

WaveMaster 8 Zi-A Oscilloscopes

4 GHz–30 GHz



Key Features

- Up to 30 GHz bandwidth and 80 GS/s sample rate
- The industry's only true hardware 14.1 Gb/s serial 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
- Integrated standard and custom measurements and math functions for unrivaled analysis capability
- Multi-lane serial data eye, jitter and crosstalk analysis
- Real-time de-embedding, emulation, and equalization

The WaveMaster 8Zi-A oscilloscope provides the performance, signal fidelity and feature set needed for today's high-speed measurements. With the highest-speed serial data triggers, the only complete multi-lane serial data measurement and eye diagram solution, and the most comprehensive set of compliance packages, the WaveMaster 8Zi-A simplifies the most complex testing.

Exceptional Performance

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

Powerful, Fast Waveform Processing

The powerful PC built on a 2.6 GHz quad core processor with up to 32 GB of RAM, combined with the Teledyne LeCroy X-Stream II streaming architecture, enables fast waveform processing even when doing the most advanced analysis. User-defined mathematical functions and measurements are available natively, or through seamless integration with external environments such as MATLAB.

Complete Characterization, Compliance testing and Debug

The WaveMaster 8Zi-A provides the most powerful set of waveform analysis tools. SDAIII-CompleteLinQ Serial Data and Crosstalk Analysis software can simultaneously display four eye diagrams and calculate Tj, Rj and Dj decomposition on four signals. EyeDrII and Virtual Probing toolsets analyze lane interactions using S-parameter files. Crosstalk analysis tools provide ability to measure vertical amplitude noise, decompose into Tn, Rn and Dn, and determine root cause of noise. QualiPHY software simplifies and automates compliance testing and report generation for a wide range of serial data standards.

THE MOST CAPABLE HARDWARE PLATFORM

The WaveMaster 8Zi-A 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
- Bandwidth upgrade capability from 4 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 symbol triggering, and 64b/66b symbol triggering, at up to 14.1 Gb/s
 - 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-A models, upgradeable to 14.1 Gb/s. Either serial trigger may be added to WaveMaster 8 Zi-A and DDA 8 Zi-A models.
- The WaveMaster 8 Zi-A is the only high-bandwidth oscilloscope to support both 50 Ω and 1 M Ω inputs on the same instrument without the use of cumbersome external adapters.
- An exceptionally accurate and stable timebase (100fs (rms) timebase jitter) provides the best possible jitter measurement accuracy.



SUPERIOR ANALYSIS AND INSIGHT



The WaveMaster 830ZI-A's 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.

- Deepest toolbox with more measurements, more math, more power
- Intel® Core™ i7-2600 Quad-core, 2.6 GHz (per core, up to 3.8 GHz in Turbo mode) CPU with 8 GB of RAM (upgradeable to 32 GB)
- 15.3" widescreen (16 x 9) high resolution WXGA color touch screen display – 25% larger than 12.1" displays
- 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

COMPLETE SERIAL DATA SOLUTIONS

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
- DDR2, LPDDR2, DDR3, LPDDR3, DDR4
- SAS2, SAS3, SATA
- MIPI D-PHY
- 10/100/100 BASE-T, 10GBASE-T, 10GBASE-KR, SFI
- HDMI 1.4, DisplayPort 1.2
- MOST50, MOST150, BroadR-Reach



Verifying DDR memory operation using an SDA8Zi-A and the DDR Debut Toolkit software package.



The SDA8Zi-A is configured specifically for testing serial data signals. With high-speed serial triggering capability and the most comprehensive analysis software, the SDA8Zi-A 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-A 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 the 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-A is the basis of the most complete PCI Express test solution:

- Automated transmitter and receiver compliance testing using QualiPHY.
- The only solution for Link Equalization testing (required for PCI-SIG compliance) using PeRT³ Phoenix.
- Debug using protocol-layer decode, SDAIII eye and jitter analysis, and PCIe-specific measurements.



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

Data Rate Configuration Chart

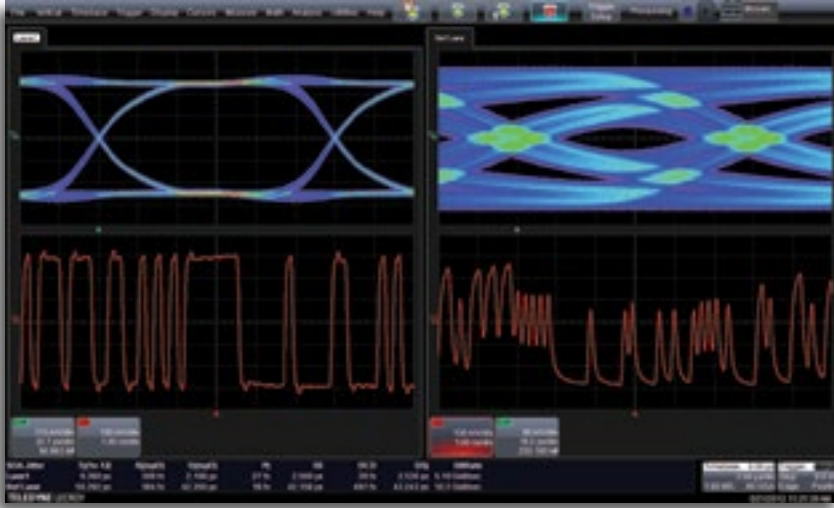
Standard	Bit Rate	Minimum Bandwidth	Recommended Oscilloscope
PCI Express Gen1	2.5 Gb/s	6 GHz	SDA 806Zi-A or Above
InfiniBand	2.5 Gb/s	8 GHz	SDA 808Zi-A or Above
Serial Rapid I/O	2.5 Gb/s		
DisplayPort 1.1	2.7 Gb/s		
SAS Gen1	3 Gb/s		
Serial Rapid I/O	3.125 Gb/s		
XAUI	3.125 Gb/s	10 GHz	
HDMI 1.4	3.4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

Receiver Testing

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 PeRT³ 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 PeRT³ and the SDA 8Zi-A represents the most complete serial data test system available.



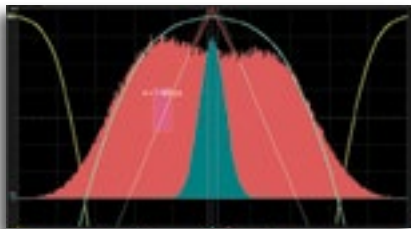
SDAIII-CompleteLinQ SERIAL DATA ANALYSIS PRODUCTS



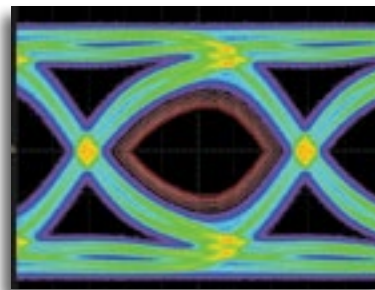
The Teledyne LeCroy SDAIII-CompleteLinQ Serial Data Analysis products contain multi-lane eye and jitter analysis, LaneScape™ comparison modes, vertical noise measurements, and crosstalk analysis tools. These capabilities provide the deepest insight into the behavior of multi- or single-lane serial data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

SDAIII Core Toolset

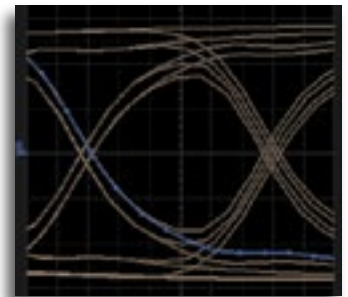
Teledyne LeCroy provides the most complete toolset in the industry for jitter measurements and eye diagram/jitter analysis. Rj and Dj are separated and Dj is decomposed using one of three dual-Dirac algorithms. Eye diagrams containing all acquired unit intervals are rendered 10-100x faster than competitive 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, such as Intersymbol Interference (ISI) measurements and plots, provide deep insight into Data Dependent Jitter (DDj) behavior.



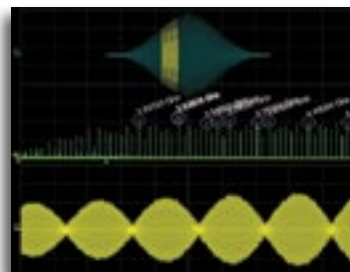
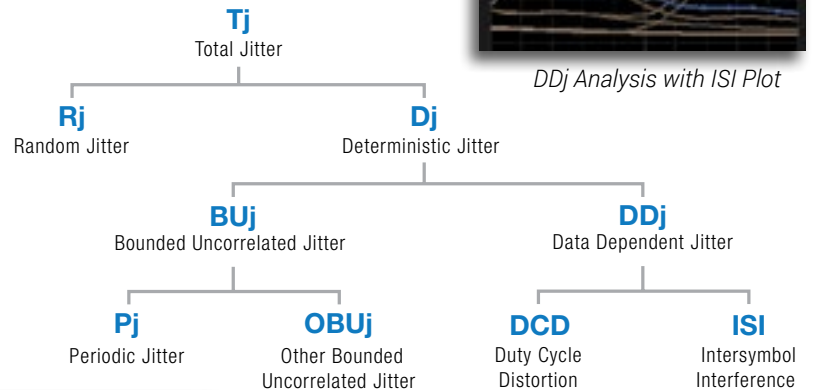
Rj+BUj Analysis



Eye with IsoBER



DDj Analysis with ISI Plot



Pj Analysis



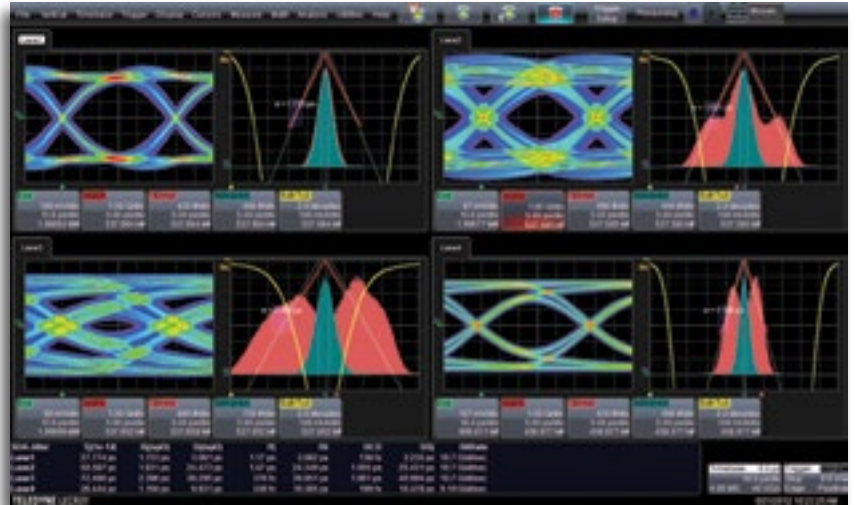
Three Jitter Methodologies

Choose from three dual-Dirac models to separate jitter into total, random and deterministic components (Tj, Rj, Dj). The Spectral Rj Direct method determines Rj directly from the jitter spectrum, and is the most used algorithm. Spectral Rj+Dj CDF Fit follows the FibreChannel MJSQ model. In situations where large amounts of crosstalk/BUj raise the spectral noise floor, the NQ-Scale method will provide more accurate separation of Rj and Dj, and therefore more accurate Tj results.

OPTIONAL SDAIII UPGRADES

Measure up to 4 Lanes Simultaneously

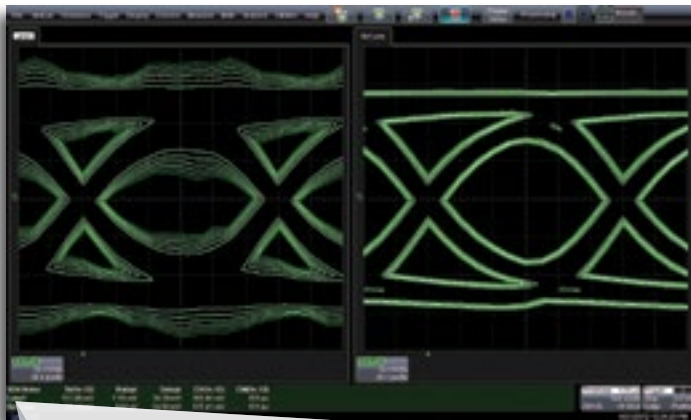
“LinQ” products provide extensive multi-lane analysis capabilities. Quickly understand lane-to-lane differences in jitter measurements, eye diagrams, and jitter analysis. Perform aggressor on/off analysis, and see the results from both scenarios simultaneously. Save the analysis of a particular scenario 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 lane (using probes or the VirtualProbe option).

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 (T_n), random (R_n) and deterministic (D_n) components, and further decompose D_n 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	$T_n(1e-12)$	$R_n(sp)$	$D_n(sp)$	$EH(1e-12)$	$EW(1e-12)$
Lane1	131.28 mV	7.18 mV	34.39 mV	105.04 mV	125 ps
Ref Lane	33.38 mV	646 μ V	24.93 mV	172.41 mV	131 ps

CompleteLinQ Does it All

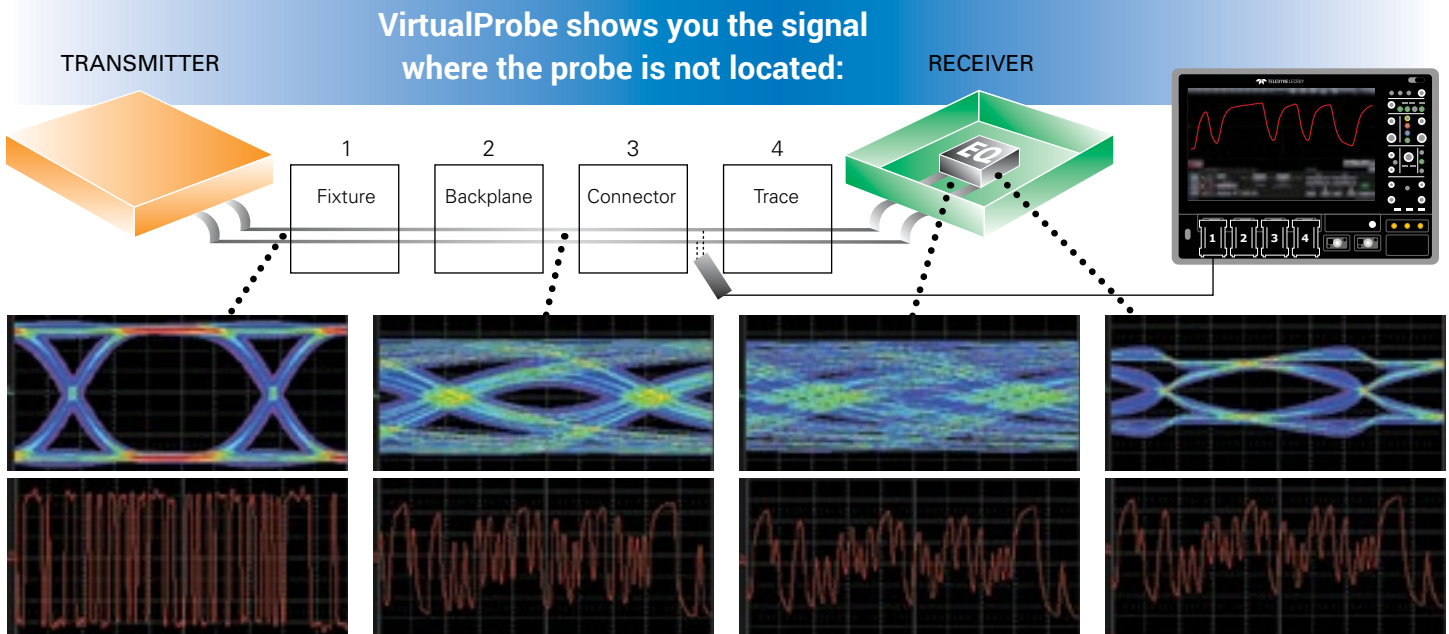
The CompleteLinQ user interface framework provides easy access to all features described above, and also integrates EyeDoctorII and VirtualProbe capabilities for Tx/Rx equalization and fixture/channel de-embedding/emulation. Order SDAIII-CompleteLinQ to equip your oscilloscope with all of Teledyne LeCroy's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



Learn More:
teledynelecroy.com/SDAIII

View our short introductory video:
<http://lcry.us/YB0qyY>





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

As signal speeds and data rates continue to rise, signal integrity effects such intersymbol interference (ISI) and crosstalk become more prevalent and challenging. Use Teledyne LeCroy's Advanced Signal Integrity tools to transform your measured signal to include the effects of de-embedding, emulation and equalization algorithms.

De-embed, Equalize and Emulate with EyeDoctorII

Curious to know what your signal would look like without fixture effects? Do you need to understand how ISI and crosstalk of a modeled channel will affect your jitter margin? Or are you seeking to determine which equalization schemes will do the best job of opening a closed eye? The EyeDoctorII package includes easy configuration of basic de-embed/emulation scenarios, CTLE, DFE and FFE equalizers, and transmitter emphasis/de-emphasis.

Advanced De-embedding, Emulation and Virtual Probing

The VirtualProbe package expands the de-embedding and emulation capabilities of EyeDoctorII. Configure a multi-block circuit using modeled S-parameters or measured with a Teledyne LeCroy SPARQ (or other VNA), and VirtualProbe will build the transfer function that returns 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 in order to de-embed or emulate fixtures or channels. Probe loading effects can also be removed. When used in conjunction with the Crosstalk, CrossLinQ or CompleteLinQ SDAIII options, crosstalk between lanes can be modeled using 8 and 12-port S-parameters. Use the Teledyne LeCroy SPARQ to measure these S-parameters at a fraction of the price of a VNA.

Use EyeDoctorII and VirtualProbe with SDAIII CompleteLinQ products

When using EyeDoctorII and VirtualProbe on oscilloscopes enabled within the SDAIII-CompleteLinQ products, configure de-embedding, emulation and equalization from the same simple flow-chart dialog as all other serial data analysis features. When enabled with the "LinQ" option to enable 4 lanes, users can configure EyeDoctorII and VirtualProbe configurations on each lane, facilitating rapid comparisons of different de-embedding and equalization setups.

Learn More

teledynelecroy.com/dl/1023

teledynelecroy.com/vid/M0T6WEC0JYQ

teledynelecroy.com/dl/1216

teledynelecroy.com/dl/1136

SPARQ SIGNAL INTEGRITY NETWORK ANALYZER

The SPARQ signal integrity network analyzers connect directly to the device under test (DUT) and to PC-based software through a single USB connection for quick, multi-port S-parameter measurements.

SPARQ is the ideal instrument for characterizing multi-port devices common in signal integrity applications at a fraction of the cost of traditional methods.

It is ideal for:

- Development of measurement-based simulation models
- Design validation
- Compliance testing
- High-performance TDR
- PCB testing
- Portable measurement requirements

High-bandwidth, Multi-port S-parameters for the Masses

S-parameter measurements are most often produced by the vector network analyzer (VNA), a difficult instrument that is beyond many



budgets. SPARQ is very affordable and simplifies measurements, making S-parameters accessible to all.

PC-based, Small and Portable

Traditional instruments that produce S-parameters are large and fundamentally stationary. The SPARQ, in contrast, is small and weighs less than 20 lbs. It connects to any standard PC through a USB 2.0 interface, allowing SPARQ to run where computing power is easily upgraded.

S-parameters, Quick

VNA measurements begin with the unpleasant and complex task of calibration. This involves multiple connections that can produce misleading results due to operator

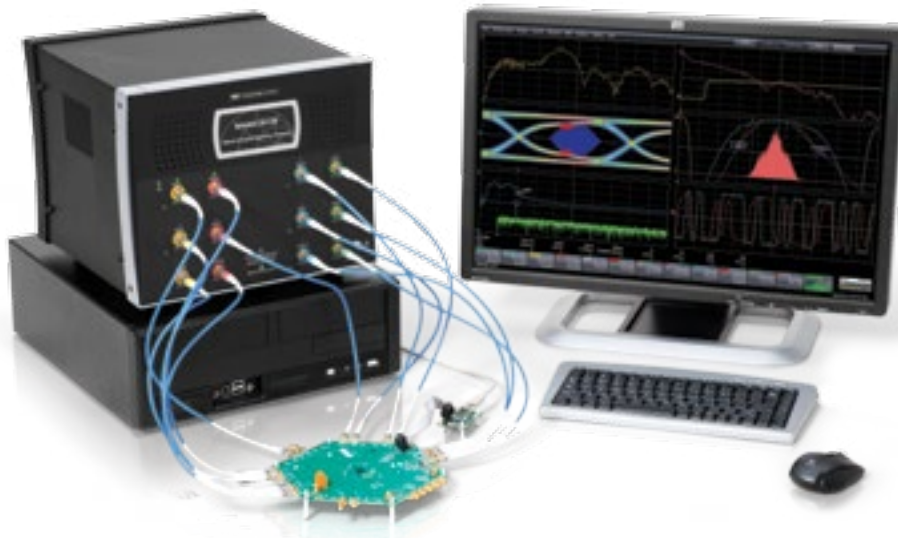
error. The SPARQ provides calibrated measurements with a single connection to the DUT and offers simple setup choices. Start and complete the entire measurement with a single button press.

Internal Calibration

SPARQ takes a revolutionary approach to calibration by building in calibration standards. This enables measurements to be made without multiple connection steps and removes the need for additional electronic calibration (ECAL) modules. Calibration proceeds quickly without user intervention, so one can calibrate often without resorting to the use of out-of-date saved calibrations.

Characterize Crosstalk with 8 and 12-port SPARQs

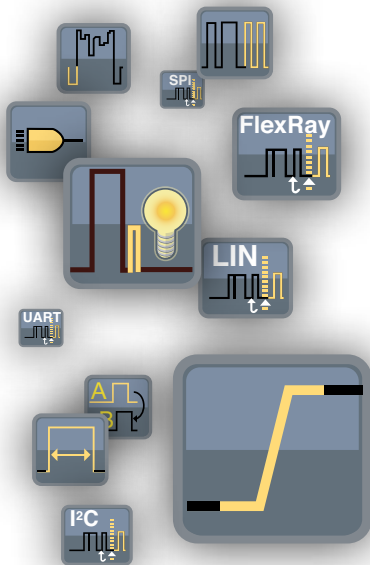
Don't just model crosstalk – measure it. With the 8 and 12 port SPARQs, characterize interconnects with two and three differential lanes in order to obtain S-parameters needed for simulations of aggressor/victim/aggressor topologies.



MOST COMPLETE DEBUG SOLUTION FROM 4 – 30 GHz



Capture 5 ms (100 Mpts) of low-speed and high-speed waveforms. Decode low and high speed serial data signals. Easily zoom, and validate timing relationships between signals.



15 GHz Edge Trigger

Complete System Debug

Understanding the relationships between different signals is vital to fast debug. Only WaveMaster 8 Zi-A combines the best of general purpose oscilloscopes (low-speed serial triggers and decoders, mixed signal capability, high impedance probing) with the power of a high-performance instrument. This makes it easy to correlate between low-speed (serial data control words, power supply noise, or parallel data transmissions) and high speed events.

More Trigger Capability Isolates More Problems More Quickly

15 GHz Edge trigger, up to 14.1 Gb/s true-hardware serial trigger available, ten different SMART triggers, four-stage Cascade™ triggering, Measurement trigger, and TriggerScan™ are all standard and allow you to isolate the problem quickly and begin to focus on the cause. A full range of protocol serial triggers (I²C, SPI, UART, RS-232, Audio (I²S, LJ, RJ, TDM), CAN, LIN, FlexRay, MIL-STD-1553 and many others) are also available.

Search and Scan to Understand

Search a captured waveform for hundreds of different measurement parameters or other conditions using WaveScan. Set complex conditions, view search results on the waveform and in a table, and quickly zoom and jump to an entry. “Scan” for events that can't be triggered in hardware.

Freedom from Probing Limitations

High bandwidth differential probes (up to 25 GHz), single-ended active probes, current probes, high-voltage, and mixed signals all connect to the WaveMaster 8 Zi-A oscilloscope and give you a total system view. All WaveMaster 8 Zi-A oscilloscopes contain selectable 50 Ω and 1 MΩ input capability and can be used with any Teledyne LeCroy probe – passive or active – without requiring external adapters or power supplies.

Application Specific Solutions

ProtoSync Solutions

ProtoSync links physical layer waveforms, data link layer decode annotation and table information, and full transaction layer protocol analysis together. By simply touching a decode table entry in the oscilloscope software or a packet in the protocol analysis software, all views are automatically synchronized and aligned for

quick and easy debug. ProtoSync supports PCIe Gen1/2/3, USB2/3, SATA, SAS, and Fibre Channel.

Serial Data Trigger/Decode and PROTObus MAG Serial Debug Toolkit

More than 19 trigger and decode options provide powerful conditional serial data

protocol triggering, intuitive color-coded decode overlays, and a table summary with search and zoom capabilities. Additionally, PROTObus MAG (measure, analysis, graph) Serial Debug Toolkit provides the ability to quickly validate and analyze serial data cause-effect relationships and plot digitally encoded data as an analog waveform.

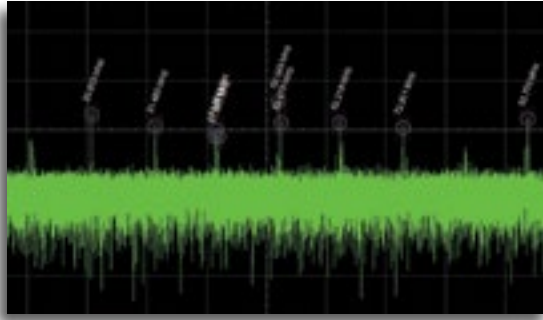
DEEP INSIGHT CLARIFIES COMPLEX SIGNALS

Customized Tools

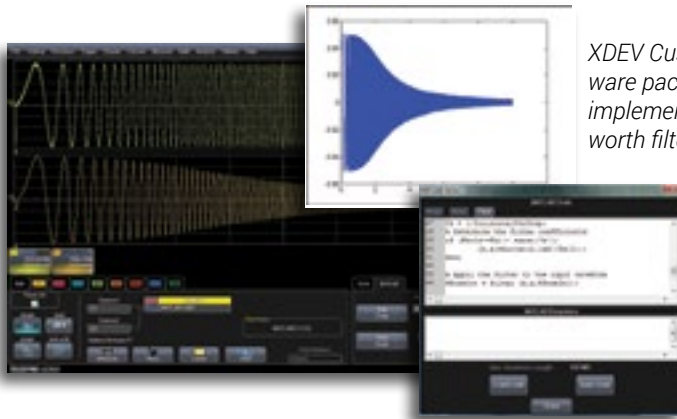
Only Teledyne LeCroy completely integrates third party programs into the scope's processing stream, allowing you to create and deploy a new measurement or math function directly into the oscilloscope environment and display the result on the oscilloscope in real-time. There is no need to run a separate program, or ever leave the oscilloscope window. Use C/C++, MATLAB, Excel, JScript (JAVA), and Visual Basic to create your own customized math functions and measurement parameters

Graphical Track, Trend, and Histogram Views

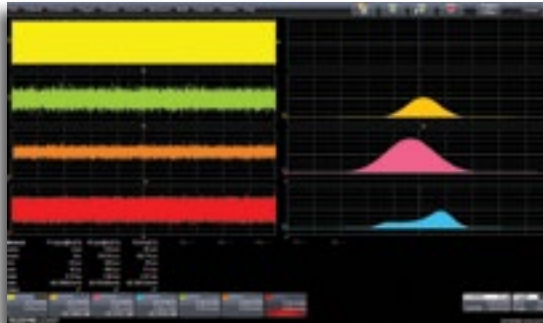
Track plots measurement values on the Y-axis and time on the X-axis to display a measurement change time-correlated to the original channel acquisition—perfect for intuitive understanding of behaviors in frequency modulated (FM) or pulse width modulated (PWM) circuits and jitter measurements, including modulation or spikes. Histograms provide a visual distribution representation of a large sample of measurements, allowing faster insight. Trends are ideal for plotting slow changes in measurement values.



X-Stream II fast throughput streaming architecture makes difficult analysis and deep insight possible. Here, an FFT is applied to a 50 Mpts waveform to determine root cause failure. The high frequency resolution this provides enables deep insight into signal pathologies.



XDEV Customization software package being used to implement a 1 MHz Butterworth filter using MATLAB®.



Capture a single clock channel (yellow) and simultaneously display Histograms and Track graphs of multiple jitter parameters.

Data Transfer Speeds up to 325 MB/s

Teledyne LeCroy's Serial Interface Bus (LSIB) option connects directly to the PCI Express® x4 high-speed data bus in the oscilloscope, enabling data transfer rates up to 325 MB/s—20–100x faster than other methods. All that is required is installation of an optional LSIB card in the oscilloscope and the corresponding host board (card)

in the remote desktop or laptop computer. Data transfer is easily enabled through a supplied application program interface (API).

Digital Filter Software Package (WM8Zi-DFP2)

Create and apply a variety of preset or user-defined FIR and IIR digital filters to your captured waveforms or processed traces.

Mixed Signal Oscilloscope Option (MS-250/MS-500)

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

HIGH BANDWIDTH PROBING SOLUTIONS

Ultra-wideband Architecture for Superior Signal Fidelity

Teledyne LeCroy's WaveLink® high bandwidth differential probes utilize advanced differential traveling wave (distributed) amplifier architecture to achieve superior high frequency analog broadband performance.

Highest Bandwidth (25 GHz) Solder-In Lead

Up to 25 GHz Solder-In performance with system (probe + oscilloscope) rise times equal to that of the oscilloscope alone.

Ultra-compact Positioner (Browser) Tip

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% with WaveLink high bandwidth probes compared to competitive probes. In the mid-band frequency range, the difference is even more apparent.

Superior Signal Fidelity and Lowest Noise

WaveLink has exceptional noise performance. In fact, the combination of the probe and the oscilloscope results in measurement performance that is nearly identical to that of a cable input.



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

	D1305-A, D1305-A-PS	D1605-A, D1605-A-PS	D2005-A, D2005-A-PS	D2505-A, 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			



Dxx30-PS Differential Probe Systems

Available in 8, 10, and 13 GHz, the Dxx30 models have an optional SMA/SMP lead set for attaching to the device under test (DUT). Additionally, solder-in, positioner (browser) tip, and square pin leads are available.

BROAD RANGE OF PROBING SOLUTIONS

WaveMaster 8 Zi-A oscilloscope 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 M Ω)
- 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 M Ω 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



WaveLink Low Bandwidth Differential Probes

- 4 and 6 GHz models
- Solder-In, Browser, Quick Connect, Square Pin, Positioner Tip 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, and SMA/SMP lead connection



Optical-to-Electrical Converter (OE695G)

- Frequency range DC to 9.5 GHz (electrical, -3 dB)
- Reference receiver support from 8GFC to 10GFC FEC, or Custom (<12.5 Gb/s)
- 62.5/125 μ m multi-mode or single-mode fiber input
- Broad wavelength range (750 to 1650 nm)
- +7 dBm (5 mW) max peak optical power
- Low noise (as low as 25 pW/vHz)



SPECIFICATIONS

Vertical System	WaveMaster 804Zi-A (SDA)	WaveMaster 806Zi-A (SDA)	WaveMaster 808Zi-A (SDA/DDA)	WaveMaster 813Zi-A (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 M Ω (-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 $\pm 2\%$ for ≤ 100 mV/div, 50 Ω $\pm 3\%$ for > 100 mV/div ProBus Inputs: 50 Ω $\pm 2\%$ or 1 M Ω 16 pF, 10 M Ω 11 pF with supplied Probe			
Input Coupling	ProLink Inputs: 50 Ω : DC, GND ProBus Inputs: 1 M Ω : 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-A (SDA)	WaveMaster 820Zi-A (SDA, DDA)	WaveMaster 825Zi-A (SDA)	WaveMaster 830Zi-A (SDA, DDA)
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 M Ω (-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	20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 13 GHz	20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 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 $\pm 2\%$ for ≤ 100 mV/div, 50 Ω $\pm 3\%$ for > 100 mV/div ProBus Inputs: 50 Ω $\pm 2\%$ or 1 M Ω 16 pF, 10 M Ω 11 pF with supplied Probe		2.92 mm Inputs: 50 Ω $\pm 2\%$ for ≤ 79 mV/div, 50 Ω $\pm 3\%$ for > 79 mV/div ProLink Inputs: 50 Ω $\pm 2\%$ for ≤ 100 mV/div, 50 Ω $\pm 3\%$ for > 100 mV/div ProBus Inputs: 50 Ω $\pm 2\%$ or 1 M Ω 16 pF, 10 M Ω 11 pF with supplied Probe	
Input Coupling	ProLink Inputs: 50 Ω : DC, GND ProBus Inputs: 1 M Ω : AC, DC, GND; 50 Ω : DC, GND		2.92 mm Inputs: 50 Ω : DC, GND ProLink Inputs: 50 Ω : DC, GND ProBus Inputs: 1 M Ω : 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)			

SPECIFICATIONS

Vertical System (cont'd)

	WaveMaster 804Zi-A (SDA)	WaveMaster 806Zi-A (SDA)	WaveMaster 808Zi-A (SDA/DDA)	WaveMaster 813Zi-A (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)	1.20 mV _{rms} (typical)	1.60 mV _{rms} (typical)	1.80 mV _{rms} (typical)	1.80 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	$\sqrt{2} * \sqrt{\left(\frac{\text{Noise}}{\text{SlewRate}}\right)^2 + (\text{Sample Clock Jitter}_{rms})^2 + (\text{clock accuracy} * \text{reading})}$			
Jitter Measurement Floor	$\sqrt{\left(\frac{\text{Noise}}{\text{SlewRate}}\right)^2 + (\text{Sample Clock Jitter}_{rms})^2}$			
Jitter Between Channels (TIE, typical, measured at maximum bandwidth)	<500 fsrms	<450 fsrms	<425 fsrms	<325 fsrms
Trigger and Interpolator Jitter	< 0.1 psrms (typical, software assisted), 2 psrms (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-A (SDA)	WaveMaster 820Zi-A (SDA, DDA)	WaveMaster 825Zi-A (SDA)	WaveMaster 830Zi-A (SDA, DDA)
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		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)	1.90 mV _{rms} (typical)	2.20 mV _{rms} (typical)	2.80 mV _{rms} (typical)	2.90 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	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 10 μs Acquired Time Range: 100 fsrms (Internal Timebase Reference) Up to 6.4ms Acquired Time Range: 150 fsrms (Internal Timebase Reference)			
Delta Time Measurement Accuracy	$\sqrt{2} * \sqrt{\left(\frac{\text{Noise}}{\text{SlewRate}}\right)^2 + (\text{Sample Clock Jitter}_{rms})^2 + (\text{clock accuracy} * \text{reading})}$			
Jitter Measurement Floor	$\sqrt{\left(\frac{\text{Noise}}{\text{SlewRate}}\right)^2 + (\text{Sample Clock Jitter}_{rms})^2}$			
Jitter Between Channels (TIE, typical, measured at maximum bandwidth)	<300 fsrms		<250 fsrms	
Trigger and Interpolator Jitter	< 0.1 psrms (typical, software assisted), 2 psrms (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-A (SDA)	WaveMaster 806Zi-A (SDA)	WaveMaster 808Zi-A (SDA/DDA)	WaveMaster 813Zi-A (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 μ s			
Maximum Acquisition Memory	256 Mpts/Ch			
Standard Memory	20 Mpts, 4,500 segments max (32 Mpts, 5,000 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
S-32	32 Mpts	7,500
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, LFRrej			
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	\pm 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, \geq 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, LFRrej coupling, \geq 10 mV/div, 50 Ω)	2 div @ < 6 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRrej coupling, \geq 10 mV/div, 50 Ω)	2 div @ < 8 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRrej coupling, \geq 10 mV/div, 50 Ω)	3 div @ < 13 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRrej coupling, \geq 10 mV/div, 50 Ω)

SPECIFICATIONS

Acquisition System	WaveMaster 816Zi-A (SDA)	WaveMaster 820Zi-A (SDA, DDA)	WaveMaster 825Zi-A (SDA)	WaveMaster 830Zi-A (SDA, DDA)																																														
Single-Shot Sample Rate/Ch	40 GS/s on 4 Ch (80 GS/s on 2 Ch using optional WM8Zi-2X80GS External Interleaving Device)		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 μ s																																																	
Maximum Acquisition Memory	256 Mpts/Ch		512 Mpts/Ch (2 Ch operation)																																															
Standard Memory	20Mpts, 4,500 segments max (32 Mpts, 5,000 segments max) (Memory and Sample Rate can be doubled in 1 or 2 Ch mode with use of WM8Zi-2X80GS External Interleaving Device)		4 channels: 20 Mpts, 4,500 segments max (40 Mpts, 5,000 segments max) 2 channels: 40 Mpts, 3,000 segments max (64 Mpts, 5,000 segments max)																																															
Memory Options	<table border="1"> <thead> <tr> <th>Option</th> <th>Mem/Ch</th> <th>Max Segments</th> </tr> </thead> <tbody> <tr> <td>S-32</td> <td>32 Mpts</td> <td>7,500</td> </tr> <tr> <td>M-64</td> <td>64 Mpts</td> <td>15,000</td> </tr> <tr> <td>L-128</td> <td>128 Mpts</td> <td>15,000</td> </tr> <tr> <td>VL-256</td> <td>256 Mpts</td> <td>15,000</td> </tr> </tbody> </table> (Memory and Sample Rate can be doubled in 1 or 2 Ch mode with use of WM8Zi-2X80GS External Interleaving Device)		Option	Mem/Ch	Max Segments	S-32	32 Mpts	7,500	M-64	64 Mpts	15,000	L-128	128 Mpts	15,000	VL-256	256 Mpts	15,000	<table border="1"> <thead> <tr> <th colspan="2">— 4 channels —</th> <th colspan="3">— 2 channels —</th> </tr> <tr> <th>Option</th> <th>Mem/Ch</th> <th>Max Segments</th> <th>Mem/Ch</th> <th>Max Segments</th> </tr> </thead> <tbody> <tr> <td>S-32</td> <td>32 Mpts</td> <td>7,500</td> <td>64 Mpts</td> <td>5,000</td> </tr> <tr> <td>M-64</td> <td>64 Mpts</td> <td>15,000</td> <td>128 Mpts</td> <td>10,000</td> </tr> <tr> <td>L-128</td> <td>128 Mpts</td> <td>15,000</td> <td>256 Mpts</td> <td>15,000</td> </tr> <tr> <td>VL-256</td> <td>256 Mpts</td> <td>15,000</td> <td>512 Mpts</td> <td>15,000</td> </tr> </tbody> </table>			— 4 channels —		— 2 channels —			Option	Mem/Ch	Max Segments	Mem/Ch	Max Segments	S-32	32 Mpts	7,500	64 Mpts	5,000	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
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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		3 div @ < 15 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω)	
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)	

SPECIFICATIONS

Triggering System (cont'd)	WaveMaster 804Zi-A (SDA)	WaveMaster 806Zi-A (SDA)	WaveMaster 808Zi-A (SDA/DDA)	WaveMaster 813Zi-A (SDA)
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External Trigger	2 div @ < 1 GHz			
Sensitivity (Edge Trigger)	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)			
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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 (1 ns to 20 s) 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
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.

SPECIFICATIONS

Triggering System (cont'd)	WaveMaster 816Zi-A (SDA)	WaveMaster 820Zi-A (SDA, DDA)	WaveMaster 825Zi-A (SDA)	WaveMaster 830Zi-A (SDA, DDA)
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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)			
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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 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)	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 (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. 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	
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.

SPECIFICATIONS

Color Waveform Display	WaveMaster 804Zi-A (SDA)	WaveMaster 806Zi-A (SDA)	WaveMaster808Zi-A (SDA/DDA)	WaveMaster 813Zi-A (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® Core™ i7-2600 Quad, 2.6 GHz (up to 3.8 GHz in Turbo mode) (or better)
Processor Memory	8 GB standard for STD memory (20 Mpt), S-32 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 VICEP, LXI Class C (v1.2) Compliant
GPIO 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	Minimum 6 total (incl. 3 front panel) USB 2.0 ports support Windows compatible devices
External Monitor Port	15 pin D-Type WXGA compatible 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 including CD-RW/DVD-ROM drive
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-A (SDA)	WaveMaster 820Zi-A (SDA, DDA)	WaveMaster 825Zi-A (SDA)	WaveMaster 830Zi-A (SDA, DDA)
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® Core™ i7-2600 Quad, 2.6 GHz (up to 3.8 GHz in Turbo mode) (or better)
Processor Memory	8 GB standard for STD memory (20 Mpt), S-32 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
GPIO 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	Minimum 6 total (incl. 3 front panel) USB 2.0 ports support Windows compatible devices
External Monitor Port	15 pin D-Type WXGA compatible 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 including CD-RW/DVD-ROM drive
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

SPECIFICATIONS

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
floor	square root
	sum (+)
	zoom (identity)

Measure Tools

Display any 12 parameters together with statistics, including their average, high, low, and standard deviations. Histograms 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.
frequency	peak-to-peak	x @ min.
first	period	
last	rissetime (10–90%, 20–80%, @ level)	

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
 - N-Cycle
 - N-Cycle with start selection
 - Frequency @ level
 - Period @ level
 - Half Period
 - Width @ level
 - Time Interval Error @ level
 - Setup
 - Hold
 - Skew
 - Duty Cycle @ 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-A and DDA 8 Zi-A Models)

Total Jitter

A complete jitter measurement and analysis toolset with the SDAIII-CompleatLinQ user interface framework. The CompleatLinQ framework provides a single user interface for “LinQ”, “Crosstalk”, “EyeDrill” 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
 - One Level
 - Zero Level
 - Eye Amplitude
 - Eye Width
 - Eye Crossing
 - Avg. Power
 - Extinction Ratio
 - Mask hits
 - Mask out
 - Bit Error Rate
 - 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
- Periodic Jitter (Pj) Meas Param
- Rj+BUJ Histogram
- Rj+BUJ Spectrum
- Rj+BUJ Track
- Pj Inverse FFT

Deterministic Jitter (Dj) Analysis

- Deterministic Jitter (Dj) Measurement Parameter

SPECIFICATIONS

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.

Landscape Comparison Mode

When multiple lanes are enabled for display, Landscape 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-A and DDA 8 Zi-A)

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-A and DDA 8 Zi-A)

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 imag components
- Freq domain parameters
- FFT on up to 128 Mpts

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

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-A Series Oscilloscopes

4 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	WaveMaster 804Zi-A
6 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	WaveMaster 806Zi-A
8 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	WaveMaster 808Zi-A
13 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	WaveMaster 813Zi-A
16 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	WaveMaster 816Zi-A
20 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	WaveMaster 820Zi-A
25 GHz, 80 GS/s, 2 Ch, 40 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input (20 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch)	WaveMaster 825Zi-A
30 GHz, 80 GS/s, 2 Ch, 40 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input (20 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch)	WaveMaster 830Zi-A

SDA 8 Zi-A Series Serial Data Analyzers

4 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	SDA 804Zi-A
6 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	SDA 806Zi-A
8 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	SDA 808Zi-A
13 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	SDA 813Zi-A
16 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	SDA 816Zi-A
20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	SDA 820Zi-A
25 GHz, 80 GS/s, 2 Ch, 64 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input (20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch)	SDA 825Zi-A
30 GHz, 80 GS/s, 2 Ch, 64 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input (20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch)	SDA 830Zi-A

DDA 8 Zi-A Series Oscilloscopes

8 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch DDA with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	DDA 808Zi-A
20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch DDA with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input	DDA 820Zi-A
30 GHz, 80 GS/s, 2 Ch, 64 Mpts/Ch DDA with 15.3" WXGA Color Display. 50 Ω and 1 M Ω Input (30 GHz, 80 GS/s, 2 Ch, 64 Mpts/Ch; 20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch)	DDA 830Zi-A

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	

Product Description

Product Code

Memory and Sample Rate Options

80 GS/s on 2 Ch Sampling Rate Option for WaveMaster 8 Zi-A (not available for 825Zi-A or 830Zi-A). Includes two separate external interleaving devices with storage case	WM8Zi-2X80GS
20 Mpts/Ch Standard Memory for WaveMaster 8 Zi-A. Includes 8 GB of RAM	WM8Zi-STD
32 Mpts/Ch Standard Memory for SDA 8 Zi-A. Includes 8 GB of RAM	SDA8Zi-STD
32 Mpts/Ch Memory Option for WaveMaster 8 Zi-A	WM8Zi-S-32
64 Mpts/Ch Memory Option for WaveMaster 8 Zi-A	WM8Zi-M-64
64 Mpts/Ch Memory Option for SDA 8 Zi-A	SDA8Zi-M-64
64 Mpts/Ch Memory Option for DDA 8 Zi-A	DDA8Zi-M-64
128 Mpts/Ch Memory Option for WaveMaster 8 Zi-A	WM8Zi-L-128
128 Mpts/Ch Memory Option for SDA 8 Zi-A	SDA8Zi-L-128
128 Mpts/Ch Memory Option for DDA 8 Zi-A	DDA8Zi-L-128
256 Mpts/Ch Memory Option for WaveMaster 8 Zi-A	WM8Zi-VL-256
256 Mpts/Ch Memory Option for SDA 8 Zi-A	SDA8Zi-VL-256
256 Mpts/Ch Memory Option for DDA 8 Zi-A	DDA8Zi-VL-256

CPU, Computer and Other Hardware Options

Upgrade from 160 GB Hard Drive to 500 GB Hard Drive	WM8Zi-500GB-HD
Additional 160 GB Hard Drive. Includes Windows® 7 OS, Teledyne LeCroy Oscilloscope Software and Critical Scope Operational File Duplicates	WM8Zi-160GB-RHD-02
Additional 500 GB Hard Drive. Includes Windows 7 OS, Teledyne LeCroy Oscilloscope Software and Critical Scope Operational File Duplicates	WM8Zi-500GB-RHD-02
GPIO Option for Teledyne LeCroy Oscilloscope. Half-height Card	GPIOB-2
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

Bundle - Multi-Lane SDA LinQ Framework, including Eye, Jitter, Noise, Crosstalk Measurements, with EyeDrII and VirtualProbe	WM8Zi-SDAIII-CompleteLinQ
Multi-Lane Serial Data Analysis LinQ Framework, Eye, Jitter, Noise and Crosstalk Measurements	SDA8Zi-CompleteLinQ
Multi-Lane Serial Data Analysis LinQ Framework, Eye and Jitter Measurements	DDA8Zi-CompleteLinQ
Multi-Lane Serial Data Analysis LinQ Framework, Eye, Jitter, Noise and Crosstalk Measurements	WM8Zi-SDAIII-CrossLinQ
Single-Lane Serial Data Analysis Framework, Eye, Jitter, Noise and Crosstalk Measurements	SDA8Zi-CrossLinQ
Single-Lane Serial Data Analysis Framework, Eye and Jitter Measurements	DDA8Zi-CrossLinQ
Single-Lane Serial Data Analysis Framework, Eye and Jitter Measurements	WM8Zi-SDAIII-Crosstalk
Single-Lane Serial Data Analysis Framework, Eye and Jitter Measurements	SDA8Zi-Crosstalk
Single-Lane Serial Data Analysis Framework, Eye and Jitter Measurements	DDA8Zi-Crosstalk
Single-Lane Serial Data Analysis Framework, Eye and Jitter Measurements	WM8Zi-SDAIII

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

DDR Debug Toolkits

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

ORDERING INFORMATION

Product Description

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Serial Data Compliance

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 Ethernet 10/100/1000BT Software Option	QPHY-ENET*
QualiPHY Enabled HDMI Software Option	QPHY-HDMI†
QualiPHY Enabled LPDDR2 Software Option	QPHY-LPDDR2
QualiPHY Enabled MIPI D-PHY Software Option	QPHY-MIPI-DPHY
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 SuperSpeed USB Transmitter/Receiver Compliance Software Option	QPHY-USB3-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

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
SuperSpeed USB 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

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-A.)	WM8Zi-6GBIT-80b-SYMBOL-TD
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
64b/66b Decode Annotation Option	WM8Zi-64b66b D
8b/10b Decode Annotation Option	WM8Zi-8B10B D
ENET Decode Option	WM8Zi-ENETbus D
Ethernet 10G Decode Option	WM8Zi-ENET10Gbus D
PCI Express Decode Annotation Option	WM8Zi-PCIEbus D
USB 3.0 Decode Annotation Option	WM8Zi-USB3bus D
USB 2.0 Decode Annotation Option	WM8Zi-USB2bus D
USB2-HSIC Decode Option	WM8Zi-USB2-HSICbus D
SATA Decode Annotation Option	WM8Zi-SATAbus D
SAS Decode Annotation Option	WM8Zi-SASbus D
Fibre Channel Decode Annotation Option	WM8Zi-FCbus D
D-PHY Decode Option	WM8Zi-DPHYbus D

Product Description

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Serial Data Triggers and Decoders (cont'd)

DigRF 3G Decode Option	WM8Zi-DigRF3Gbus D
DigRF v4 Decode Option	WM8Zi-DIGRFv4bus D
Audiobus Trigger and Decode Option for I ² S, LJ, RJ, and TDM	WM8Zi-Audiobus TD
Audiobus Trigger, Decode, and Graph Option for I ² S, LJ, RJ, and TDM	WM8Zi-Audiobus TGD
Manchester Decode Option	WM8Zi-Manchesterbus D
MIPI D-PHY Decode Annotation Option	WM8Zi-DPHYbus D
MIPI D-PHY Decode and Physical Layer Test Option	WM8Zi-DPHYbus DP
MIPI M-PHY Decode Annotation Option	WM8Zi-MPHYbus D
MIPI M-PHY Decode Annotation and Physical Layer Test Option	WM8Zi-MPHYbus DP
I ² C Bus Trigger and Decode Option	WM8Zi-I2Cbus TD
SPI Bus Trigger and Decode Option	WM8Zi-SPIbus TD
LIN Trigger and Decode Option	WM8Zi-LINbus TD
UART and RS-232 Trigger and Decode Option	WM8Zi-UART-RS232bus TD
FlexRay Trigger and Decode Option	WM8Zi-FlexRaybus TD
FlexRay Trigger, Decode, and Physical Layer Test Option	WM8Zi-FlexRaybus TDP
SENT Decode Option	WM8Zi-SENTbus D
CANbus TD Trigger and Decode Option	WM8Zi-CANbus TD
CAN FD Trigger and Decode Option	WM8Zi-CAN FDbus TD
CAN Trigger, Decode and Measure/Graph Option	WM8Zi-CANbus TDM
CAN FD Trigger, Decode and Measure/Graph Option	WM8Zi-CAN FDbus TDM
MIL-STD-1553 Trigger and Decode Option	WM8Zi-1553 TD
ARINC 429 Symbolic Decode Option	WM8Zi-ARINC429bus DSymbolic
PROTObus MAG Serial Debug Toolkit	WM8Zi-PROTObus MAG
Decode Annotation and Protocol Analyzer Synchronization Software Option	WM8Zi-ProtoSync
Decode Annotation and Protocol Analyzer + BitTracer Synchronization Software Option	WM8Zi-ProtoSync-BT

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
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-AORM
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

ORDERING INFORMATION

Product Description

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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
Oscilloscope Cart	OC1021

Probes and Probe Accessories

1.0 GHz, 0.9 pF, 1 M Ω High Impedance Active Probe	ZS1000
1.5 GHz, 0.9 pF, 1 M Ω High Impedance Active Probe	ZS1500
2.5 GHz, 0.9 pF, 1 M Ω High Impedance Active Probe	ZS2500
4.0 GHz, 0.6 pF, 1 M Ω High Impedance Active Probe	ZS4000
200 MHz, 3.5 pF, 1 M Ω Active Differential Probe	ZD200
25 MHz High Voltage Differential Probe	HVD3102
120 MHz High Voltage Differential Probe	HVD3106
500 MHz, 1.0 pF, Active Differential Probe	ZD500
1 GHz, 1.0 pF, Active Differential Probe	ZD1000
1.5 GHz, 1.0 pF, Active Differential Probe	ZD1500
WaveLink 4 GHz 2.5 Vp-p Differential Probe System	D410-PS
WaveLink 4 GHz 5 Vp-p Differential Probe System	D420-PS
WaveLink 6 GHz 2.5 Vp-p Differential Probe System	D610-PS
WaveLink 6 GHz 5 Vp-p Differential Probe System	D620-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 4GHz 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
7.5 GHz Low Capacitance Passive Probe (\pm 10, 1 k Ω ; \pm 20, 500 Ω)	PP066

* 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.

Product Description

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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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