level condition
Window	Triggers when signal exits a window defined by adjustable thresholds
TV-Composite Video	Triggers NTSC or PAL with selectable line and field HDTV (720p, 1080i, 1080p) with selectable frame rate (50 or 60 Hz) and Line or CUSTOM with selectable Fields (1−8), Lines (up to 2000), Frame Rates (25, 30, 50, or 60 Hz), Interlacing (1:1, 2:1, 4:1, 8:1), or Synch Pulse Slope (Positive or Negative)

SMART Triggers™

State or Edge Qualified	Triggers on any input source only if a defined state or edge occurred on another input source. Holdoff between sources is selectable by time or events
Qualified First	In Sequence acquisition mode, triggers repeatably on event B only if a defined pattern, state, or edge (event A) is satisfied in the first segment of the acquisition. Holdoff between sources is selectable by time or events.
Dropout	Triggers if signal drops out for longer than selected time between 1 ns and 20 s
Pattern	Logic combination (AND, NAND, OR, NOR) of 5 inputs (4 channels and external trigger input). Each source can be high, low, or don't care. The High and Low level can be selected independently. Triggers at start or end of the pattern

SMART Triggers with Exclusion Technology

Glitch	Triggers on positive or negative glitches with widths selectable as low as 200 ps to 20 s, or on intermittent faults
Width (Signal or Pattern)	Triggers on positive, negative, or both widths with widths selectable as low as 200 ps to 20 s, or on intermittent faults
Interval (Signal or Pattern)	Triggers on intervals selectable between 1 ns and 20 s
Timeout (State/Edge Qualified)	Triggers on any source if a given state (or transition edge) has occurred on another source. Holdoff between sources is 1 ns to 20 s, or 1 to 99,999,999 events
Runt	Trigger on positive or negative runts defined by two voltage limits and two time limits. Select between 1 ns and 20 ns
Slew Rate	Trigger on edge rates. Select limits for dV, dt, and slope. Select edge limits between 1 ns and 20 ns
Exclusion Triggering	Trigger on intermittent faults by specifying the expected behavior and triggering when that condition is not met

Cascade (Sequence) Triggering

Capability	Arm on "A" event, then Trigger on "B" event. Or Arm on "A" event, then Qualify on "B" event, and Trigger on "C" event. Or Arm on "A" event, then Qualify on "B" then "C" event, and Trigger on "D" event
Types	Cascade A then B: Edge, Window, Pattern (Logic) Width, Glitch, Interval, Dropout, or Measurement. Measurement can be on Stage B only. Cascade A then B then C (Measurement): Edge, Window, Pattern (Logic), Width, Glitch, Interval, Dropout, or Measurement. Measurement can be on Stage C only. Cascade A then B then C: Edge, Window, Pattern (Logic). Cascade A then B then C then D: Edge, Window, Pattern (Logic), or Measurement. Measurement can be on Stage D only.
Holdoff	Holdoff between A and B, B and C, C and D is selectable by time (1ns to 20s) or number of events. Measurement trigger selection as the last stage in a Cascade precludes a holdoff setting between the prior stage and the last stage.

High-speed Serial Protocol Triggering

Data Rates	Option WM8Zi-6GBIT-80b-SYMBOL-TD: 600 Mb/s to 6.5 Gb/s, Channel 4 input only	Option WM8Zi-6GBIT-80b-SYMBOL-TD: 600 Mb/s to 6.5 Gb/s, Channel 4 input only
	Option WM8Zi-14GBIT-80b-SYMBOL-TD: 600 Mb/s to 14.1 Gb/s, Channel 4 input only	Option WM8Zi-14GBIT-80b-SYMBOL-TD: 600 Mb/s to 14.1 Gb/s, Channel 4 input only
	(Note: Channel 3 input will capture signal for triggering when oscilloscope is in ≥25 GHz mode)	(Note: Channel 3 input will capture signal for triggering when oscilloscope is in ≥25 GHz mode)
	(Standard on SDA models: 600 Mb/s to 6.5 Gb/s, Channel 4 input only.	(Standard on SDA models: 600 Mb/s to 6.5 Gb/s, Channel 4 input only.
	Option SDA8Zi-UPG-14GBIT-80b-SYMBOL-TD: 600 Mb/s to 14.1 Gb/s, Channel 4 input only)	Option SDA8Zi-UPG-14GBIT-80b-SYMBOL-TD: 600 Mb/s to 14.1 Gb/s, Channel 4 input only)
Pattern Length	80 bits NRZ, eight 8b/10b symbols, 64b/66b symbol	
Clock and Data Outputs	No Clock and Data Recovery outputs provided	

Low Speed Serial Protocol Triggering (Optional)

I²C, SPI (SPI, SSPI, SIOP), UART-RS232, CAN, LIN, FlexRay, MIL-STD-1553, AudioBus

Measurement Trigger

Select from a large number of measurement parameters trigger on a measurement value with qualified limits. Can be used as only trigger or last event in a Cascade Trigger.

Color Waveform Display	WaveMaster 804Zi-B (SDA)	WaveMaster 806Zi-B (SDA/DDA)	WaveMaster808Zi-B (SDA/DDA)	WaveMaster 813Zi-B (SDA)
Type	Color 15.3" flat panel TFT-Active Matrix LCD with high resolution touch screen			
Resolution	WXGA; 1280 x 768 pixels			
Number of Traces	Display a maximum of 16 traces (up to 40 with some software options). Simultaneously display channel, zoom, memory and math traces.			
Grid Styles	Auto, Single, Dual, Triple, Quad, Octal, X-Y, Single+X-Y, Dual+X-Y, Twelve, Sixteen. Up to twenty grids available with some software options.			
Waveform Representation	Sample dots joined, or sample dots only			

Integrated Second Display

Supports touch screen integration of user-supplied second display with split-grid capability.
(Note: touch screen driver for second display may not be a Fujitsu driver)

Processor/CPU

Type	Intel® CoreTM i7-4770S Quad, 3.1 GHz (up to 3.9 GHz in Turbo mode) (or better)
Processor Memory	8 GB standard for STD memory (32 Mpt), and M-64 memory options 16 GB standard for L-128 and VL-256 memory options Up to 32 GB optional
Operating System	Microsoft Windows® 7 Professional Edition (64-bit)
Real Time Clock	Date and time displayed with waveform an in hardcopy files. SNTP support to synchronize to precision internal clocks

Interface

Remote Control	Via Windows Automation, or via Teledyne LeCroy Remote Command Set
Network Communication Standard	VXI-11 or VICP, LXI Class C (v1.2) Compliant
GPIB Port (Optional)	Supports IEEE – 488.2
LSIB Port (Optional)	Supports PCIe Gen1 x4 protocol with Teledyne LeCroy supplied API
Ethernet Port	Supports 10/100/1000BaseT Ethernet interface (RJ45 port)
USB Ports	4 USB 3.0 ports (rear), 3 USB 2.0 ports (front panel) support Windows compatible devices
External Monitor Port	Full-size DisplayPort connector to support customer-supplied external monitor. Includes support for extended desktop operation with second monitor.
Serial Port	Not Available
Peripheral Bus	Teledyne LeCroy LBUS standard

Power Requirements

Voltage	100–240 VAC ±10% at 45–66 Hz, 100–120 VAC ±10% at 380–420 Hz, Automatic AC Voltage Selection, Installation Category II
Max. Power Consumption	975 W / 975 VA

Environmental

Temperature (Operating)	+5 °C to +40 °C
Temperature (Non-Operating)	−20 °C to +60 °C
Humidity (Operating)	5% to 80% relative humidity (non-condensing) up to +31 °C. Upper limit derates to 50% relative humidity (non-condensing) at +40 °C
Humidity (Non-Operating)	5% to 95% relative humidity (non-condensing) as tested per MIL-PRF-28800F
Altitude (Operating)	Up to 10,000 ft. (3048 m) at or below +25 °C
Random Vibration (Operating)	0.5 g_{rms} 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
Random Vibration (Non-Operating)	2.4 g_{rms} 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
Functional Shock	20 g_{peak}, half sine, 11 ms pulse, 3 shocks (positive and negative) in each of three orthogonal axes, 18 shocks total

Physical Dimensions

Dimensions (HWD)	14" H x 18.4" W x 16" D (355 x 467 x 406 mm) height excludes feet
Weight	51.5 lbs. (23.4 kg)
Shipping Weight	70 lbs. (31.8 kg)

Certifications

CE Compliant, UL and cUL listed; conforms to EN 61326, EN 61010-1, EN61010-2-030, UL 61010-1 3rd edition, and CSA C22.2 No. 61010-1-12

Warranty and Service

3-year warranty calibration recommended annually.
Optional service programs include extended warranty, upgrades, and calibration services

SPECIFICATIONS

Color Waveform Display	WaveMaster 816Zi-B (SDA)	WaveMaster 820Zi-B (SDA, DDA)	WaveMaster 825Zi-B (SDA)	WaveMaster 830Zi-B (SDA)
Type	Color 15.3" flat panel TFT-Active Matrix LCD with high resolution touch screen			
Resolution	WXGA; 1280 x 768 pixels			
Number of Traces	Display a maximum of 16 traces (up to 40 with some software options). Simultaneously display channel, zoom, memory and math traces.			
Grid Styles	Auto, Single, Dual, Triple, Quad, Octal, X-Y, Single+X-Y, Dual+X-Y, Twelve, Sixteen. Up to twenty grids available with some software options.			
Waveform Representation	Sample dots joined, or sample dots only			

Integrated Second Display

Supports touch screen integration of user-supplied second display with split-grid capability.
(Note: touch screen driver for second display may not be a Fujitsu driver)

Processor/CPU

Type	Intel® CoreTM i7-4770S Quad, 3.1 GHz (up to 3.9 GHz in Turbo mode) (or better)
Processor Memory	8 GB standard for STD memory (32 Mpt), and M-64 memory options 16 GB standard for L-128 and VL-256 memory options Up to 32 GB optional
Operating System	Microsoft Windows® 7 Professional Edition (64-bit)
Real Time Clock	Date and time displayed with waveform an in hardcopy files. SNTP support to synchronize to precision internal clocks

Interface

Remote Control	Via Windows Automation, or via Teledyne LeCroy Remote Command Set
Network Communication Standard	VXI-11 or VICP, LXI Class C (v1.2) Compliant
GPIB Port (Optional)	Supports IEEE − 488.2
LSIB Port (Optional)	Supports PCIe Gen1 x4 protocol with Teledyne LeCroy supplied API
Ethernet Port	Supports 10/100/1000BaseT Ethernet interface (RJ45 port)
USB Ports	4 USB 3.0 ports (rear), 3 USB 2.0 ports (front panel) support Windows compatible devices
External Monitor Port	Full-size DisplayPort connector to support customer-supplied external monitor. Includes support for extended desktop operation with second monitor.
Serial Port	Not Available
Peripheral Bus	Teledyne LeCroy LBUS standard

Power Requirements

Voltage	100−240 VAC ±10% at 45−66 Hz, 100−120 VAC ±10% at 380−420 Hz, Automatic AC Voltage Selection, Installation Category II	
Max. Power Consumption	975 W / 975 VA	1025 W / 1025 VA

Environmental

Temperature (Operating)	+5 °C to +40 °C
Temperature (Non-Operating)	−20 °C to +60 °C
Humidity (Operating)	5% to 80% relative humidity (non-condensing) up to +31 °C. Upper limit derates to 50% relative humidity (non-condensing) at +40 °C
Humidity (Non-Operating)	5% to 95% relative humidity (non-condensing) as tested per MIL-PRF-28800F
Altitude (Operating)	Up to 10,000 ft. (3048 m) at or below +25 °C
Random Vibration (Operating)	0.5 g_{rms} 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
Random Vibration (Non-Operating)	2.4 g_{rms} 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
Functional Shock	20 g_{peak}, half sine, 11 ms pulse, 3 shocks (positive and negative) in each of three orthogonal axes, 18 shocks total

Physical Dimension

Dimensions (HWD)	14" H x 18.4" W x 16" D (355 x 467 x 406 mm) height excludes feet	
Weight	51.5 lbs. (23.4 kg)	58 lbs. (26.4 kg)
Shipping Weight	70 lbs. (31.8 kg)	76.0 lbs. (34.5 kg)

Certifications

CE Compliant, UL and cUL listed; conforms to EN 61326, EN 61010-1, EN61010-2-030, UL 61010-1 3rd edition, and CSA C22.2 No. 61010-1-12

Warranty and Service

3-year warranty calibration recommended annually.
Optional service programs include extended warranty, upgrades, and calibration services

Standard

Math Tools

Display up to 8 math function traces (F1 – F8). The easy-to-use graphical interface simplifies setup of up to two operations on each function trace, and function traces can be chained together to perform math-on-math.

absolute value	integral
average (summed)	interpolate (cubic, quadratic, sinx/x)
average (continuous)	invert (negate)
correlation (two waveforms)	log (base e)
derivative	log (base 10)
deskew (resample)	product (x)
difference (−)	ratio (/)
enhanced resolution (to 11-bits vertical)	reciprocal
envelope	rescale (with units)
exp (base e)	roof
exp (base 10)	sparse
fft (power spectrum, magnitude, phase, up to max Mpts)	square
	square root
floor	sum (+)
	zoom (identity)

Measure Tools

Display any 12 parameters together with statistics, including their average, high, low, and standard deviations. Histicons provide a fast, dynamic view of parameters and wave shape characteristics. Parameter Math allows addition, subtraction, multiplication, or division of two different parameters.

amplitude	level @ x	rms
area	maximum	std. deviation
base	mean	top
cycles	median	width
data	minimum	phase
delay	narrow band phase	time @ minimum (min.)
Δ delay	narrow band power	time @ maximum (max.)
duty cycle	number of points	Δ time @ level
duration	+ overshoot	Δ time @ level from trigger
falltime (90−10%, 80−20%, @ level)	− overshoot	x @ max.
	peak-to-peak	x @ min.
frequency	period	
first	risetime (10−90%, 20−80%, @ level)	
last		

Pass/Fail Testing

Simultaneously test multiple parameters against selectable parameter limits or pre-defined masks. Pass or fail conditions can initiate actions including document to local or networked files, e-mail the image of the failure, save waveforms, send a pulse out at the front panel auxiliary BNC output, or (with the GPIB option) send a GPIB SRQ.

Basic Jitter and Timing Analysis Tools

This package provides toolsets for displaying parameter values vs. time, statistical views of parameters using histograms, and persistence view math functions. These tools include:

• "Track" graphs of all parameters, no limitation of number

− Cycle-Cycle Jitter	− Period @ level	− Setup
− N-Cycle	− Half Period	− Hold
− N-Cycle with start selection	− Width @ level	− Skew
	− Time Interval Error @ level	− Duty Cycle @ level
− Frequency @ level		− Duty Cycle Error

• Histograms expanded with 19 histogram parameters and up to 2 billion events

• Trend (datalog) of up to 1 million events

• Track graphs of all parameters

• Persistence histogram, persistence (range, sigma)

Standard (cont'd)

Advanced Customization

Provides capability to create a math function or measurement parameter in MATLAB, Excel, C++, JavaScript, or Visual Basic Script (VBS) format and insert it into the oscilloscope's processing stream. All results are processed and displayed on the oscilloscope grid, and are available for further processing. Also permits the creation of customized plug-ins that can be inserted into the scope user interface, control of the scope via Visual Basic scripts embedded in customized functions, and use of Teledyne LeCroy's Custom DSO capabilities.

Software Options

SDAIII Serial Data Analysis Software (WM8Zi-SDAIII)
(Included in WM8Zi-SDAIII option, Standard on SDA 8 Zi-B and DDA 8 Zi-B Models)

Total Jitter
A complete jitter measurement and analysis toolset with the SDAIII-CompleteLinQ user interface framework. The CompleteLinQ framework provides a single user interface for "LinQ", "Crosstalk", "EyeDrII" and "Virtual Probe" capabilities (purchased separately).

SDAIII provides complete serial data and clock jitter and eye diagram measurement and analysis capabilities. Eye Diagrams with millions of UI are quickly calculated from up to 512 Mpt records, and advanced tools may be used on the Eye Diagram to aid analysis. Complete TIE and Total Jitter (Tj) parameters and analysis functions are provided. Comparison of eye diagrams and jitter analysis between captured lanes and one "reference" location is provided. Includes:

• Time Interval Error (TIE) Measurement Parameter, Histogram, Spectrum and Jitter Track
• Total Jitter (Tj) Measurement Parameter, Histogram
• Spectrum
• Eye Diagram Display (sliced)
• Eye Diagram IsoBER (lines of constant Bit Error Rate)
• Eye Diagram Mask Violation Locator
• Eye Diagram Measurement Parameters

− Eye Height	− Eye Width	− Mask hits
− One Level	− Eye Crossing	− Mask out
− Zero Level	− Avg. Power	− Bit Error Rate
− Eye Amplitude	− Extinction Ratio	− Slice Width (setting)

• Q-Fit Tail Representation
• Bathtub Curve
• Cumulative Distribution Function (CDF)
• PLL Track

Jitter Decomposition Models

Three dual-dirac jitter decomposition methods are provided for maximum measurement flexibility. Q-Scale, CDF, Bathtub Curve, and all jitter decomposition measurement parameters can be displayed using any of the three methods.

• Spectral, Rj Direct
• Spectral, Rj+Dj CDF Fit
• NQ-Scale

Random Jitter (Rj) and Non-Data Dependent Jitter (Rj+BUj) Analysis

• Random Jitter (Rj) Meas Param	• Rj+BUj Spectrum
• Periodic Jitter (Pj) Meas Param	• Rj+BUj Track
• Rj+BUj Histogram	• Pj Inverse FFT

Deterministic Jitter (Dj) Analysis

• Deterministic Jitter (Dj) Measurement Parameter

Software Options (cont'd)

SDAIII Serial Data Analysis Software (continued)

Data Dependent Jitter (DDj) Analysis

- Data Dependent Jitter (DDj) Param
- Duty Cycle Distortion (DCD) Param
- InterSymbol Interference (ISI) Param
- Digital Pattern display

- DDj Plot (by Pattern or N-bit Sequence)
- DDj Histogram
- ISI Plot (by Pattern)

Reference Lane

- Compare current acquisition to Reference with a side-by-side or single (tabbed) display mode

SDAIII "LinQ" Capability
(SDAIII-LinQ, SDAIII-CrossLinQ, and SDAIII-CompleteLinQ Options)

In addition to all SDAIII capabilities, "LinQ" options includes 4 lanes of simultaneous serial data analysis plus the reference lane. If EyeDrII or VirtualProbe are purchased with SDAIII "LinQ" capability, then those capabilities are provided for all four lanes.

Lanescape Comparison Mode

When multiple lanes are enabled for display, Lanescape Comparison Modes is used. Selections for this mode are as follows:

- Single: One lane is displayed at a time.
- Dual: Two lanes are selected for display.
- Mosaic: All enabled lanes are displayed.

SDAIII "Crosstalk" Capability
(Included in SDAIII-Crosstalk and SDAIII-CrossLinQ Options)

In addition to all SDAIII capabilities, "Crosstalk" options add the following noise and crosstalk measurements and analysis tools:

- Total, Random and Deterministic noise (Tn, Rn, Dn) measurements
- Breakdown of Dn into InterSymbol Interference noise (ISIn) and Periodic noise (Pn)
- Noise-based eye height and width: EH(BER) and EW(BER)
- Random noise (Rn) + Bounded Uncorrelated noise (BUn) Noise Histogram
- Q-fit for Noise Histogram
- Rn+BUn Noise Spectrum and Peak threshold
- Pn Inverse FFT Plot
- Rn+BUn Noise Track
- Crosstalk Eye Contour Plot

SDAIII-CompleteLinQ

The ultimate in serial data single or multi-lane link analysis. Provides all the capabilities mentioned above in SDAIII, "LinQ", and "Crosstalk", and also includes EyeDrII and Virtual Probe capabilities.

Eye Doctor II Advanced Signal Integrity Tools (WM8Zi-EYEDRII)

Complete set of channel emulation, de-embedding and receiver equalization simulation tools. Provides capability to emulate a serial data link, de-embed or embed a fixture, cable or serial data channel, add or remove emphasis, and perform CTLE, FFE, or DFE equalization. If purchased with SDAIII, then capabilities are accessed from within the SDAIII-CompleteLinQ user interface framework.

Virtual Probe Signal Integrity Tools
(WM8Zi-VIRTUALPROBE)

Provides ability to define a complex serial data channel or topology with up to six circuit elements that may be embedded or de-embedded, allowing "probing" at a location different than the measured position. If purchased with SDAIII and EyeDrII (or with the EYEDRII-VP or CompleteLinQ options), then capabilities are accessed from within the single SDAIII-CompleteLinQ user interface framework.

Software Options (cont'd)

Clock and Clock-Data Timing Jitter Analysis Package (WM8Zi-JITKIT)

Provides convenient setup and four views of jitter (statistical, time, spectrum, and overlaid) for a variety of horizontal, amplitude, and timing parameters. Direct display of jitter measurement values. Supports multiple simultaneous views with fast selection of multiple parameter measurements for fast and easy validation.

Cable De-embedding (WM8Zi-CBL-DE-EMBED)
(Standard on SDA 8 Zi-B and DDA 8 Zi-B)

Removes cable effects from your measurements. Simply enter the S-parameters or attenuation data of the cable(s) then all of the functionality of the SDA 8 Zi can be utilized with cable effects de-embedded.

8b/10b Decode (WM8Zi-8B10B D)
(Standard on SDA 8 Zi-B and DDA 8 Zi-B)

Intuitive, color-coded serial decode with powerful search capability enables captured waveforms to be searched for user-defined sequences of symbols. Multi-lane analysis decodes up to four simultaneously captured lanes.

Spectrum Analyzer Mode (WM8Zi-SPECTRUM)

This package provides a new capability to navigate waveforms in the frequency domain using spectrum analyzer type controls. FFT capability added to include:

- Power averaging
- Power density
- Real and image components

- Freq domain parameters
- FFT on up to 128 Mpts

Disk Drive Measurements Package (WM8Zi-DDM2)
(Standard on DDA 8 Zi-B)

This package provides disk drive parameter measurements and related mathematical functions for performing disk drive WaveShape Analysis. Disk Drive Parameters are as follows:

- amplitude asymmetry
- local base
- local baseline separation
- local maximum
- local minimum
- local number
- local peak-peak
- local time between events
- local time between peaks
- local time between troughs
- local time at minimum
- local time at maximum
- local time peak-trough
- local time over threshold

- local time trough-peak
- local time under threshold
- narrow band phase
- narrow band power
- overwrite
- pulse width 50
- pulse width 50 −
- pulse width 50 +
- resolution
- track average amplitude
- track average amplitude −
- track average amplitude +
- auto-correlation s/n
- non-linear transition shift

ORDERING INFORMATION

Product Description	Product Code
WaveMaster 8 Zi-B Series Oscilloscopes	
4 GHz, 40 GS/s, 4ch, 32 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs	WaveMaster 804Zi-B
6 GHz, 40 GS/s, 4ch, 32 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs	WaveMaster 806Zi-B
8 GHz, 40 GS/s, 4ch, 32 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs	WaveMaster 808Zi-B
13 GHz, 40 GS/s, 4ch, 32 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs	WaveMaster 813Zi-B
16 GHz, 80 GS/s, 64 Mpts/Ch DSO with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs. Also operates in 4ch, 40 GS/s, 32 Mpts/Ch mode.	WaveMaster 816Zi-B
20 GHz, 80 GS/s, 64 Mpts/Ch DSO with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs. Also operates in 4ch, 40 GS/s, 32 Mpts/Ch mode.	WaveMaster 820Zi-B
25 GHz, 80 GS/s, 64 Mpts/Ch Digital Bandwidth Interleaved (DBI) Oscilloscope with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs. Also operates in 20 GHz, 40 GS/s, 4ch, 32 Mpts/Ch mode.	WaveMaster 825Zi-B
30 GHz, 80 GS/s, 64 Mpts/Ch Digital Bandwidth Interleaved (DBI) Oscilloscope with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs. Also operates in 20 GHz, 40 GS/s, 4ch, 32 Mpts/Ch mode.	WaveMaster 830Zi-B
SDA 8 Zi-B Series Serial Data Analyzers	
4 GHz, 40 GS/s, 4ch, 64 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs, 6.5 Gb/s Serial Trigger, 8b/10b and 64b/66b decode.	SDA 804Zi-B
6 GHz, 40 GS/s, 4ch, 64 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs, 6.5 Gb/s Serial Trigger, 8b/10b and 64b/66b decode.	SDA 806Zi-B
8 GHz, 40 GS/s, 4ch, 64 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs, 6.5 Gb/s Serial Trigger, 8b/10b and 64b/66b decode.	SDA 808Zi-B
13 GHz, 40 GS/s, 4ch, 64 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs, 6.5 Gb/s Serial Trigger, 8b/10b and 64b/66b decode.	SDA 813Zi-B
16 GHz, 80 GS/s, 128 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs, 6.5 Gb/s Serial Trigger, 8b/10b and 64b/66b decode. Also operates in 4ch, 40 GS/s, 64 Mpts/Ch mode.	SDA 816Zi-B
20 GHz, 80 GS/s, 128 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs, 6.5 Gb/s Serial Trigger, 8b/10b and 64b/66b decode. Also operates in 4ch, 40 GS/s, 64 Mpts/Ch mode.	SDA 820Zi-B
25 GHz, 80 GS/s, 128 Mpts/Ch Digital Bandwidth Interleaved (DBI) Serial Data Analyzer - 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs, 6.5 Gb/s Serial Trigger, and 8b/10b and 64b/66b decode. Also operates in 20 GHz, 40 GS/s, 4ch, 64 Mpts/Ch mode.	SDA 825Zi-B
30 GHz, 80 GS/s, 128 Mpts/Ch Digital Bandwidth Interleaved (DBI) Serial Data Analyzer - 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs, 6.5 Gb/s Serial Trigger, and 8b/10b and 64b/66b decode. Also operates in 20 GHz, 40 GS/s, 4ch, 64 Mpts/Ch mode.	SDA 830Zi-B
DDA 8 Zi-B Series Oscilloscopes	
6 GHz, 40 GS/s, 4ch, 64 Mpts/Ch Disk Drive Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs.	DDA 806Zi-B
8 GHz, 40 GS/s, 4ch, 64 Mpts/Ch Disk Drive Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs.	DDA 808Zi-B
20 GHz, 80 GS/s, 128 Mpts/Ch Disk Drive Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Inputs. Also operates in 4ch, 40 GS/s, 64 Mpts/Ch mode.	DDA 820Zi-B

Product Description	Product Code
Included with Standard Configuration	
÷10, 500 MHz Passive Probe (Qty. 4 on 4 – 20 GHz units, Qty. 2 on 25 – 45 GHz units))	
ProLink to SMA Adapter: 4 each (for 4 – 8 GHz units)	LPA-SMA-A
ProLink to K/2.92 mm Adapter: 4 each (for 13 – 45 GHz units)	LPA-K-A
Optical 3-button Wheel Mouse, USB 2.0	
Protective Front Cover	
Printed Getting Started Manual	
Anti-virus Software (Trial Version)	
Microsoft Windows 7 License	
Commercial NIST Traceable Calibration with Certificate	
Power Cable for the Destination Country	
3-year Warranty	
Memory and Sample Rate Options	
80 GS/s on 2 Ch Sampling Rate Option for WaveMaster 8 Zi-B (not available for 816Zi-B, 820Zi-B, 825Zi-B or 830Zi-B). Includes two separate external interleaving devices with storage case	WM8Zi-2X80GS
32 Mpts/Ch Standard Memory for WaveMaster 8 Zi-B. Includes 8 GB of RAM	WM8Zi-STD
64 Mpts/Ch Standard Memory for SDA 8 Zi-B Includes 8 GB of RAM	SDA8Zi-STD
64 Mpts/Ch Memory Option for WaveMaster 8 Zi-B	WM8Zi-M-64
128 Mpts/Ch Memory Option for WaveMaster 8 Zi-B	WM8Zi-L-128
128 Mpts/Ch Memory Option for SDA 8 Zi-B	SDA8Zi-L-128
256 Mpts/Ch Memory Option for WaveMaster 8 Zi-B	WM8Zi-VL-256
256 Mpts/Ch Memory Option for SDA 8 Zi-B	SDA8Zi-VL-256
256 Mpts/Ch Memory Option for DDA 8 Zi-B	DDA8Zi-VL-256
CPU, Computer and Other Hardware Options	
GPIB Option for Teledyne LeCroy Oscilloscope. Half-height Card	GPIB-4
8 GB to 16 GB CPU RAM Option	WM8Zi-8-UPG-16GBRAM
8 GB to 32 GB CPU RAM Option	WM8Zi-8-UPG-32GBRAM
Serial Data and CrossTalk Analysis	
Complete Multi-Lane SDA LinQ Framework, including Eye, Jitter, Noise, Crosstalk Measurements, with EyeDrII and VirtualProbe	WM8Zi-SDAIII-CompleteLinQ SDA8Zi-CompleteLinQ DDA8Zi-CompleteLinQ
Multi-Lane Serial Data Analysis LinQ Framework, Eye, Jitter, Noise and Crosstalk Measurements	WM8Zi-SDAIII-CrossLinQ SDA8Zi-CrossLinQ DDA8Zi-CrossLinQ
Multi-Lane Serial Data Analysis LinQ Framework, Eye and Jitter Measurements	WM8Zi-SDAIII-LinQ SDA8Zi-LinQ DDA8Zi-LinQ
Single-Lane Serial Data Analysis Framework, Eye, Jitter, Noise and Crosstalk Measurements	WM8Zi-SDAIII-Crosstalk SDA8Zi-Crosstalk DDA8Zi-Crosstalk
Single-Lane Serial Data Analysis Framework, Eye and Jitter Measurements	WM8Zi-SDAIII
PAM4 Signal Analysis	WM8Zi-PAM4
Signal Integrity Toolkits	
Advanced De-embedding, Emulation and Virtual Probing Toolkit	WM8Zi-VIRTUALPROBE
Signal Integrity Toolkit - Channel & Fixture De-embedding/Emulation, Tx/Rx Equalization	WM8Zi-EYEDRII
Bundle - EyeDrII and VirtualProbe Toolkits	WM8Zi-EYEDRII-VP
Cable De-embed Option	WM8Zi-CBL-DE-EMBED
Modulated Signal Analysis	
VectorLinQ – Flexible vector signal analysis for electrical signals (RF and baseband I-Q)	WM8Zi-VECTORLINQ
Optical-LinQ – Coherent optical modulation analysis	WM8Zi-OPTICAL-LINQ

ORDERING INFORMATION

Product Description	Product Code

High-speed Digital Analyzer Systems

Product Description	Product Code
12.5 GS/s High-speed Digital Analyzer with 18ch QuickLink leadset and LBUS connection	HDA125-18-LBUS
12.5 GS/s High-speed Digital Analyzer with 9ch QuickLink leadset and LBUS connection	HDA125-09-LBUS

DDR Debug Tookits

Product Description	Product Code
DDR2 and LPDDR2 Debug Toolkit	WM8ZI-DDR2-TOOLKIT
DDR3, DDR3L, LPDDR3, DDR2, and LPDDR2 Debug Toolkit	WM8ZI-DDR3-TOOLKIT
DDR4, DDR3, DDR3L, LPDDR3, DDR2, and LPDDR2 Debug Toolkit	WM8ZI-DDR4-TOOLKIT
DDR3, DDR3L, LPDDR3, DDR2, and LPDDR2 Debug Toolkit Upgrade	WM8ZI-UPG-DDR3-TOOLKIT
DDR4, DDR3, DDR3L, LPDDR3, DDR2, and LPDDR2 Debug Toolkit Upgrade	WM8ZI-UPG-DDR4-TOOLKIT

Serial Data Compliance

Product Description	Product Code
QualiPHY Enabled 10GBase-KR Software Option	QPHY-10GBase-KR
QualiPHY Enabled 10GBase-T Software Option	QPHY-10GBASE-T
QualiPHY Enabled BroadR-Reach Software Option	QPHY-BroadR-Reach
QualiPHY Enabled DDR2 Software Option	QPHY-DDR2
QualiPHY Enabled DDR3 Software Option	QPHY-DDR3
QualiPHY Enabled DDR4 Software Option	QPHY-DDR4
QualiPHY Enabled DisplayPort Software Option	QPHY-DisplayPort
QualiPHY Enabled Embedded DisplayPort Software Option	QPHY-eDP
QualiPHY Enabled Ethernet 10/100/1000BT Software Option	QPHY-ENET*
QualiPHY Enabled HDMI 1.4 and HDMI 2 Software Option	QPHY-HDMI2
QualiPHY Enabled LPDDR2 Software Option	QPHY-LPDDR2
QualiPHY Enabled MIPI D-PHY Software Option	QPHY-MIPI-DPHY
QualiPHY Enabled MIPI M-PHY Software Option	QPHY-MIPI-MPHY
QualiPHY Enabled MOST50 ePHY Software Option	QPHY-MOST50
QualiPHY Enabled MOST150 oPHY Software Option	QPHY-MOST150
QualiPHY Enabled PCIe 3.0 Software Option	QPHY-PCIe3
QualiPHY Enabled PCIe Gen1 Software Option	QPHY-PCIe
QualiPHY Enabled SATA Software Option	QPHY-SATA-TSG-RSG
QualiPHY Enabled SAS-2 Software Option	QPHY-SAS2
QualiPHY Enabled SAS-3 Software Option	QPHY-SAS3
QualiPHY Enabled SFI Software Option	QPHY-SFI
QualiPHY Enabled USB 2.0 Software Option	QPHY-USB‡
QualiPHY Enabled USB 3.0 Transmitter/ Receiver Compliance Software Option	QPHY-USB3-Tx-Rx
QualiPHY Enabled USB 3.1 Transmitter/ Receiver Compliance Software Option	QPHY-USB3.1-Tx-Rx

*TF-ENET-B required. †TF-HDMI-3.3V-QUADPAK required. ‡TF-USB-B required.
PCI Express, SuperSpeed USB (USB 3.0) and SATA Complete Hardware/Software Test Solutions are available. Consult Factory.

Serial Data Test Fixtures

Product Description	Product Code
Test Fixture for 10GBase-T	TF-10GBASE-T
10/100/1000Base-T Ethernet Test Fixture	TF-ENET-B*
Telecom Adapter Kit 100 Ω Bal., 120 Ω Bal., 75 Ω Unbal.	TF-ET
HDMI 50Ω Pull-Up Terminator	TF-HDMI-3.3V
HDMI Pull-Up Terminator Quad Pack	TF-HDMI-3.3V-QUADPAK
SATA 1.5 Gb/s, 3.0 Gb/s and 6.0 Gb/s Compliance Test Fixture	TF-SATA-C
SATA 1.5 Gb/s, 3.0 Gb/s and 6.0 Gb/s Compliance Test Fixture Measure Kit	TF-SATA-C-KIT
USB 2.0 Compliance Test Fixture	TF-USB-B
USB 3.0 and 3.1 Compliance Test Fixture	TF-USB3
2 x BNC to SMA Adapter	ENET-2ADA-BNCSMA
2 x 18 inch SMA to SMA Cable	ENET-2CAB-SMA018
2 x 36 inch SMA to SMA Cable	ENET-2CAB-SMA036
100 ps Rise Time Filter	RISE-TIME-FILTER-100PS
150 ps Rise Time Filter	RISE-TIME-FILTER-150PS
20 dB SMA Attenuators	20DB-SMA-ATTENUATOR

*Includes ENET-2CAB-SMA018 and ENET-2ADA-BNCSMA

Serial Data Triggers and Decoders

Product Description	Product Code
MIL-STD-1553 Trigger and Decode Option	WM8Zi-1553 TD
MIL-STD-1553 Trigger, Decode, Measure/Graph, and Eye Diagram Option	WM8Zi-1553 TDME
64b/66b Decode Annotation Option	WM8Zi-64b66b D
80-bit NRZ, 8b/10b, and 64b/66b 14.1 Gbps Serial Trigger option. Also includes 8b/10b and 64b/66b decode.	WM8Zi-14GBIT-80b-SYMBOL-TD SDA8Zi-UPG-14GBIT-80b-SYMBOL-TD
80-bit NRZ, 8b/10b, and 64b/66b 6.5 Gbps Serial Trigger option. Also includes 8b/10b and 64b/66b decode. (Standard on SDA 8 Zi-B.)	WM8Zi-6GBIT-80b-SYMBOL-TD
8b10b Decode Option	WM8Zi-8B10B D
ARINC 429 Bus Symbolic Decode, Measure/Graph, and Eye Diagram Option	WM8Zi-ARINC429BUS DME SYMBOLIC
ARINC 429 Bus Symbolic Decode Option	WM8Zi-ARINCbus DSYMBOLIC
Audiobus Trigger and Decode for I2S, Option LJ, RJ, and TDM	WM8Zi-Audiobus TD
Audiobus Trigger, Decode, and Graph Option for I2S, LJ, RJ, and TDM	WM8Zi-Audiobus TDG
CANbus FD Trigger and Decode Option	WM8Zi-CAN FDbus TD
CAN FD Symbolic Trigger, Decode, and Measure/Graph Option	WM8Zi-CAN FDbus TDM SYMBOLIC
CAN FD Trigger, Decode, Measure/Graph, and Eye Diagram Option	WM8Zi-CAN FDBUS TDME
CAN FD Symbolic Trigger, Decode, and Measure/Graph, and Eye Diagram Option	WM8Zi-CAN FDBUS TDME SYMBOLIC
CANbus TD Trigger and Decode Option	WM8Zi-CANbus TD
CAN Trigger, Decode, Measure/Graph, and Eye Diagram Option	WM8Zi-CANBUS TDME
CAN Symbolic Trigger, Decode, and Measure/Graph, and Eye Diagram Option	WM8Zi-CANBUS TDME SYMBOLIC
DigRF 3G Decode Option	WM8Zi-DigRF3Gbus D
DigRF v4 Decode Option	WM8Zi-DigRFv4bus D
MIPI D-PHY Decode Option	WM8Zi-DPHYbus D
MIPI D-PHY Decode and Physical Layer Test Option	WM8Zi-DPHYbus DP
I2C, SPI, UART-RS232 Trigger and Decode Bundle	WM8Zi-EMB TD
I2C, SPI, UART-RS232 Trigger, Decode, Measure/Graph, and Eye Diagram Bundle	WM8Zi-EMB TDME
Ethernet 10G Decode Option	WM8Zi-ENET10Gbus D
ENET Decode Option	WM8Zi-ENETbus D
Fibre Channel Decode Annotation Option	WM8Zi-FCbus D
FlexRay Trigger and Decode Option	WM8Zi-FlexRaybus TD
FlexRay Trigger, Decode, Measure/Graph and Physical Layer Option	WM8Zi-FLEXRAYBUS TDMP
I2C Bus Trigger and Decode Option	WM8Zi-I2Cbus TD
I2C Trigger, Decode, Measure/Graph, and Eye Diagram Option	WM8Zi-I2CBUS TDME
LIN Trigger and Decode Option	WM8Zi-LINbus TD
LIN Trigger, Decode, Measure/Graph, and Eye Diagram Option	WM8Zi-LINBUS TDME
Manchester Decode Option	WM8Zi-Manchesterbus D
MIPI M-PHY Decode Option	WM8Zi-MPHYbus D
MIPI M-PHY Decode and Physical Layer Test Option	WM8Zi-MPHYbus DP
MS-500-36 with I2C, SPI, UART and RS-232 Trigger and Decodes Bundle	WM8Zi-MSO-EMB TD
MS-500-36 with I2C, SPI, UART-RS-232 Trig, Decode, Measure/Graph and Eye Bundle	WM8Zi-MSO-EMB TDME
PCI Express Gen1 Decode Option	WM8Zi-PCIebus D
PROTObus MAG Serial Debug Toolkit	WM8Zi-PROTObus MAG
Decode Annotation and Protocol Analyzer Synchronization Software Option	WM8Zi-ProtoSync
Decode Annotation and Protocol Analyzer+Bit Tracer SW Synchronization Option	WM8Zi-PROTOSYNC-BT
SAS Decode Annotation Option	WM8Zi-SASbus D
SATA Decode Annotation Option	WM8Zi-SATAbus D
SENT Bus Decode Option	WM8Zi-SENTbus D
SpaceWire Decode Option	WM8Zi-SpaceWirebus D
SPI Bus Trigger and Decode Option†	WM8Zi-SPIbus TD
SPI Trigger, Decode, Measure/Graph, and Eye Diagram Option	WM8Zi-SPIBUS TDME

Product Description	Product Code

Serial Data Triggers and Decoders

SPMI Decode Option	WM8Zi-SPMIbus D
UART and RS-232 Trigger and Decode Option	WM8Zi-UART-RS232bus TD
UART-RS232 Trigger, Decode, Measure/Graph, and Eye Diagram Option	WM8Zi-UART-RS232BUS TDME
MIPI UniPro Protocol Decoder	WM8Zi-UNIPRObus D
USB2-HSIC Decode Option	WM8Zi-USB2-HSICbus D
USB 2.0 Decode Option	WM8Zi-USB2bus D
USB 2.0 Decode, Measure/Graph, and Eye Diagram Option	WM8ZI-USB2BUS DME
USB 3.0 Decode Annotation Option	WM8Zi-USB3bus D

High-speed Digitizer Output

High-speed PCIe Gen1 x4 Digitizer Output	LSIB-1
PCI Express x1 Host Interface Board for Desktop PC	LSIB-HOSTBOARD
PCI Express x1 Express Card Host Interface for Laptop Express Card Slot	LSIB-HOSTCARD
PCI Express x4 3-meter Cable with x4 Cable Connectors Included	LSIB-CABLE-3M
PCI Express x4 7-meter Cable with x4 Cable Connectors Included	LSIB-CABLE-7M

Mixed Signal Testing Options

500 MHz, 2 GS/s, 18 Ch, 50 Mpts/Ch Mixed Signal Oscilloscope Option	MS-500
250 MHz, 1 GS/s, 36 Ch, 25 Mpts/Ch (500 MHz, 18 Ch, 2 GS/s, 50 Mpts/Ch Interleaved) Mixed Signal Oscilloscope Option	MS-500-36
250 MHz, 1 GS/s, 18 Ch, 10 Mpts/Ch Mixed Signal Oscilloscope Option	MS-250

General Purpose and Application Specific Software Options

Spectrum Analysis Option	WM8Zi-SPECTRUM
Coherent Optical Analysis Software	WM8ZI-OPTICAL-LINQ
Digital Filter Software Package	WM8Zi-DFP2
Serial Data Mask Software Package	WM8Zi-SDM
Disk Drive Measurements Software Package	WM8Zi-DDM2
Disk Drive Analyzer Software Package	WM8Zi-DDA
Advanced Optical Recording Measurement Package	WM8Zi-BORM
Electrical Telecom Mask Test Software Package	WM8Zi-ET-PMT
EMC Pulse Parameter Software Package	WM8Zi-EMC
Power Analysis Option	WM8Zi-PWR
Clock Jitter Analysis with Four Views Software Package	WM8Zi-JITKIT

General Accessories

Keyboard, USB	KYBD-1
Probe Deskew and Calibration Test Fixture	TF-DSQ
Hard Carrying Case	WM8Zi-HARDCASE
Soft Carrying Case	WM8Zi-SOFTCASE
Rackmount Accessory for WM8Zi	WM8Zi-RACKMOUNT
ProLink to SMA Adapter	LPA-SMA-A
Kit of ProLink to SMA Adapters	LPA-SMA-KIT-A
ProLink to K/2.92 mm Adapter	LPA-K-A
Kit of ProLink to K/2.92 mm Adapters	LPA-K-KIT-A
Oscilloscope Cart with Additional Shelf and Drawer	OC1024-A
Oscilloscope Cart	OC1021-A

Product Description	Product Code

Probes and Probe Accessories

High Voltage Fiber Optic Probe, 60 MHz Bandwidth.	HVFO103
Power/Voltage Rail Probe. 4 GHz bandwidth, 1.2x attenuation, +/-30V offset, +/-800mV	RP4030
1.0 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS1000
1.5 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS1500
2.5 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS2500
4.0 GHz, 0.6 pF, 1 MΩ High Impedance Active Probe	ZS4000
200 MHz, 3.5 pF, 1 MΩ Active Differential Probe	ZD200
25 MHz High Voltage Differential Probe	HVD3102
1kV, 25 MHz High Voltage Differential Probe without tip Accessories	HVD3102-NOACC
120 MHz High Voltage Differential Probe	HVD3106
1kV, 120 MHz High Voltage Differential Probe without tip Accessories	HVD3106-NOACC
80 MHz, High Voltage Differential Probe with 6m cable	HVD3106-6M
2kV, 120 MHz High Voltage Differential Probe	HVD3206
2kV, 80 MHz High Voltage Differential Probe with 6m cable	HVD3206-6M
6kV, 100 MHz High Voltage Differential Probe	HVD3605
500 MHz, 1.0 pF Active Differential Probe, ±8 V	ZD500
1 GHz, 1.0 pF Active Differential Probe, ±8 V	ZD1000
1.5 GHz, 1.0 pF Active Differential Probe, ±8 V	ZD1500
WaveLink 4 GHz 2.5 Vp-p Differential Probe System	D410-A-PS
WaveLink 4 GHz 5 Vp-p Differential Probe System	D420-A-PS
WaveLink 6 GHz 2.5 Vp-p Differential Probe System	D610-A-PS
WaveLink 6 GHz 5 Vp-p Differential Probe System	D620-A-PS
WaveLink 8 GHz 3.5Vp-p Differential Probe System	D830-PS
WaveLink 10 GHz 3.5Vp-p Differential Probe System	D1030-PS
WaveLink 13 GHz 3.5Vp-p Differential Probe System	D1330-PS
WaveLink 13 GHz, 2.0 Vp-p Differential Probe System	D1305-A-PS
WaveLink 16 GHz, 2.0 Vp-p Differential Probe System	D1605-A-PS
WaveLink 20 GHz, 2.0Vp-p Differential Probe System	D2005-A-PS
WaveLink 25 GHz, 2.0 Vp-p Differential Probe System	D2505-A-PS
WaveLink 4 GHz Differential Amplifier Module with Adjustable Tip	D400A-AT†
WaveLink 6 GHz Differential Amplifier Module with Adjustable Tip	D600A-AT*
WaveLink ProLink Platform/Cable Assembly (4 – 6 GHz)	WL-PLink-CASE
WaveLink ProBus Platform/Cable Assembly (4 GHz)	WL-PBus-CASE
SMA/SMP Lead Set for Dxx30 Probes	Dxx30-SMA-SMP Leads
Optical-to-Electrical Converter, DC to 9.5 GHz, 785 to 1550 nm	OE695G
Optical-to-Electrical Converter, DC to 36 GHz, 830 to 1600nm	OE6250G-M
7.5 GHz Low Capacitance Passive Probe (÷10, 1 kΩ; ÷20, 500 Ω)	PP066
TekProbe to ProBus Probe Adapter	TPA10

* For a complete probe, order a WL-PLink-CASE Platform/Cable Assembly with the Adjustable Tip Module.

† For a complete probe, order a WL-PBUS-CASE Platform/Cable Assembly with the Adjustable Tip Module

A variety of other active voltage and current probes are also available. Consult Teledyne LeCroy for more information.

Customer Service

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

This warranty includes:

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

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1-800-5-LeCroy
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