UNIQUELY POWERFUL

LabMaster 10 Zi-A
20 GHz – 65 GHz Oscilloscopes
The most powerful high bandwidth oscilloscope available powers through complex calculations faster:

- Up to 80 channels using ChannelSync™ architecture
- Powerful 24-core server-class CPU
- Up to 192 GB of RAM available

Unmatched high-speed serial tools:

- Simple and powerful compliance test automation
- Most complete serial data analysis toolset
- Comprehensive DDR test suite

End-to-end link signal integrity analysis:

- Import S-parameter files from WavePulser® 40iX and other instruments
- De-embed fixtures, emulate channels, apply transmitter/receiver equalization
- Debug with CrossSync™ PHY protocol and electrical cross-layer analysis
High Bandwidth, **Uniquely Powerful**

LabMaster 10 Zi-A
LabMaster 10 Zi-A oscilloscopes can be configured with more channels than any other oscilloscope (up to 80 at up to 36 GHz, or up to 40 at up to 65 GHz). The Master Control Module contains a powerful server-class CPU configurable with up to 192 GB of RAM to more quickly perform the most complex calculations.

**Up to 80 Oscilloscope Channels**
LabMaster is the only high-bandwidth oscilloscope with the unique ChannelSync architecture for precise timing synchronization by design - channel to channel jitter is only 130 fs. LabMaster greatly simplifies greater than 4 channel oscilloscope setups and provides acquisition confidence.

**Powerful 24-core Server-class CPU**
LabMaster has the most powerful CPU in any oscilloscope - an Intel® Xeon® Gold 6240R 24-core server-class CPU (or better). LabMaster plows quickly and easily through complex calculations, such as PCI Express® receiver calibration routines. Serial data jitter and eye diagram analysis goes faster with LabMaster.

**Up to 192 GB of RAM Available**
LabMaster’s powerful CPU is augmented with an enormous amount of available system RAM to ensure that long memory calculations are handled with ease.
The LabMaster 10 Zi-A is the best oscilloscope platform for high-speed serial data and advanced memory compliance and debug. The combination of more channels, mixed-signal options, serial decoders, and comprehensive compliance, analysis and debug software options puts you in the drivers seat.

**Simple and Powerful Compliance Test Automation**
- QualiPHY® automation software supports PCI Express®, USB®, HDMI®, DisplayPort™, DDR, and many other serial data standards
- Fully automated transmitter and receiver testing and fastest receiver test calibration
- Step-by-step instructions and automatic report generation
- Automated pass/fail test reports

**Most Complete Serial Data Analysis Toolset**
- Multi-lane jitter and eye analysis
- LaneScape™ comparison modes
- Vertical noise and crosstalk analysis
- NRZ and PAM support
- Integrated equalization, emulation and de-embedding
- Virtual probing

**Comprehensive DDR Test Suite**
- Support for DDR2/LPDDR2 through DDR5/LPDDR4X
- JEDEC physical layer compliance test
- Debug Toolkits provide fast problem solving during the DDR design and integration cycle
- HDA125 High-speed Digital Analyzer for flexible, mixed-signal probing
- Unmatched probing versatility up to 30 GHz
Combining the WavePulser® 40iX High-speed Interconnect Analyzer, LabMaster 10 Zi-A oscilloscope and SDAIII-CompleteLinQ option gives the most complete signal integrity analysis toolkit available. Quickly characterize the entire signal path from transmitter to receiver, acquire high-fidelity waveforms at a convenient test point, and then easily analyze the signal at any point of interest.
De-embed fixtures and test cables
- Measure S-parameter models using WavePulser 40iX, or import from other measurements or simulation tools
- Sophisticated Eye Doctor and VirtualProbe tools easily and accurately remove effects of fixtures and cables from acquired oscilloscope waveforms
- Apply the full SDAIII-CompeteLinQ toolkit to de-embedded waveforms for full eye, jitter and noise analysis directly at the output pins of the device under test

Emulate real-world channel losses
- WavePulser 40iX simplifies and speeds up accurate measurements of test channel loss profiles
- Channel model s-parameter files can be easily imported from the WavePulser 40iX or elsewhere into Eye Doctor and VirtualProbe tools in the oscilloscope
- Acquire waveforms at any point in the signal path, then use VirtualProbe to cleanly embed the effects of the channel
- Use the full analysis capability of SDAIII-CompeteLinQ to compare eye, jitter and noise measurements at multiple test points simultaneously

Emulate transmitter and receiver equalization
- SDAIII-CompeteLinQ with Eye Doctor enables the emulation of all common equalization types, including:
  - Transmitter emphasis
  - Receiver FFE
  - Receiver CTLE
  - Receiver DFE
The SDAIII software option provides the most comprehensive jitter decomposition, eye diagram and analysis tools with advanced signal integrity tools for emulation, de-embedding and equalization simulation.

Key Attributes

1. Eye diagram (a), eye mask failure (b) and IsoBER eye opening analysis (c)
2. Jitter spectrum (a) with noise floor display (b) and inverse FFT of the periodic jitter (c)
3. Data dependent jitter (DDj) plot for each bit in synch with pattern (a) and with histogram (b)
4. Time interval error (TIE) jitter track analysis
5. Jitter histograms (a) with bathtub curves (b) and CDF plot (c)
6. Intersymbol interference (ISI) plots pinpoint bit sequences that have high ISI and are sources of bit errors
7. Jitter measurements table with full details for one or more “lanes” plus reference

Advanced Signal Integrity Tools

Complete set of tools for: channel emulation; fixture, cable or channel de-embedding/embedding; adding or removing emphasis; performing CTLE, FFE or DFE equalization.
COMPREHENSIVE SERIAL DATA ANALYSIS

Fast Single or Multiple Eye Diagrams
- Up to four real-time and one reference comparison eye diagram, NRZ or PAM
- Single lane with multiple-point or multi-configuration analysis
- Analyze multiple lanes simultaneously
- Fast eye diagram creation
- Reference lane simplifies multi-scenario testing
- IsoBER displays expected eye infringement to a user-settable bit error rate (BER)
- Crosstalk eye contour plots display the impact of excessive noise

Comprehensive Jitter Decomposition & Analysis
- Complete Tj, Rj and Dj decomposition numerics on up to four lanes/configurations plus a reference, NRZ or PAM
- Three different jitter decomposition models
- Complete random (Rj) and non-data dependent jitter (Rj+BUj) parameters and views
- Comprehensive data dependent jitter (DDj) analysis, including DDj plots and histograms, digital pattern display, and ISI plot by pattern
- Periodic jitter (Pj) inverse FFT
- Other jitter parameters including bounded uncorrelated jitter (BUj) and odd-even jitter (OEj)

Vertical Noise & Crosstalk Analysis
- Tools for complete aggressor/victim analysis
- Measure, extrapolate and decompose vertical noise just as you do with (horizontal) jitter
- Noise tracks, histograms and spectrums providing deep insight into noise sources
- Crosstalk eye contour plot shows probabilistic extent of noise, both inside and outside the eye

Use the unique crosstalk eye to view and compare noise in a way that cannot be done with a traditional eye diagram.

A comprehensive set of jitter measurements, extrapolations and decompositions, with associated views for complete understanding, provides the best capability to debug problems faster.

View noise measurements in both time and frequency domains for insight into sources of crosstalk leading to bit errors.
Teledyne LeCroy offers a full line of DDR test solutions for system bring-up, debug, performance analysis and compliance. Teledyne LeCroy’s DDR test suite combines the right tools for every stage of development.

**Physical Layer DDR Toolkit**
The DDR Debug Toolkit provides test, debug and analysis tools for the entire DDR cycle. All DDR analysis can be performed simultaneously over four different measurement views.

**Physical Layer Compliance**
The QualiPHY DDR packages perform all clock, electrical and timing tests to conform to the JEDEC specification. Supports all versions of DDR/LPDDR.

**Unmatched Probing Versatility**
The HDA125 High-speed Digital Analyzer provides the highest-performance (18 digital inputs, up to 12.5 GS/s), most flexible mixed-signal solution for DDR debug and evaluation. Analog differential probes provide up to 30 GHz bandwidth. QuickLink probe tips work with both the HDA125 and analog probes.
COMPREHENSIVE DDR TEST SUITE

Effortless Burst Separation
- Automatic separation of Read and Write bursts eliminates time-consuming manual burst identification
- Separate bursts based on DQ-DQS skew or based on the command bus (when used with the HDA125)
- Bursted data jitter analysis
- Built-in DDR-specific measurements

Eye Diagram Analysis
- Up to 10 simultaneous eye diagrams
- Standard or custom-defined pass/fail masks
- Mask violation indicators automatically identify and locate specific unit intervals where mask violations occurred
- Built-in measurements for eye height, eye width and eye opening provide quantitative understanding of system performance
- Compare performance across multiple testing views with simultaneous eye diagrams

Enhanced Debug Capability with the HDA125
- Command bus digital acquisition capabilities
- Full DDR interface visibility simplifies transition from validation to debug
- Trigger on specific states of the command bus
- Command bus activity is tabulated and time-correlated with the color-coded and labeled physical layer waveforms
Teledyne LeCroy’s PCI Express electrical test solutions combine superior instruments with sophisticated jitter, eye diagram, debug and compliance software for all versions of PCI Express.

- Automated Transmitter, Receiver and Link Equalization (LEQ) testing with QualiPHY software options
- Visibility from physical layer through protocol operations
- LabMaster 10 Zi-A is gold suite certified for all relevant PCI Express 5.0 tests
- LabMaster 10 Zi-A supports PCI Express 6.0 test with PAM4 capabilities

Transmitter (Tx) Testing
- Base specification and compliance testing for add-in cards and systems in CEM, M.2 and U.2 form factors
- QualiPHY fully automates collection and processing of transmitter waveforms
- Supports TF-PCIE4-CTRL controller for full fixture and DUT automation
- Debug electrical compliance issues faster with SDAIII-CompleteLinQ software

Receiver (Rx) Testing
- Receiver calibration and testing using the LabMaster and Anritsu MP1900A BERT
- QualiPHY controls both the LabMaster and MP1900A
- Use WavePulser 40iX for receiver channel characterization and calibration
- Single QualiPHY user interface for Tx and Rx testing

Link Equalization (LEQ) Testing
- Fully automated Tx and Rx LEQ testing using QualiPHY with SigTest integration
- Test, fixture and DUT automation for fast throughput without lots of manual steps
- Go directly from compliance test to cross-layer debug using ProtoSync on the LabMaster and LTSSM analysis on the MP1900A
- Link the LabMaster with a protocol analyzer using CrossSync™ PHY for even deeper interoperability debug
Compliance Board
Remote Control
Rx Calibration
Rx In
Tx Out
DUT
100 MHz Ref. Clock In
Anritsu MP1900A SQA-R
Teledyne LeCroy LabMaster 10 Zi-A

Superior PCIe® Test Solutions
- Approved PCI-SIG® gold suite solution for PCIe electrical compliance test programs
- High accuracy and repeatability due to superior signal quality
- Fastest receiver test calibration
- Complete DUT and fixture automation

Visibility from Physical Layer Through Protocol Operations
- LTSSM logging and state-machine triggering
- ProtoSync integrates industry-standard protocol display and physical-layer analysis
- Go directly from Link Equalization compliance tests to deep debug

Comprehensive PCI Express 6.0 Characterization Tools
- Unique transmitter equalization tools
- Highest confidence jitter measurements with PAM4 eye diagrams
- Most complete SNDR analysis
Interoperability issues can lead to finger-pointing exercises that cost money and time-to-market. Teledyne LeCroy CrossSync PHY software and interposers merge the functions of your Teledyne LeCroy PCI Express protocol analyzer and oscilloscope - giving insight into link behavior that no other instrument can provide.

**Validate and debug active link operation**
- CrossSync PHY capable interposers enable observation of both electrical and protocol behavior without disturbing the link
- Sideband signals, reference clock and power rails are all easily accessible to oscilloscope probes
- Optional high-bandwidth oscilloscope probing points for PCI Express data lanes

**Quickly resolve interoperability issues by capturing the entire protocol stack**
- Trigger protocol analyzer and oscilloscope captures on the same high-level event
- Easily measure timing relationships between protocol and electrical domains
- Faster root-cause analysis means fewer costly finger-pointing exercises

**Analyze link training with integrated physical and protocol views**
- Observe electrical-level results of protocol-level commands
- Combined navigation means always knowing which protocol and electrical behaviors happen at the same time
- No single instrument can deliver this level of cross-layer insight into link training behavior
The CrossSync PHY software option for your Teledyne LeCroy oscilloscope enables precise, intuitive navigation between time-correlated protocol analyzer and oscilloscope traces.

Oscilloscope timebase and protocol analyzer acquisition window remain synchronized while navigating through the combined acquisition, for total confidence in timing behavior.

CrossSync PHY capability enhances Teledyne LeCroy’s industry-leading set of PCI Express protocol analysis interposers by adding high-fidelity oscilloscope probing points with simple and convenient signal access.

Easily probe and observe:

- High-speed data signals
- Reference clock behavior
- Power rail voltage and current
- Sideband signals

### CrossSync PHY interposers for popular PCI Express form factors

<table>
<thead>
<tr>
<th>CEM form factor</th>
<th>M.2 form factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE230UIA-X PCIe 5.0 CEM x16 interposer</td>
<td>PE222UIA PCIe 5.0 M.2 M-Key Interposer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EDSFF form factor</th>
<th>U.2/U.3 form factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE243UIA-X G5x4 EDSFF E1.S Interposer PE241UIA-X G5x8 EDSFF E1.L Interposer PE240UIA-X G5x16 EDSFF E3.x Interposer</td>
<td>PE221UIA-X PCIe Express 5.0 U.2/U.3 12 inch Interposer</td>
</tr>
</tbody>
</table>
In 2011, Teledyne LeCroy became the first USB-IF approved “Gold Suite” for USB 3.0 at 5 Gb/s. Today, the USB Type-C connector carries multiple lanes each up to 40 Gb/s data supporting USB4® Version 2.0, USB4, USB 3.2, Thunderbolt™ 3/4 and DisplayPort™ 2 standards. Teledyne LeCroy continues to be the trusted leader with:

- USB-IF approved “Gold Suite” PHY Tx/Rx compliance testing
- VESA approved DisplayPort over USB Type-C compliance testing
- Up to 4 lanes (8 channels) of simultaneous acquisition
- The deepest signal integrity toolbox
- Unmatched PHY-logic and USB Type-C sideband debug

**Fastest PHY Compliance**
- QualiPHY software automates all USB-C standard Transmitter (Tx) and Receiver (Rx) compliance tests using a single, friendly user interface
- Accurate, repeatable Rx testing with Anritsu MP1900A BERT
- Support for both USB-IF and 3rd party fixtures and software tools
- Single QualiPHY user interface for Tx and Rx testing

**Deepest SI Toolbox**
- Choose either USB-IF SigTest or Teledyne LeCroy SDAIII analysis methodology
- Debug electrical compliance issues faster with SDAIII-CompleteLinQ eye diagrams, jitter and noise analysis software
- Characterize USB4 Version 2.0 PAM3 eye diagrams and Tx Equalization with SDAIII-PAMx software
- WavePulser 40iX simplifies and speeds up receiver channel characterization and calibration

**PHY-logic & Sideband Debug**
- See the whole link with CrossSync PHY for USB4 and Thunderbolt
- USB4 and USB 3.2/2.0 serial decode options provide decode of USB packets with graphical, intuitive, color-coded decode overlays
- ProtoSync integrates industry-standard protocol display
- USB-PD (Power Delivery) TDMP and DisplayPort-AUX DMP provide unmatched visibility of USB Type-C sideband signals for system debug
USB4 and Thunderbolt 3/4

- QPHY-USB4-TX-RX provides automated transmitter compliance test automation per the USB4 Gen2 (10 Gb/s NRZ), Gen3 (20 Gb/s NRZ), and Version 2.0 (40 Gb/s PAM3); and Thunderbolt Gen2 (10.3125 Gb/s NRZ) and Gen3 (20.625 Gb/s NRZ) electrical Compliance Test Specifications (CTS)
- Integrates USB4 ET T for DUT control with the Wilder-Tech USB4 test controller, and Thunderbolt electrical scripts with Thunderbolt 3 controllers
- Fully automates receiver calibration and test with the Anritsu MP1900A high-speed BERT

USB 3.2

- QPHY-USB3.2-TX-RX fully automates the USB 3.2 Tx and Rx CTS for Gen1 (5 Gb/s) and Gen2 (10 Gb/s), LFPS Tx/Rx and SCD/LBPM tests
- Supports a variety of generators for Tx compliance pattern control including Teledyne Test Tools AFG, Wilder-Tech USB Type-C controllers and Anritsu MP1900A BERT
- Fully automates Rx calibration and test with the Anritsu MP1900A high-speed BERT solution

DisplayPort over USB Type-C

- QPHY-DP2-SOURCE software automates source (Tx) testing for all DisplayPort 2 (UHBR20, UHBR13, UHBR10) and 1.4a (HBR3, HBR2, HBR, RBR) data rates up to four lanes
- QPHY-DP2-SINK software automates DisplayPort 2 and 1.4a sink (Rx) calibration and testing with the Anritsu MP1900A high-speed BERT solution
- DPAUX DMP provides AUX channel decode, serial data measurements and physical layer measurements
- Supports all VESA approved test fixtures including Standard/Enhanced DP, mDP and USB Type-C
Interoperability issues can lead to finger-pointing exercises that cost money and time-to-market. Teledyne LeCroy CrossSync PHY software merges the functions of your Teledyne LeCroy protocol analyzer and oscilloscope - giving insight into link behavior that no other instrument can provide.

Validate and debug active link operation

- TF-USB-C-HS Test Coupon Fixtures enable observation of both electrical and protocol behavior without disturbing the link
- USB Type-C Sideband signals are all accessible using passive or active probes
- High-bandwidth oscilloscope probing points for USB data lanes

Quickly resolve interoperability issues by capturing the entire protocol stack

- Trigger protocol analyzer and oscilloscope captures on the same high-level event
- Easily measure timing relationships between protocol and electrical domains
- Faster root-cause analysis means fewer costly finger-pointing exercises

Analyze link training with integrated physical and protocol views

- Observe electrical-level results of protocol-level commands
- Combined navigation means always knowing which protocol and electrical behaviors happen at the same time
- No other solution can deliver this level of cross-layer insight into link training
The CrossSync PHY software option for your Teledyne LeCroy oscilloscope enables precise, intuitive navigation between time-correlated protocol analyzer and oscilloscope traces.

Oscilloscope timebase and protocol analyzer acquisition window remain synchronized while navigating through the combined acquisition, for total confidence in timing behavior.

CrossSync PHY capability enhances Teledyne LeCroy's industry-leading Protocol Analyzer/Exercisers by adding high-fidelity oscilloscope probing points with simple and convenient signal access using USB Type-C Test Coupon Fixtures.

1. Transparent signal path through the test coupon fixture's USB-C Plug, Receptacle, and included 0.3 meter USB Type-C cable
2. Vbus access using Active Single Ended or Voltage Rail Probe
3. Current loop for measuring Vbus current through the test coupon fixture
4. Access SBU1/SBU2 (USB4 Sidebands and DP-AUX), CC1/CC2 (Power Delivery), and D+/D- (USB1.1/2.0) signals using square pins
5. High-speed TX1/TX2 and RX1/RX2 signals captured using a permanently attached DH-SI Series probe tips
QualiPHY is Teledyne LeCroy’s automated software test framework for performing standardized tests on high-speed serial interfaces. QualiPHY automation software is available for PCI Express, USB, DDR, DisplayPort, HDMI and other technologies - for a full list, see our Oscilloscope Features, Options, and Accessories catalog.

**Simplified Setup**
QualiPHY dialogs help the user configure all aspects of test execution, including:
- Selecting the set of tests to run
- Configuring test parameters
- Customizing limits
- Options to stop after each test or execute sequentially

**Streamlined Test Execution**
QualiPHY guides the user though connection and execution of each test, resulting in increased repeatability.
- Clear, informative connection diagrams help simplify complex test setups and reduce mistakes
- Dialogs explain test execution and required Device Under Test (DUT) settings
- Simple, powerful Host Program Control interface enables complete automation of QualiPHY with external scripting environments (for selected QualiPHY products)

**Informative Reporting**
QualiPHY produces comprehensive reports documenting test results.
- Save reports in PDF or HTML format
- Screenshots and tabular results included
- Summary table at the start of the report makes it easy to tell pass/fail results at a glance
The DH series of 8 to 30 GHz active differential probes provides high input dynamic range, large offset capability, low loading and excellent signal fidelity with a range of connection options.

**General Purpose Probing up to 30 GHz**
Teledyne LeCroy’s DH series of 8 GHz to 30 GHz differential probes offer the combination of bandwidth, input range and offset capability to address any high-speed probing requirement - from debugging serial data interfaces to validating DDR memory systems.

**Exceptional Signal Fidelity**
DH series probes provide superior loading characteristics and are calibrated with a custom “fine-tuned” frequency response. The ultra-low loading and flat frequency response ensure accurate measurements.

**Wide Variety of Tips**
Two 30 GHz solder-in leads let you choose between a 3.5 Vpp input range for general-purpose applications, or high sensitivity with exceptionally low noise. Also available are a 1-meter long 16 GHz high-temperature tip, a 16 GHz handheld browser tip and an 8 GHz QuickLink adapter for connecting mixed-signal probe tips.

**Tip Identification**
Each DH series tip has its own data onboard - the oscilloscope software automatically selects the correct tip type and precisely corrects for its effects. The result is superior signal fidelity and superior ease-of-use.

**Digital Logic Probing Options**

**HDA125 High-speed Digital Analyzer**
The HDA125 turns your Teledyne LeCroy oscilloscope into the highest-performance, most flexible mixed-signal solution with 12.5 GS/s digital sampling rate (3 GHz digital clock rate) on 18 input channels and the QuickLink probing solution. Ideal for validation of DDR interfaces.
Our heritage
Teledyne LeCroy’s 50+ year heritage is in processing long records to extract meaningful insight. We invented the digital oscilloscope and many of the additional waveshape analysis tools.

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

Our invitation
Our Periodic Table of Oscilloscope Tools explains the toolsets that Teledyne LeCroy has deployed in our oscilloscopes. Visit our interactive website to learn more about them.
teledynelecroy.com/tools
**MAUI STUDIO - WORKS WHERE YOU ARE**

Unleash the power of a Teledyne LeCroy oscilloscope anywhere, using a PC with MAUI Studio Pro. Work remotely from your oscilloscope and collaborate with ease.

### Flexibility to Work Anywhere
MAUI Studio provides the flexibility to remotely work anywhere, and allows anyone anywhere to execute real-time analysis by connecting to an oscilloscope through an Ethernet connection or by analyzing a saved LabNotebook.

### Collaborate with Ease
Using MAUI Studio, you can share a LabNotebook file saved from an oscilloscope with all of your colleagues, and everyone will have access to the same software options that are found on your oscilloscope.

### The Power of MAUI Studio
Get all the unbelievable analytical capabilities of your oscilloscope on your PC. MAUI Studio has all the analysis tools needed to analyze complex waveform data, enabling your lab’s oscilloscopes to be freed up for other activities.

#### Remote Connection
- Connect to an oscilloscope through an Ethernet connection
- Transfer waveforms and setups from an oscilloscope to MAUI Studio Pro
- Transfer setups from MAUI Studio Pro to an oscilloscope
- Import software options by establishing a remote connection to an oscilloscope

#### Offline Analysis
- Recall a LabNotebook file to analyze saved waveforms, measurements and setups
- Import software options by recalling a LabNotebook file
- Have access to the same software found on your oscilloscope

#### Arbitrary Function Generator
- Generate advance waveforms using the AFG
- Easily generate a PAM4 signal
- Add jitter to a clock signal to simulate real-world signal integrity impairments

Try the free MAUI Studio Pro 30 day trial. Download and register at teledynelecroy.com/mauistudio.
**SPECIFICATIONS**

### Vertical System

<table>
<thead>
<tr>
<th>LabMaster 10-20Zi-A</th>
<th>LabMaster 10-25Zi-A</th>
<th>LabMaster 10-30Zi-A</th>
<th>LabMaster 10-36Zi-A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analog Bandwidth @ 50 Ω (-3 dB)</strong></td>
<td>20 GHz (≥5 mV/div)</td>
<td>25 GHz (≥5 mV/div)</td>
<td>30 GHz (≥5 mV/div)</td>
</tr>
<tr>
<td><strong>Rise Time (10–90%, 50 Ω - test limit)</strong></td>
<td>19.3 ps (test limit, flatness mode)</td>
<td>15.4 ps (test limit, flatness mode)</td>
<td>12.8 ps (test limit, flatness mode)</td>
</tr>
<tr>
<td><strong>Rise Time (20–80%, 50 Ω - typical)</strong></td>
<td>14.5 ps (flatness mode)</td>
<td>11.6 ps (flatness mode)</td>
<td>9.6 ps (flatness mode)</td>
</tr>
</tbody>
</table>

**Input Channels**

Up to 80, depending on configuration selected. (Any combination of up to 80 2.92mm input channels)

**Vertical Resolution**

| 8 bits | up to 11 bits with enhanced resolution (ERES) |

**Effective Number of Bits (ENOB)**

| 5.72 | 5.56 | 5.43 | 5.30 |

**Vertical Noise Floor (rms, typical, 50 Ω)**

| 5 mV/div | 0.38 mV | 0.44 mV | 0.49 mV | 0.56 mV |
| 10 mV/div | 0.38 mV | 0.44 mV | 0.49 mV | 0.56 mV |
| 20 mV/div | 0.64 mV | 0.74 mV | 0.81 mV | 0.92 mV |
| 50 mV/div | 1.40 mV | 1.60 mV | 1.70 mV | 1.88 mV |
| 100 mV/div | 3.38 mV | 3.88 mV | 4.28 mV | 4.83 mV |
| 200 mV/div | 6.10 mV | 6.98 mV | 7.53 mV | 8.30 mV |
| 500 mV/div | 14.00 mV | 16.00 mV | 17.00 mV | 18.25 mV |

**Measured at 50 mV/div, 7 divisions (87.5% full-scale)**

**Sensitivity**

50 Ω (2.92mm): 5 mV–500mV/div, fully variable (5-9.9 mV/div via zoom)

**DC Vertical Gain Accuracy**

±1% F.S. (typical), offset at 0V; ±1.5% F.S. (test limit), offset at 0V

**Channel-Channel Isolation**

DC to 36 GHz: 60 dB (>1000:1)

(For any two 2.92mm input channels, same or different v/div settings, typical)

**Offset Range**

50 Ω: ±500 mV @ 5-75 mV/div
±4 V @ 76 mV/div -500mV/div

**DC Vertical Offset Accuracy**

±(1.5% of offset setting + 1.5% F.S. + 1 mV) (test limit)

### Vertical System

- **Maximum Input Voltage**
  2.92 mm Inputs: ±2 Vmax@<76mV/div, 5.5Vrms@≥76mV/div

- **Input Coupling**
  2.92 mm Inputs: 50 Ω; DC; GND

- **Input Impedance**
  2.92mm Inputs: 50 Ω+/-2%

- **Bandwidth Limiters**
  Fully variable from 1 GHz to instrument bandwidth in increments of 100 MHz

- **Rescaling**
  Length: meters, inches, feet, yards, miles; Mass: grams, slugs; Temperature: celsius, fahrenheit, kelvin; Angle: radian, arcdeg, arcn, arcsec, cycles, revolutions, turns; Velocity: m/s, in/s, ft/s, yd/s, miles/s; Acceleration: m/s², in/s², ft/s², g0; Volume: liters, cubic meters, cubic inches, cubic feet, cubic yards; Force (Weight): newton, gram, ounce, pound; Pressure: pascal, bar, atmosphere (technical), atmosphere (standard), torr, psi; Electrical: volts, amps, watts, volt-amperes, volt-amperes reactive, farad, coulomb, ohm, siemen, volt/meter, coulomb/m2, farad/meter, siemen/meter, power factor; Magnetic: weber, tesla, henry, amp/meter, henry/meter; Energy: joule, Btu, calorie; Rotating Machine: radian/second, frequency, revolution/second, revolution/minute; Nm, lb-ft, lb-in, oz-in, watt, horsepower; Other: %.

### Horizontal - Analog Channels

- **Timebases**
  Internal timebase with 10 GHz clock frequency common to all input channels. Single, distributed 10 GHz clock for all channels ensures precise synchronization with timing accuracy between all channels identical to that provided within a single, conventional oscilloscope package.

- **Time/Division Range**
  10 ps/div–256 s/div (maximum capture time is based on minimum sample rate of 200kS/s and installed memory).

- **Clock Accuracy**
  < 0.1 ppm + (aging of 0.05ppm/yr from last calibration)
### Vertical System

<table>
<thead>
<tr>
<th></th>
<th>LabMaster 10-50Zi-A</th>
<th>LabMaster 10-59Zi-A</th>
<th>LabMaster 10-65Zi-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog Bandwidth @ 50 Ω (3 dB) (1.85mm Inputs)</td>
<td>50 GHz (≥10 mV/div)</td>
<td>59 GHz (≥10 mV/div)</td>
<td>65 GHz (≥10 mV/div)</td>
</tr>
<tr>
<td>Analog Bandwidth @ 50 Ω (3 dB) (2.4/2.92mm Inputs)</td>
<td>36 GHz (≥5 mV/div)</td>
<td>36 GHz (≥5 mV/div)</td>
<td>36 GHz (≥5 mV/div)</td>
</tr>
<tr>
<td>Rise Time (10–90%, 50 Ω - test limit)</td>
<td>8 ps (test limit, flatness mode)</td>
<td>6.9 ps (test limit, flatness mode)</td>
<td>6.5 ps (test limit, flatness mode)</td>
</tr>
<tr>
<td>Rise Time (20–80%, 50 Ω - typical)</td>
<td>6 ps (flatness mode)</td>
<td>5.2 ps (flatness mode)</td>
<td>4.9 ps (flatness mode)</td>
</tr>
</tbody>
</table>

**Input Channels**
- Up to 40, depending on configuration selected.
- Up to 80 @ 36 GHz

**Vertical Resolution**
- 8 bits, up to 11 bits with enhanced resolution (ERES)

**Effective Number of Bits (ENOB)**
- ** 5.19
- 5.07
- 5.00

**Vertical Noise Floor (rms, 50 Ω)**
- 10 mV/div: 0.89 mV
- 20 mV/div: 1.48 mV
- 50 mV/div: 3.20 mV
- 80 mV/div: 5.05 mV

**Sensitivity**
- 50 Ω (2.92mm): 5 mV–500 mV/div, fully variable (5–9.9 mV/div via zoom)
- 50 Ω (1.85mm): 10 mV–80 mV/div, fully variable.
- Higher gain settings possible through use of external attenuators.

**DC Vertical Gain Accuracy**
- DC to 36 GHz: ±1% F.S. (typical), offset at 0 V; ±1.5% F.S. (test limit), offset at 0 V
- 36 to 65 GHz: 40 dB (>1000:1) (For any two 2.92mm input channels, same or different v/div settings, typical)

**Channel-Channel Isolation**
- DC to 36 GHz: 60 dB (>1000:1)
- 36 to 65 GHz: 40 dB (>100:1) (For any two 1.85mm input channels, same or different v/div settings, typical)

**Offset Range**
- 50 Ω (1.85 mm):
  - ±500 mV @ 10–80 mV/div
  - ±500 mV @ 5–75 mV/div
  - ±4 V @ 76 mV/div -500 mV/div
- 50 Ω (2.92mm):
  - ±500 mV @ 10–80 mV/div
  - ±500 mV @ 5–75 mV/div
  - ±4 V @ 76 mV/div -500 mV/div

**DC Vertical Offset Accuracy**
- ±(1.5% of offset setting + 1.5% F.S. + 1 mV) (test limit)

### Vertical System

**Maximum Input Voltage**
- 2.92 mm Inputs: ±2 Vmax@≤76mV/div, 5.5Vrms@≥76mV/div
- 1.85 mm Inputs: ±2 Vmax@≤80mV/div

**Input Coupling**
- 2.92 mm Inputs: 50 Ω, DC, GND
- 1.85 mm Inputs: 50 Ω: DC

**Input Impedance**
- 2.92mm Inputs: 50 Ω+/-2%
- 1.85mm Inputs: 50 Ω+/-2%

**Bandwidth Limiters**
- Fully variable from 1 GHz to instrument bandwidth in increments of 100 MHz

**Rescaling**
- Length: meters, inches, feet, yards, miles; Mass: grams, slugs; Temperature: celsius, fahrenheit, kelvin; Angle: radian, arcdeg, arcmin, arscc, cycles, revolutions, turns; Velocity: m/s, in/s, ft/s, yd/s, miles/s; Acceleration: m/s², in/s², ft/s², g, Volume: liters, cubic meters, cubic inches, cubic feet, cubic yards; Force (Weight): newton, grain, ounce, pound; Pressure: pascal, bar, atmosphere (technical), atmosphere (standard), torr, psi; Electrical: volts, amperes, watts, volt-ampere reactive, farad, ohm, siemen, volt/meter, coulomb/m², farad/meter, siemen/meter, power factor; Magnetic: weber, tesla, henry, amp/meter, henry/meter; Energy: joule, Btu, calorie; Rotating Machine: radian/second, frequency, revolution/second, revolution/minute, N·m, lb-ft, lb-in, oz-in, watt, horsepower; Other: %.

### Horizontal - Analog Channels

**Timebases**
- Internal timebase with 10 GHz clock frequency common to all input channels. Single, distributed 10 GHz clock for all channels ensures precise synchronization with timing accuracy between all channels identical to that provided within a single, conventional oscilloscope package.

**Time/Division Range**
- For >36 GHz Mode: 10 ps/div - 320 µs/div (maximum capture time is based on 160 GS/s and installed memory).
- For ≤36 GHz Mode: 10 ps/div–256 s/div (maximum capture time is based on minimum sample rate of 200kS/s and installed memory).

**Clock Accuracy**
- < 0.1 ppm + (aging of 0.05 ppm/yr from last calibration)
### Horizontal - Analog Channels (cont'd)

<table>
<thead>
<tr>
<th>Sample Clock Jitter</th>
<th>Up to 3.2ms Acquired Time Range:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50fsrms (Internal Timebase Reference)</td>
</tr>
<tr>
<td></td>
<td>50fsrms (External Timebase Reference)</td>
</tr>
<tr>
<td>Up to 6.4ms Acquired Time Range:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>130fsrms (Internal Timebase Reference)</td>
</tr>
<tr>
<td></td>
<td>130fsrms (External Timebase Reference)</td>
</tr>
</tbody>
</table>

#### Delta Time Measurement Accuracy

\[
\sqrt{2 \cdot \left( \frac{\text{Noise}}{\text{SlewRate}} \right)^2 + (\text{Sample Clock Jitter})^2} \text{ (RMS, seconds, TIE)}
\]

#### Jitter Measurement Floor

\[
\sqrt{2 \cdot \left( \frac{\text{Noise}}{\text{SlewRate}} \right)^2 + (\text{Sample Clock Jitter})^2} \text{ (RMS, seconds, TIE)}
\]

#### Jitter Between Channels

<250fsrms (TIE, typical, measured at maximum bandwidth)

### Channel-Channel Deskew Range

\( \pm 9 \times \text{time/div. setting, or 25 ns max., each channel} \)

### External Timebase Reference (Input)

10 MHz or 100MHz; 50 \( \Omega \) impedance, applied at the rear input of MCM-Zi-A Master Control Module

### External Timebase Reference (Output)

10 MHz or 100 MHz ; 50 \( \Omega \) impedance, output at the rear of MCM-Zi-A Master Control Module

### Acquisition - Analog Channels

#### Sample Rate (Single-Shot)

80 GS/s on each channel.

#### Standard Memory

32 Mpts, 1,000 segments

<table>
<thead>
<tr>
<th>Memory Options</th>
<th>Option</th>
<th>Mem/Ch</th>
<th>Max Segments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S-32</td>
<td>32 Mpts</td>
<td>7,500</td>
</tr>
<tr>
<td></td>
<td>M-64</td>
<td>64 Mpts</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td>L-128</td>
<td>128 Mpts</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td>VL-256</td>
<td>256 Mpts</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td>XL-512</td>
<td>512 Mpts</td>
<td>15,000</td>
</tr>
</tbody>
</table>

#### Intersegment time

1 \( \mu \)s

#### 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 \( \sin x/x \)

### Vertical, Horizontal, Acquisition - Digital Channels with HDA125-18-SYNC

#### Maximum Input Frequency

3 GHz

#### Minimum Detectable Pulse Width

167ps

#### Input Dynamic Range

\( \pm 10V \) on any single ended input

\( \pm 7.5V \) max differential

#### Input Impedance (Flying Leads)

QL-SI tips: 110 k\( \Omega \), 0.12pF differential

#### Input Channels

18 Digital Channels

#### Maximum Input Voltage

\( \pm 15V \) on any single ended input

\( \pm 15V \) max differential

#### Minimum Input Voltage Swing

150 mV p-p

#### Threshold Selections

User defined

#### Threshold Accuracy

\( \pm (25mV + 3\% \text{ of threshold setting}) \)

#### User Defined Threshold Range

\( \pm 5V \), settable per channel in 5 mV steps

#### User Defined Hysteresis Range

50mV - 600mV settable per channel

#### Sample Rate

12.5 GS/s

#### Channel-to-Channel Skew

\( \pm 160ps \)

#### Deskew Range

\( \pm 1.6ns \) in 80ps steps
## SPECIFICATIONS

### Horizontal - Analog Channels (cont’d)

<table>
<thead>
<tr>
<th>LabMaster 10-50Zi-A</th>
<th>LabMaster 10-59Zi-A</th>
<th>LabMaster 10-65Zi-A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample Clock Jitter</strong></td>
<td><strong>Up to 3.2ms Acquired Time Range:</strong></td>
<td>50fs (Internal Timebase Reference)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50fs (External Timebase Reference)</td>
</tr>
<tr>
<td></td>
<td><strong>Up to 6.4ms Acquired Time Range:</strong></td>
<td>130fs (Internal Timebase Reference)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>130fs (External Timebase Reference)</td>
</tr>
<tr>
<td><strong>Delta Time Measurement Accuracy</strong></td>
<td>$\sqrt{\frac{\text{Noise}}{\text{Slew Rate}}} + (\text{Sample Clock Jitter})^2$ (RMS, seconds, TIE)</td>
<td>$\sqrt{\frac{\text{Noise}}{\text{Slew Rate}}} + (\text{Sample Clock Jitter})^2$ (RMS, seconds, TIE)</td>
</tr>
<tr>
<td><strong>Jitter Measurement Floor</strong></td>
<td>$\sqrt{\frac{\text{Noise}}{\text{Slew Rate}}} + (\text{Sample Clock Jitter})^2$ (RMS, seconds, TIE)</td>
<td>$\sqrt{\frac{\text{Noise}}{\text{Slew Rate}}} + (\text{Sample Clock Jitter})^2$ (RMS, seconds, TIE)</td>
</tr>
<tr>
<td><strong>Jitter Between Channels</strong></td>
<td>&lt;190fs (TIE, typical, measured at maximum bandwidth)</td>
<td>&lt;150fs (TIE, typical, measured at maximum bandwidth)</td>
</tr>
</tbody>
</table>

### Channel-Channel Deskew Range

- ±9 x time/div. setting, or 25 ns max., each channel

### External Timebase Reference (Input)

- 10 MHz or 100 MHz; 50 Ω impedance, applied at the rear input of MCM-Zi-A Master Control Module

### External Timebase Reference (Output)

- 10 MHz or 100 MHz; 50 Ω impedance, output at the rear of MCM-Zi-A Master Control Module

### Acquisition - Analog Channels

**Sample Rate (Single-Shot)**

- 160 GS/s on each channel in >36 GHz Mode.
- 80 GS/s on each channel in ≤36 GHz Mode.

**Standard Memory**

- 64 Mpts, 1,000 segments

### Memory Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Mem/Ch</th>
<th>Max Segments</th>
</tr>
</thead>
<tbody>
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<td>S-32</td>
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<td>256 Mpts</td>
<td>15,000</td>
</tr>
<tr>
<td>VL-256</td>
<td>512 Mpts</td>
<td>15,000</td>
</tr>
<tr>
<td>XL-512</td>
<td>1024 Mpts</td>
<td>15,000</td>
</tr>
</tbody>
</table>

**Intersegment time**

- 1 μs

**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

### Vertical, Horizontal, Acquisition - Digital Channels with HDA125-18-SYNC

**Maximum Input Frequency**

- 3 GHz

**Minimum Detectable Pulse Width**

- 167ps

**Input Dynamic Range**

- ±10V on any single ended input
- ±7.5V max differential

**Input Impedance (Flying Leads)**

- QL-SI tips: 110 kΩ, 0.12pF differential

**Input Channels**

- 18 Digital Channels

**Maximum Input Voltage**

- ±15V on any single ended input
- ±15V max differential

**Minimum Input Voltage Swing**

- 150 mV p-p

**Threshold Selections**

- User defined

**Threshold Accuracy**

- ±(25mV + 3% of threshold setting)

**User Defined Threshold Range**

- ±5V, settable per channel in 5 mV steps

**User Defined Hysteresis Range**

- 50mV - 600mV settable per channel

**Sample Rate**

- 12.5 GS/s

**Channel-to-Channel Skew**

- ±160ps

**Deskew Range**

- ±1.6ns in 80ps steps
## SPECIFICATIONS

<table>
<thead>
<tr>
<th>Triggering System</th>
<th>LabMaster 10-20Zi-A</th>
<th>LabMaster 10-25Zi-A</th>
<th>LabMaster 10-30Zi-A</th>
<th>LabMaster 10-36Zi-A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modes</strong></td>
<td>Normal, Auto, Single and Stop</td>
<td>Normal, Auto, Single and Stop</td>
<td>Normal, Auto, Single and Stop</td>
<td>Normal, Auto, Single and Stop</td>
</tr>
<tr>
<td><strong>Sources</strong></td>
<td>Any Ch 1-4 (Edge, Window, SMART, Cascade triggers), AUX, internal Fast Edge; or any input channel (Edge trigger only) on additional 10-xxZi-A Acquisition Modules (Channels 5 and higher). Slope and level unique to each source except line trigger.</td>
<td>Any Ch 1-4 (Edge, Window, SMART, Cascade triggers), AUX, internal Fast Edge; or any input channel (Edge trigger only) on additional 10-xxZi-A Acquisition Modules (Channels 5 and higher). Slope and level unique to each source except line trigger.</td>
<td>Any Ch 1-4 (Edge, Window, SMART, Cascade triggers), AUX, internal Fast Edge; or any input channel (Edge trigger only) on additional 10-xxZi-A Acquisition Modules (Channels 5 and higher). Slope and level unique to each source except line trigger.</td>
<td>Any Ch 1-4 (Edge, Window, SMART, Cascade triggers), AUX, internal Fast Edge; or any input channel (Edge trigger only) on additional 10-xxZi-A Acquisition Modules (Channels 5 and higher). Slope and level unique to each source except line trigger.</td>
</tr>
<tr>
<td><strong>Coupling</strong></td>
<td>DC, AC, HFRej, LFRej</td>
<td>DC, AC, HFRej, LFRej</td>
<td>DC, AC, HFRej, LFRej</td>
<td>DC, AC, HFRej, LFRej</td>
</tr>
<tr>
<td><strong>Pre-trigger Delay</strong></td>
<td>0 to 100% of memory size (adjustable in 1% increments of 100 ns)</td>
<td>0 to 100% of memory size (adjustable in 1% increments of 100 ns)</td>
<td>0 to 100% of memory size (adjustable in 1% increments of 100 ns)</td>
<td>0 to 100% of memory size (adjustable in 1% increments of 100 ns)</td>
</tr>
<tr>
<td><strong>Post-trigger Delay</strong></td>
<td>0–10,000 divisions in real time mode, limited at slower time/div settings</td>
<td>0–10,000 divisions in real time mode, limited at slower time/div settings</td>
<td>0–10,000 divisions in real time mode, limited at slower time/div settings</td>
<td>0–10,000 divisions in real time mode, limited at slower time/div settings</td>
</tr>
<tr>
<td><strong>Hold-off</strong></td>
<td>From 2 ns up to 20 s or from 1 to 99,999,999 events</td>
<td>From 2 ns up to 20 s or from 1 to 99,999,999 events</td>
<td>From 2 ns up to 20 s or from 1 to 99,999,999 events</td>
<td>From 2 ns up to 20 s or from 1 to 99,999,999 events</td>
</tr>
<tr>
<td><strong>Trigger and Interpolator Jitter</strong></td>
<td>&lt;0.1 ps rms (typical, software assisted), 2 ps rms (typical, hardware)</td>
<td>&lt;0.1 ps rms (typical, software assisted), 2 ps rms (typical, hardware)</td>
<td>&lt;0.1 ps rms (typical, software assisted), 2 ps rms (typical, hardware)</td>
<td>&lt;0.1 ps rms (typical, software assisted), 2 ps rms (typical, hardware)</td>
</tr>
<tr>
<td><strong>Internal Trigger Level Range</strong></td>
<td>±4.1 div from center</td>
<td>±4.1 div from center</td>
<td>±4.1 div from center</td>
<td>±4.1 div from center</td>
</tr>
<tr>
<td><strong>External Trigger Level Range</strong></td>
<td>For any LabMaster 10xx-Zi-A Acquisition Module: Aux (±0.4 V) (Only Ch 1-4 Acquisition Module has “active” AUX input)</td>
<td>For any LabMaster 10xx-Zi-A Acquisition Module: Aux (±0.4 V) (Only Ch 1-4 Acquisition Module has “active” AUX input)</td>
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<td>For any LabMaster 10xx-Zi-A Acquisition Module: Aux (±0.4 V) (Only Ch 1-4 Acquisition Module has “active” AUX input)</td>
</tr>
<tr>
<td><strong>Maximum Trigger Rate</strong></td>
<td>1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)</td>
<td>1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)</td>
<td>1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)</td>
<td>1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)</td>
</tr>
<tr>
<td><strong>Trigger Sensitivity with Edge Trigger (1.85/2.4/2.92mm Inputs)</strong></td>
<td>For Ch 1-80 of a LabMaster 10 Zi-A system: 3 div @ &lt; 12 GHz, 1.5 div @ &lt; 3 GHz, 1.0 div @ &lt; 200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω)</td>
<td>For Ch 1-80 of a LabMaster 10 Zi-A system: 3 div @ &lt; 12 GHz, 1.5 div @ &lt; 3 GHz, 1.0 div @ &lt; 200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω)</td>
<td>For Ch 1-80 of a LabMaster 10 Zi-A system: 3 div @ &lt; 12 GHz, 1.5 div @ &lt; 3 GHz, 1.0 div @ &lt; 200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω)</td>
<td>For Ch 1-80 of a LabMaster 10 Zi-A system: 3 div @ &lt; 12 GHz, 1.5 div @ &lt; 3 GHz, 1.0 div @ &lt; 200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω)</td>
</tr>
<tr>
<td><strong>Trigger Sensitivity with Edge Trigger (Aux Input)</strong></td>
<td>For Ch 1-4 LabMaster 10xx-Zi-A Acquisition Module: 2 div @ &lt; 1 GHz, 1.5 div @ &lt; 500 MHz, 1.0 div @ &lt; 200 MHz, (for DC coupling)</td>
<td>For Ch 1-4 LabMaster 10xx-Zi-A Acquisition Module: 2 div @ &lt; 1 GHz, 1.5 div @ &lt; 500 MHz, 1.0 div @ &lt; 200 MHz, (for DC coupling)</td>
<td>For Ch 1-4 LabMaster 10xx-Zi-A Acquisition Module: 2 div @ &lt; 1 GHz, 1.5 div @ &lt; 500 MHz, 1.0 div @ &lt; 200 MHz, (for DC coupling)</td>
<td>For Ch 1-4 LabMaster 10xx-Zi-A Acquisition Module: 2 div @ &lt; 1 GHz, 1.5 div @ &lt; 500 MHz, 1.0 div @ &lt; 200 MHz, (for DC coupling)</td>
</tr>
<tr>
<td><strong>Max. Trigger Frequency, SMART Trigger</strong></td>
<td>For Ch 1-4 only of any LabMaster 10xx-Zi-A Acquisition Module: 2.0 GHz @ ± 10 mV/div (minimum triggerable width 200 ps)</td>
<td>For Ch 1-4 only of any LabMaster 10xx-Zi-A Acquisition Module: 2.0 GHz @ ± 10 mV/div (minimum triggerable width 200 ps)</td>
<td>For Ch 1-4 only of any LabMaster 10xx-Zi-A Acquisition Module: 2.0 GHz @ ± 10 mV/div (minimum triggerable width 200 ps)</td>
<td>For Ch 1-4 only of any LabMaster 10xx-Zi-A Acquisition Module: 2.0 GHz @ ± 10 mV/div (minimum triggerable width 200 ps)</td>
</tr>
<tr>
<td><strong>Trigger Types</strong></td>
<td>Edge Triggers when signal meets slope (positive, negative, or either) and level condition. Width Triggers on positive or both (widths selectable as low as 200ps to 20 s) or on intermittent faults. Glitch Triggers on positive or negative glitches (widths selectable as low as 200ps to 20 s) or on intermittent faults. Window Triggers when signal exits a window defined by adjustable thresholds. 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. 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. Interval Triggers on intervals selectable between 1 ns and 20 s. Dropout Triggers if signal drops out for longer than selected time between 1 ns and 20 s. Exclusion Triggering Trigger on intermittent faults by specifying the expected behavior and triggering when that condition is not met. 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. Multi-stage: 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. Multi-stage: 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. Multi-Stage: Cascade (Sequence) Trigger, 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. Multi-Stage: Cascade (Sequence) Trigger, 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) Multi-Stage: Cascade (Sequence) Trigger, Holdoff Holdoff between A and B or B and C is selectable by time 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. <strong>High-speed Serial Protocol Triggering (Optional)</strong></td>
<td>Data Rates</td>
<td>Option LM10Zi-6GBIT-80B-SYMBOL-TD: 600 Mb/s to 6.5 Gb/s, Channel 4 input only</td>
<td>Option LM10Zi-14GBIT-80B-SYMBOL-TD: 600 Mb/s to 14.1 Gb/s, Channel 4 input only</td>
</tr>
<tr>
<td><strong>Pattern Length</strong></td>
<td>80 bits NRZ, eight 8b/10b symbols, 64b/66b symbol</td>
<td>80 bits NRZ, eight 8b/10b symbols, 64b/66b symbol</td>
<td>80 bits NRZ, eight 8b/10b symbols, 64b/66b symbol</td>
<td>80 bits NRZ, eight 8b/10b symbols, 64b/66b symbol</td>
</tr>
<tr>
<td>Triggering System</td>
<td>LabMaster 10-50Zi-A</td>
<td>LabMaster 10-59Zi-A</td>
<td>LabMaster 10-65Zi-A</td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Modes</strong></td>
<td>Normal, Auto, Single and Stop</td>
<td>Normal, Auto, Single and Stop</td>
<td>Normal, Auto, Single and Stop</td>
<td></td>
</tr>
<tr>
<td><strong>Sources</strong></td>
<td>Any Ch 1-4 (Edge, Window, SMART, Cascade triggers), AUX, internal Fast Edge; or any input channel (Edge trigger only) on additional 10-xxZi-A Acquisition Modules (Channels 5 and higher). Slope and level unique to each source except line trigger.</td>
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<td>DC, AC, HFRuj, LFRej</td>
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<td>0 to 100% of memory size (adjustable in 1% increments of 100 ns)</td>
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<td>0–10,000 divisions in real time mode; limited at slower time/div settings</td>
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<td>From 2 ns up to 20 s or from 1 to 99,999,999 events</td>
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</tr>
<tr>
<td><strong>Trigger and Interpolator Jitter</strong></td>
<td>&lt;0.1 ps rms (typical, software assisted), 2 ps rms (typical, hardware)</td>
<td>&lt;0.1 ps rms (typical, software assisted), 2 ps rms (typical, hardware)</td>
<td>&lt;0.1 ps rms (typical, software assisted), 2 ps rms (typical, hardware)</td>
<td></td>
</tr>
<tr>
<td><strong>Internal Trigger Level Range</strong></td>
<td>±4.1 div from center</td>
<td>±4.1 div from center</td>
<td>±4.1 div from center</td>
<td></td>
</tr>
<tr>
<td><strong>External Trigger Level Range</strong></td>
<td>For any LabMaster 10xx-Zi-A Acquisition Module: Aux (±0.4 V) (Only Ch1-4 Acquisition Module has “active” AUX Input)</td>
<td>For any LabMaster 10xx-Zi-A Acquisition Module: Aux (±0.4 V) (Only Ch1-4 Acquisition Module has “active” AUX Input)</td>
<td>For any LabMaster 10xx-Zi-A Acquisition Module: Aux (±0.4 V) (Only Ch1-4 Acquisition Module has “active” AUX Input)</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Trigger Rate</strong></td>
<td>1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)</td>
<td>1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)</td>
<td>1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)</td>
<td></td>
</tr>
<tr>
<td><strong>Trigger Sensitivity with Edge Trigger</strong></td>
<td>For Ch 1-80 of a LabMaster 10 Zi-A system: 3 div @ &lt; 12 GHz 1.5 div @ &lt; 3 GHz 1.0 div @ &lt; 200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω)</td>
<td>For Ch 1-80 of a LabMaster 10 Zi-A system: 3 div @ &lt; 12 GHz 1.5 div @ &lt; 3 GHz 1.0 div @ &lt; 200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω)</td>
<td>For Ch 1-80 of a LabMaster 10 Zi-A system: 3 div @ &lt; 12 GHz 1.5 div @ &lt; 3 GHz 1.0 div @ &lt; 200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω)</td>
<td></td>
</tr>
<tr>
<td><strong>Trigger Sensitivity with Edge Trigger (Aux Input)</strong></td>
<td>For Ch 1-4 LabMaster 10xx-Zi-A Acquisition Module: 2 div @ &lt; 1 GHz, 1.5 div @ &lt; 500 MHz, 1.0 div @ &lt; 200 MHz, (for DC coupling)</td>
<td>For Ch 1-4 LabMaster 10xx-Zi-A Acquisition Module: 2 div @ &lt; 1 GHz, 1.5 div @ &lt; 500 MHz, 1.0 div @ &lt; 200 MHz, (for DC coupling)</td>
<td>For Ch 1-4 LabMaster 10xx-Zi-A Acquisition Module: 2 div @ &lt; 1 GHz, 1.5 div @ &lt; 500 MHz, 1.0 div @ &lt; 200 MHz, (for DC coupling)</td>
<td></td>
</tr>
<tr>
<td><strong>Max. Trigger Frequency, SMART Trigger</strong></td>
<td>For Ch 1-4 only of any LabMaster 10xx-Zi-A Acquisition Module: 2.0 GHz @ ≥ 10 mV/div (minimum triggerable width 200 ps)</td>
<td>For Ch 1-4 only of any LabMaster 10xx-Zi-A Acquisition Module: 2.0 GHz @ ≥ 10 mV/div (minimum triggerable width 200 ps)</td>
<td>For Ch 1-4 only of any LabMaster 10xx-Zi-A Acquisition Module: 2.0 GHz @ ≥ 10 mV/div (minimum triggerable width 200 ps)</td>
<td></td>
</tr>
</tbody>
</table>

**Trigger Types**

- **Edge**
  - Triggers when signal meets slope (positive, negative or either) and level condition.
- **Width**
  - Triggers on positive, negative or both widths (widths selectable as low as 200 ps to 20 s) or on intermittent faults.
- **Glitch**
  - Triggers on positive or negative glitches (widths selectable as low as 200 ps to 20 s) or on intermittent faults.
- **Window**
  - Triggers when signal exits a window defined by adjustable thresholds.
- **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.
- **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 s.
- **Interval**
  - Triggers on intervals selectable between 1 ns and 20 s.
- **Dropout**
  - Triggers if signal drops out for longer than selected time between 1 ns and 20 s.
- **Exclusion Triggering**
  - Trigger on intermittent faults by specifying the expected behavior and triggering when that condition is not met.
- **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.
- **Multi-stage: 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.
- **Multi-stage: Qualified First**
  - In Sequence acquisition mode, triggers repeatedly 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.
- **Multi-stage: Cascade (Sequence) Trigger, 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.
- **Multi-stage: Cascade (Sequence) Trigger, Types**
  - Cascade A then B then C (Measurement): Edge, Window, Pattern (Logic), Width, Glitch, Interval, Dropout, or Measurement. Measurement can be on Stage B only.
  - 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 (Optional)**

- **Data Rates**
  - Option LM10Zi-6GBIT-80B-SYMBOL-TD: 600 Mb/s to 6.5 Gb/s, Channel 4 input only
  - Option LM10Zi-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 ≥ 50 GHz mode) 64b/66b triggering only available on signal rates ≥ 6.25 Gb/s
- **Pattern Length**
  - 80 bits NRZ, eight 8b/10b symbols, 64b/66b symbol
### Measurement Tools

#### Measurement Functionality
Display up to 12 measurement parameters together with statistics including mean, minimum, maximum, standard deviation, and total number. Each occurrence of each parameter is measured and added to the statistics table. Histicons provide a fast, dynamic view of parameters and waveshape characteristics. Parameter math allows addition, subtraction, multiplication or division of two different parameters. Parameter gates define the location for measurement on the source waveform. Parameter accept criteria define allowable values based on range setting or waveform state.

#### Measurement Parameters - Horizontal + Jitter
- Cycles (number of) 
- Cycle to Cycle 
- Delay (from trigger, 50%) 
- Δ Delay (50%) 
- Duty Cycle (50%, @level) 
- Edges (number of, @level) 
- Fall Time (90-10, @levels) 
- Frequency (50%, @level) 
- Half Period (@level) 
- Hold Time (@level) 
- N Cycle Jitter (peak-peak) 
- Number of Points 
- Period (50%, @level) 
- Δ Period (@level) 
- Phase (@level) 
- Rise Time (10-90, @levels) 
- Setup (@levels) 
- Skew (@levels) 
- Slew Rate (@levels) 
- Time Interval Error (@level) 
- Time (@level) 
- Δ Time (@level) 
- Width (50%, @level) 
- Δ Width (@level) 
- X(value)@max, X(value)@min

#### Measurement Parameters - Vertical
- Amplitude, Base, Level@X 
- Maximum, Mean, Median, Minimum 
- Peak-to-Peak, RMS, Std. Deviation 
- Top

#### Measurement Parameters - Statistical (on Histograms)
- Full Width (@ Half Max, @%) 
- Amplitude, Base, Peak@MaxPopulation 
- Maximum, Mean, Median, Minimum, Mode, Range, RMS, Std. Deviation, Top, X(value)@Peak 
- Peaks (number of), Percentile, Population (@bin, total)

### Math Tools

#### Math Functionality
Display up to 12 math functions traces (F1-F12). 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.

#### Math Operators - Basic Math
- Average (summed) 
- Average (continuous) 
- Difference (–) 
- Envelope, Floor, Invert (negative) 
- Product (x) 
- Reciprocal, Rescale (with units) 
- Roof, Sum (+)

#### Math Operators - Filters
- Enhanced resolution (to 15 bits vertical) 
- Interpolate (cubic, quadratic, sinx/x)

#### Math Operators - Frequency Analysis
- FFT (power spectrum, magnitude, phase, power density, real, imaginary, magnitude squared) up to full analysis memory length. Select from Rectangular, VonHann, Hamming, FlatTop and Blackman Harris windows.

#### Math Operators - Functions
- Absolute value 
- Correlation (two waveforms) 
- Derivative, Deskew (resample) 
- Exp (base e) 
- Exp (base 10) 
- Integral, Invert (negative) 
- Log (base e) 
- Log (base 10) 
- Reciprocal, Rescale (with units) 
- Square, Square root

#### Math Operators - Other
- Segment, Sparse

### Measurement and Math Integration
Histograms to display statistical distributions of up to 2 billion measurement parameters. Trend (datalog) of up to 1 million measurement parameters. Track (display parameter vs. time, time-correlated to acquisitions) any parameter. Persistence histogram and persistence trace (mean, range, sigma).

### Pass/Fail Testing
Display up to 12 Pass/Fail queries using a Single or Dual Parameter Comparison (compare All values, or Any value <, ≤, =, >, >, within limit ±Δ value or %) or Mask Test (pre-defined or user-defined mask, waveform All In, All Out, Any In, or Any Out conditions). Combine queries into a boolean expression to Pass or Fail IF “All True”, “All False”, “Any True”, “Any False”, or groups of “All” or “Any”, with following THEN Save (waveforms), Stop, Alarm, (send) Pulse, Hardcopy (send email, save screen image, save to clipboard, send to printer), or (save) LabNotebook.

### Display System

#### Size
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 40 traces. Simultaneously display channel, zoom, memory and math traces.

#### Grid Styles

#### Waveform Representation
Sample dots joined, or sample dots only

### Processor/CPU

#### Type
Intel® Xeon® Gold 6240R 24-core, 48-thread processor, 2.4 GHz per core (up to 4.0 GHz in Turbo mode) or better

#### Processor Memory
32 GB standard. Up to 192 GB optionally available.

#### Operating System
Microsoft Windows® 10

#### Oscilloscope Operating Software
Teledyne LeCroy MAUI™ with OneTouch

#### Real-Time Clock
Date and time displayed with waveform in hardcopy files. SNTP support to synchronize to precision internal clocks.
**SPECIFICATIONS**

### LabMaster 10-50Zi-A  
### LabMaster 10-59Zi-A  
### LabMaster 10-65Zi-A

#### Measurement Tools

**Measurement Functionality**
Display up to 12 measurement parameters together with statistics including mean, minimum, maximum, standard deviation, and total number. Each occurrence of each parameter is measured and added to the statistics table. Histicons provide a fast, dynamic view of parameters and waveshape characteristics. Parameter math allows addition, subtraction, multiplication or division of two different parameters. Parameter gates define the location for measurement on the source waveform. Parameter accept criteria define allowable values based on range setting or waveform state.

**Measurement Parameters - Horizontal + Jitter**
- Cycles (number of), Cycle to Cycle, Delay (from trigger, 50%), Δ Delay (50%), Duty Cycle (50%, @level), Edges (number of, @level), Fall Time (90-10, @levels), Frequency (50%, @level), Half Period (@level), Hold Time (@level), N Cycle Jitter (peak-peak), Number of Points, Period (50%, @level), Δ Period (@level), Phase (@level), Rise Time (10-90, @levels), Setup (@levels), Skew (@levels), Slew Rate (@levels), Time Interval Error (@level), Time (@level), Δ Time (@level), Width (50%, @level), Δ Width (@level), X(value)@max, X(value)@min

**Measurement Parameters - Vertical**
- Area, Base, Rise Time (90-10, 80-20, @levels), Overshoot (positive, negative), Rise Time (10-90, 80-20, @levels), Top

**Measurement Parameters - Statistical (on Histograms)**
- Full Width (@ Half Max, @%), Amplitude, Base, Peak@MaxPopulation, Maximum, Mean, Median, Minimum, Mode, Range, RMS, Std. Deviation, Top, X(value)@Peak, Peaks (number of), Percentile, Population (@bin, total)

#### Math Tools

**Math Functionality**
Display up to 12 math functions traces (F1-F12). 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.

**Math Operators - Basic Math**
- Average (summed), Average (continuous), Difference (–), Envelope, Floor, Invert (negative), Product (x), Ratio (/), Reciprocal, Rescale (with units), Roof, Sum (+)

**Math Operators - Filters**
- Enhanced resolution (to 15 bits vertical), Interpolate (cubic, quadratic, sin(x)/x)

**Math Operators - Frequency Analysis**
- FFT (power spectrum, magnitude, phase, power density real, imaginary, magnitude squared) up to full analysis memory length. Select from Rectangular, VonHann, Hamming, FlatTop and Blackman Harris windows.

**Math Operators - Functions**
- Absolute value, Correlation (two waveforms), Derivative, Deskew (resample), Exp (base e), Exp (base 10), Integral, Invert (negative), Log (base e), Log (base 10), Reciprocal, Rescale (with units), Square, Square root, Zoom (identity)

**Math Operators - Other**
- Segment, Sparse

#### Measurement and Math Integration

Histograms to display statistical distributions of up to 2 billion measurement parameters. Trend (datalog) of up to 1 million measurement parameters. Track (display parameter vs. time, time-correlated to acquisitions) any parameter. Persistence histogram and persistence trace (mean, range, sigma).

#### Pass/Fail Testing

Display up to 12 Pass/Fail queries using a Single or Dual Parameter Comparison (compare All values, or Any value <, ≤, =, >, ≥, within limit ±Δ value or %) or Mask Test (pre-defined or user-defined mask, waveform All In, All Out, Any In, or Any Out conditions). Combine queries into a boolean expression to Pass or Fail IF “All True”, “All False”, “Any True”, “Any False”, or groups of “All” or “Any”, with following THEN Save (waveforms), Stop, Alarm, (send) Pulse, Hardcopy (send email, save screen image, save to clipboard, send to printer), or (save) LabNotebook.

#### Display System

**Size**
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 40 traces. Simultaneously display channel, zoom, memory and math traces.

**Grid Styles**

**Waveform Representation**
Sample dots joined, or sample dots only

#### Processor/CPU

**Type**
Intel® Xeon® Gold 6240R 24-core, 48-thread processor, 2.4 GHz per core (up to 4.0 GHz in Turbo mode) or better

**Processor Memory**
32 GB standard. Up to 192 GB optionally available.

**Operating System**
Microsoft Windows® 10

**Oscilloscope Operating Software**
Teledyne LeCroy MAUI™ with OneTouch

**Real-Time Clock**
Date and time displayed with waveform in hardcopy files. SNTP support to synchronize to precision internal clocks.
## SPECIFICATIONS

### Connectivity

<table>
<thead>
<tr>
<th></th>
<th>LabMaster 10-20Zi-A</th>
<th>LabMaster 10-25Zi-A</th>
<th>LabMaster 10-30Zi-A</th>
<th>LabMaster 10-36Zi-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet Port</td>
<td>Supports 10/100/1000BaseT Ethernet interface (RJ45 port)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USB Host Ports</td>
<td>LabMaster MCM-Zi-A Master Control Module: 1 x USB 2.0 ports, 1 x USB Type-C and 4 x USB3.1 Gen1 on rear of unit to support Windows compatible devices</td>
<td>LabMaster MCM-Zi-A Master Control Module: minimum 3 total USB 2.0 ports on front of unit to support Windows compatible devices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPIB Port (Optional)</td>
<td>Supports IEEE—488.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Monitor Port</td>
<td>Dual Link DVI compatible to support internal display on MCM-Zi Master Control Module (1280 x 768 pixel resolution) and customer-supplied monitor with up to WQXGA (2560 x 1600 pixel) resolution using extended desktop mode.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Control</td>
<td>Via Windows Automation, or via LeCroy Remote Command Set</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network Communication Standard</td>
<td>VXI-11 or VICP, LXI Class C (v1.2) compliant</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Power Requirements

<table>
<thead>
<tr>
<th></th>
<th>LabMaster 10-xxZi Acquisition Module: 100–240 VAC ±10% at 45-66 Hz; 100-120 VAC ±10% at 380-420 Hz; Automatic AC Voltage Selection, Installation Category II</th>
<th>LabMaster 10-xxZi Acquisition Module: 100–240 VAC ±10% at 45-66 Hz; Automatic AC Voltage Selection, Installation Category II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>LabMaster MCM-Zi-A Master Control Module: 100–240 VAC ±10% at 45-66 Hz; 100-120 VAC ±10% at 380-420 Hz; Automatic AC Voltage Selection, Installation Category II</td>
<td>LabMaster MCM-Zi-A Master Control Module: 100–240 VAC ±10% at 45-66 Hz; Automatic AC Voltage Selection, Installation Category II</td>
</tr>
<tr>
<td>Max Power Consumption</td>
<td>LabMaster 10-xxZi-A Acquisition Module - 1225 W / 1225 VA. LabMaster MCM-Zi-A Master Control Module - 450 W / 450 VA. Each Module and the CPU has a separate power cord.</td>
<td>LabMaster 10-xxZi-A Acquisition Module - 1225 W / 1225 VA. LabMaster MCM-Zi-A Master Control Module - 450 W / 450 VA. Each Module and the CPU has a separate power cord.</td>
</tr>
</tbody>
</table>

### Environmental

<table>
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<tr>
<th></th>
<th>LabMaster 10-xxZi Acquisition Module: 100–240 VAC ±10% at 45-66 Hz; 100-120 VAC ±10% at 380-420 Hz; Automatic AC Voltage Selection, Installation Category II</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Temperature (Operating)</td>
<td>+5 °C to +40 °C</td>
<td>+5 °C to +40 °C</td>
</tr>
<tr>
<td>Temperature (Non-Operating)</td>
<td>−20 °C to +60 °C</td>
<td>−20 °C to +60 °C</td>
</tr>
<tr>
<td>Humidity (Operating)</td>
<td>5% to 80% RH (non-condensing) up to +31 °C, upper limit derating to 50% RH (non-condensing) at +40 °C</td>
<td>5% to 80% RH (non-condensing) up to +31 °C, upper limit derating to 50% RH (non-condensing) at +40 °C</td>
</tr>
<tr>
<td>Humidity (Non-Operating)</td>
<td>5% to 95% RH (non-condensing) as tested per MIL-PRF-28800F</td>
<td>5% to 95% RH (non-condensing) as tested per MIL-PRF-28800F</td>
</tr>
<tr>
<td>Altitude (Operating)</td>
<td>Up to 10,000 ft (3048 m) at or below +25 °C</td>
<td>Up to 10,000 ft (3048 m) at or below +25 °C</td>
</tr>
<tr>
<td>Altitude (Non-Operating)</td>
<td>Up to 40,000 ft (12,192 m)</td>
<td>Up to 40,000 ft (12,192 m)</td>
</tr>
<tr>
<td>Random Vibration (Operating)</td>
<td>0.5 grms 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes</td>
<td>0.5 grms 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes</td>
</tr>
<tr>
<td>Random Vibration (Non-Operating)</td>
<td>2.4 grms 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes</td>
<td>2.4 grms 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes</td>
</tr>
<tr>
<td>Functional Shock</td>
<td>20 g peak, half sine, 11 ms pulse, 3 shocks (positive and negative) in each of three orthogonal axes, 18 shocks total</td>
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</tr>
</tbody>
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### Size and Weight

<table>
<thead>
<tr>
<th></th>
<th>LabMaster MCM-Zi-A Master Control Module - 10.9&quot;H x 18.2&quot;W x 15.6&quot;D (277 x 462 x 396 mm), LabMaster 10-xxZi-A Acquisition Module - 8.0&quot;H x 18.2&quot;W x 26&quot;D (202 x 462 x 660 mm)</th>
<th>LabMaster MCM-Zi-A Master Control Module - 10.9&quot;H x 18.2&quot;W x 15.6&quot;D (277 x 462 x 396 mm), LabMaster 10-xxZi-A Acquisition Module - 8.0&quot;H x 18.2&quot;W x 26&quot;D (202 x 462 x 660 mm)</th>
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<tr>
<td>Dimensions (HWD)</td>
<td>LabMaster MCM-Zi-A Master Control Module - 10.9&quot;H x 18.2&quot;W x 15.6&quot;D (277 x 462 x 396 mm), LabMaster 10-xxZi-A Acquisition Module - 8.0&quot;H x 18.2&quot;W x 26&quot;D (202 x 462 x 660 mm)</td>
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<tr>
<td>Weight</td>
<td>LabMaster MCM-Zi-A Master Control Module - 47 lbs. (21.4 kg), LabMaster 10-xxZi-A Acquisition Module - 53 lbs. (24.1 kg)</td>
<td>LabMaster MCM-Zi-A Master Control Module - 47 lbs. (21.4 kg), LabMaster 10-xxZi-A Acquisition Module - 53 lbs. (24.1 kg)</td>
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<tr>
<td>Shipping Weight</td>
<td>LabMaster MCM-Zi-A Master Control Module - 56 lbs. (25.5 kg), LabMaster 10-xxZi-A Acquisition Module - 71 lbs. (32.3 kg)</td>
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### Certifications

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<tr>
<th></th>
<th>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</th>
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<td>UL and cUL Listing</td>
<td>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</td>
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### Warranty and Service

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<th>LabMaster 10-59Zi-A</th>
<th>LabMaster 10-65Zi-A</th>
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<td><strong>Ethernet Port</strong></td>
<td>Supports 10/100/1000BaseT Ethernet interface (RJ45 port)</td>
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<td><strong>USB Host Ports</strong></td>
<td>LabMaster MCM-Zi-A Master Control Module: 1 x USB 2.0 ports, 1 x USB Type-C and 4 x USB3.1 Gen1 on rear of unit to support Windows compatible devices</td>
<td>LabMaster MCM-Zi-A Master Control Module: minimum 3 total USB 2.0 ports on front of unit to support Windows compatible devices</td>
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<tr>
<td><strong>GPIB Port (Optional)</strong></td>
<td>Supports IEEE-488.2</td>
<td></td>
</tr>
<tr>
<td><strong>External Monitor Port</strong></td>
<td>Dual Link DVI compatible to support internal display on MCM-Zi Master Control Module (1280 x 768 pixel resolution) and customer-supplied monitor with up to WQXGA (2560 x 1600 pixel) resolution using extended desktop mode.</td>
<td></td>
</tr>
<tr>
<td><strong>Remote Control</strong></td>
<td>Via Windows Automation, or via LeCroy Remote Command Set</td>
<td></td>
</tr>
<tr>
<td><strong>Network Communication Standard</strong></td>
<td>VXI-11 or VICP, LXI Class C (v1.2) compliant</td>
<td></td>
</tr>
</tbody>
</table>

### Power Requirements

<table>
<thead>
<tr>
<th>LabMaster 10-xxZi-A Acquisition Module</th>
<th>LabMaster MCM-Zi-A Master Control Module</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage</strong></td>
<td>100–240 VAC ±10% at 45-66 Hz; 100-120 VAC ±10% at 380-420 Hz; Automatic AC Voltage Selection, Installation Category II</td>
</tr>
<tr>
<td><strong>Max Power Consumption</strong></td>
<td>1275 W / 1275 VA, 450 W / 450 VA</td>
</tr>
<tr>
<td>Each Module and the CPU has a separate power cord.</td>
<td></td>
</tr>
</tbody>
</table>

### Environmental

<table>
<thead>
<tr>
<th>LabMaster MCM-Zi-A Master Control Module</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature (Operating)</strong></td>
</tr>
<tr>
<td><strong>Temperature (Non-Operating)</strong></td>
</tr>
<tr>
<td><strong>Humidity (Operating)</strong></td>
</tr>
<tr>
<td><strong>Humidity (Non-Operating)</strong></td>
</tr>
<tr>
<td><strong>Altitude (Operating)</strong></td>
</tr>
<tr>
<td><strong>Altitude (Non-Operating)</strong></td>
</tr>
<tr>
<td><strong>Random Vibration (Operating)</strong></td>
</tr>
<tr>
<td><strong>Random Vibration (Non-Operating)</strong></td>
</tr>
<tr>
<td><strong>Functional Shock</strong></td>
</tr>
</tbody>
</table>

### Size and Weight

<table>
<thead>
<tr>
<th>LabMaster MCM-Zi-A Master Control Module</th>
<th>LabMaster 10-xxZi-A Acquisition Module</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions (HWD)</strong></td>
<td>10.9”H x 18.2”W x 15.6”D (277 x 462 x 396 mm)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>47 lbs. (21.4 kg)</td>
</tr>
<tr>
<td><strong>Shipping Weight</strong></td>
<td>56 lbs. (25.5 kg)</td>
</tr>
</tbody>
</table>

### Certifications

<table>
<thead>
<tr>
<th>LabMaster MCM-Zi-A Master Control Module</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CE Certification</strong></td>
</tr>
</tbody>
</table>

### Warranty and Service

3-year warranty, calibration recommended annually. Optional service programs include extended warranty, upgrades and calibration services.
<table>
<thead>
<tr>
<th>Product Description</th>
<th>Product Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>LabMaster 10 Zi-A Series Master Control Modules</td>
<td>LabMaster MCM-Zi-A</td>
</tr>
<tr>
<td>LabMaster 10 Zi-A Series Acquisition Modules</td>
<td>LabMaster 10-Zi-A</td>
</tr>
<tr>
<td>20 GHz, 80 GS/s, 4 Ch, 32 Mpts/Ch</td>
<td>LabMaster 10-Zi-A</td>
</tr>
<tr>
<td>25 GHz, 80 GS/s, 4 Ch, 32 Mpts/Ch</td>
<td>LabMaster 10-Zi-A</td>
</tr>
<tr>
<td>30 GHz, 80 GS/s, 4 Ch, 32 Mpts/Ch</td>
<td>LabMaster 10-Zi-A</td>
</tr>
<tr>
<td>36 GHz, 80 GS/s, 4 Ch, 32 Mpts/Ch</td>
<td>LabMaster 10-Zi-A</td>
</tr>
<tr>
<td>50 GHz, 160 GS/s, 2 Ch, 64 Mpts/Ch</td>
<td>LabMaster 10-Zi-A</td>
</tr>
<tr>
<td>59 GHz, 160 GS/s, 2 Ch, 64 Mpts/Ch</td>
<td>LabMaster 10-Zi-A</td>
</tr>
<tr>
<td>Included with LabMaster MCM-Zi-A Standard Configuration</td>
<td>Power Cable for the Destination Country, Optical 3-button Wheel Mouse USB 2.0, Printed Getting Started Manual, Anti-virus Software (Trial Version), Windows 7 License, Commercial NIST Traceable Calibration with Certificate, 3-year Warranty</td>
</tr>
<tr>
<td>Included with LabMaster 10-zzi-A Standard Configuration</td>
<td>2.92mm Connector Saver: Qty. 4, 1.85mm Barrel Adapter: Qty. 2 (50-65 GHz units only), PCIe x 8 cable, 2m long, PCIe x 4 cable, 2m long, Power Cable for the Destination Country, ChannelSync 10 GHz clock cable, 2m long, Commercial NIST Traceable Calibration with Certificate, 3-year Warranty</td>
</tr>
<tr>
<td>ChannelSync Expansion Products</td>
<td>ChannelSync Mainframe Hub to permit up to 20 acquisition modules</td>
</tr>
<tr>
<td>64 Mpts/Ch Memory Option for LabMaster 10 Zi</td>
<td>LM10Zi-M-64</td>
</tr>
<tr>
<td>128 Mpts/Ch Memory Option for LabMaster 10 Zi</td>
<td>LM10Zi-M-128</td>
</tr>
<tr>
<td>256 Mpts/Ch Memory Option for LabMaster 10 Zi</td>
<td>LM10Zi-M-256</td>
</tr>
<tr>
<td>512 Mpts/Ch Memory Option for LabMaster 10 Zi</td>
<td>LM10Zi-M-512</td>
</tr>
<tr>
<td>Additional 500 GB Hard Drive for MCM-Zi-A</td>
<td>MCMZi-500GB-RHD-02</td>
</tr>
<tr>
<td>Upgrade to 128 GB RAM for MCM-Zi-A</td>
<td>MCMZi-32-UPG-128GB</td>
</tr>
<tr>
<td>Upgrade to 192 GB RAM for MCM-Zi-A</td>
<td>MCMZi-32-UPG-192GB</td>
</tr>
<tr>
<td>GPIB Option for LabMaster MCM-Zi-A</td>
<td>GPIB-3</td>
</tr>
<tr>
<td>High-speed Digital Analyzer Systems</td>
<td>HDA125-18-SYNC</td>
</tr>
<tr>
<td>12.5 GS/s High-speed Digital Analyzer with 18ch QuickLink leadset and SYNC connection</td>
<td>HDA125-18-SYNC</td>
</tr>
<tr>
<td>12.5 GS/s High-speed Digital Analyzer with 9ch QuickLink leadset and SYNC connection</td>
<td>HDA125-09-SYNC</td>
</tr>
<tr>
<td>18 channel QuickLink leadset for HDA125</td>
<td>HDA-DLS-18QL</td>
</tr>
<tr>
<td>9 channel QuickLink leadset for HDA125</td>
<td>HDA-DLS-09QL</td>
</tr>
<tr>
<td>Ethernet and DDR Debug Toolkits</td>
<td>LM10Zi-AUTO-ENET-TOOLKIT</td>
</tr>
<tr>
<td>100Base-T1 and 1000Base-T1 Debug Toolkit</td>
<td>LM10Zi-DDR5-TOOLKIT</td>
</tr>
<tr>
<td>DDR 2/3/4/5 and LPDDR 2/3/4/4X Debug Toolkit</td>
<td>LM10Zi-DDR3-TOOLKIT</td>
</tr>
<tr>
<td>DDR 2/3 and LPDDR 2/3 Debug Toolkit</td>
<td>LM10Zi-DDR3-TOOLKIT</td>
</tr>
<tr>
<td>DDR2 and LPDDR2 Debug Toolkit</td>
<td>LM10Zi-DDR2-TOOLKIT</td>
</tr>
<tr>
<td>Serial Data and Crosstalk Analysis</td>
<td>LM10Zi-VECTORLINQ-ADV</td>
</tr>
<tr>
<td>Single-Lane Serial Data Analysis Framework, Eye and Jitter Measurements</td>
<td>LM10Zi-VECTORLINQ</td>
</tr>
<tr>
<td>Bundle - Multi-Lane SDA LinQ Framework, including Eye, Jitter, Noise, Crosstalk Measurements, with EyeDrII and VirtualProbe</td>
<td>LM10Zi-VECTORLINQ-VP</td>
</tr>
<tr>
<td>PCIe 6.0 Transmitter Measurements</td>
<td>LM10Zi-VECTORLINQ</td>
</tr>
<tr>
<td>PAMx Serial Data Analysis, Eye, Jitter and Noise Measurements</td>
<td>LM10Zi-VECTORLINQ-VP</td>
</tr>
<tr>
<td>Signal Integrity Toolkits</td>
<td>LM10Zi-VIRTUALPROBE</td>
</tr>
<tr>
<td>Advanced De-embedding, Emulation and Virtual Probing Toolkit</td>
<td>LM10Zi-VIRTUALPROBE</td>
</tr>
<tr>
<td>Signal Integrity Toolkit - Channel &amp; Fixture De-embedding/Emulation, T/Rx Equalization</td>
<td>LM10Zi-VIRTUALPROBE</td>
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<tr>
<td>Bundle - EyeDrII and VirtualProbe Toolkits</td>
<td>LM10Zi-VIRTUALPROBE-VP</td>
</tr>
<tr>
<td>Cable De-embed Option</td>
<td>LM10Zi-VIRTUALPROBE-VP</td>
</tr>
<tr>
<td>Modulated Signal Analysis</td>
<td>LM10Zi-VECTORLINQ-ADV</td>
</tr>
<tr>
<td>VectorLinQ Advanced Vector Signal Analysis including QDFM</td>
<td>LM10Zi-VECTORLINQ-ADV</td>
</tr>
<tr>
<td>VectorLinQ - Flexible Vector Signal Analysis for electrical signals (RF and baseband I-Q)</td>
<td>LM10Zi-VECTORLINQ-ADV</td>
</tr>
<tr>
<td>Product Description</td>
<td>Product Code</td>
</tr>
<tr>
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<tr>
<td><strong>CrossSync™ PHY Software</strong></td>
<td></td>
</tr>
<tr>
<td>CrossSync PHY protocol analyzer synchronization Option for PCIe</td>
<td>LM10Zi-CROSSSYNC-PHY-PCIe</td>
</tr>
<tr>
<td>CrossSync PHY protocol analyzer synchronization Option for USB and Thunderbolt</td>
<td>LM10Zi-CROSSSYNC-PHY-USB</td>
</tr>
<tr>
<td><strong>Serial Data Compliance</strong></td>
<td></td>
</tr>
<tr>
<td>QualiPHY Enabled MultiGBase-T1 (Automotive Ethernet) Compliance Software Option</td>
<td>QPHY-MultiGBase-T1</td>
</tr>
<tr>
<td>QualiPHY Enabled 10Base-T1L (Industrial Ethernet) Compliance Software Option</td>
<td>QPHY-10Base-T1L</td>
</tr>
<tr>
<td>QualiPHY Enabled 10Base-T1S (Automotive Ethernet) Compliance Software Option</td>
<td>QPHY-10Base-T1S</td>
</tr>
<tr>
<td>QualiPHY Enabled 10GBase-KR Software Option</td>
<td>QPHY-10GBase-KR</td>
</tr>
<tr>
<td>QualiPHY Enabled 10GBase-T Software Option</td>
<td>QPHY-10GBase-T</td>
</tr>
<tr>
<td>QualiPHY Enabled 65G PAM4 Compliance Software Option</td>
<td>QPHY-65G-PAM4</td>
</tr>
<tr>
<td>QualiPHY Enabled LPDDR2 Software Option</td>
<td>QPHY-LPDDR2</td>
</tr>
<tr>
<td>QualiPHY Enabled DDR3, DDR3L and LPDDR3 Software Option</td>
<td>QPHY-DDR3</td>
</tr>
<tr>
<td>QualiPHY Enabled DDR4 and LPDDR4/4X Software Option</td>
<td>QPHY-DDR4</td>
</tr>
<tr>
<td>QualiPHY Enabled DisplayPort 2.0 Source Software Option</td>
<td>QPHY-DP20-Source</td>
</tr>
<tr>
<td>QualiPHY Enabled DisplayPort 1.4 Source Software Option</td>
<td>QPHY-DP14-Source</td>
</tr>
<tr>
<td>QualiPHY Enabled DisplayPort 2.0 Sink Software Option</td>
<td>QPHY-DP20-Sink</td>
</tr>
<tr>
<td>QualiPHY Enabled Embedded DisplayPort Software Option</td>
<td>QPHY-EDP</td>
</tr>
<tr>
<td>QualiPHY Enabled HDMI 2.1 FRL and TMDS Software Option (Includes HDMI 1.4 and HDMI 2.0)</td>
<td>QPHY-HDMI21</td>
</tr>
<tr>
<td>QualiPHY Enabled HDMI 2.0/1.4 FRL TMDS Software Option</td>
<td>QPHY-HDMI2</td>
</tr>
<tr>
<td>QualiPHY Enabled MIPI C-PHY Compliance Software Option (includes C-PHY DMP)</td>
<td>QPHY-MIPI-C PHY</td>
</tr>
<tr>
<td>QualiPHY Enabled MIPI M-PHY Compliance Software Option</td>
<td>QPHY-MIPI-MPHY</td>
</tr>
<tr>
<td>QualiPHY Enabled PCIe 3.0 Transmitter/Receiver Compliance Software Option</td>
<td>QPHY-PCIe3-Tx-Rx</td>
</tr>
<tr>
<td>QualiPHY Enabled PCIe 4.0 Transmitter/Receiver Compliance Software Option</td>
<td>QPHY-PCIe4-Tx-Rx</td>
</tr>
<tr>
<td>QualiPHY Enabled PCIe 5.0 Transmitter/Receiver Compliance Software Option</td>
<td>QPHY-PCIe5-Tx-Rx</td>
</tr>
<tr>
<td>QualiPHY Enabled PCIe Gen1 Software Option</td>
<td>QPHY-PCIe</td>
</tr>
<tr>
<td>QualiPHY Enabled SATA Software Option</td>
<td>QPHY-SATA</td>
</tr>
<tr>
<td>QualiPHY Enabled SAS2 Software Option</td>
<td>QPHY-SAS2</td>
</tr>
<tr>
<td>QualiPHY Enabled SAS3 Software Option</td>
<td>QPHY-SAS3</td>
</tr>
<tr>
<td>QualiPHY Enabled SFI Software Option</td>
<td>QPHY-SFI</td>
</tr>
<tr>
<td>QualiPHY Enabled USB4 Tx and Rx Software Option</td>
<td>QPHY-USB4-Tx-Rx</td>
</tr>
<tr>
<td>QualiPHY Enabled USB3.1 2x2 Tx and Rx Software Option</td>
<td>QPHY-USB3.2-Tx-Rx</td>
</tr>
<tr>
<td>PCI Express, SuperSpeed USB (USB 3.0) and SATA Complete Hardware/Software Test Solutions are available. Consult Factory.</td>
<td></td>
</tr>
<tr>
<td><strong>Serial Data Test Fixtures</strong></td>
<td></td>
</tr>
<tr>
<td>USB Sideband Test Coupon Fixture (USB Type-C)</td>
<td>TF-USB-C-SB</td>
</tr>
<tr>
<td>USB4 High-speed and Sideband Test Coupon (USB Type-C)</td>
<td>TF-USB-C-HS</td>
</tr>
<tr>
<td>HDMI Pull-Up Terminator Quad Pack</td>
<td>TF-HDMI-3.3V-QUADPAK</td>
</tr>
<tr>
<td>USB 3.1 (Standard Type A/B Connector) Test Fixtures</td>
<td>TF-USB3</td>
</tr>
<tr>
<td>SATA 1.5 Gbps, 3.0 Gbps and 6.0 Gbps Compliance Test Fixture Measure Kit</td>
<td>TF-SATA-C-KIT</td>
</tr>
<tr>
<td>Test Fixture for 10GBase-T</td>
<td>TF-10GBASE-T</td>
</tr>
<tr>
<td>Automotive Breakout Test Fixture for 100Base-T1 and 1000Base-T1 Debug</td>
<td>TF-AUTO-ENET</td>
</tr>
<tr>
<td>4 pack of SMA Connector boards for TF-AUTO-ENET-SMA</td>
<td>TF-AUTO-ENET-SMA</td>
</tr>
<tr>
<td>MIPI M-PHY input offset adapter dual pack</td>
<td>TF-MIPI-MPHY-DUALPAK</td>
</tr>
</tbody>
</table>
## General Purpose and Application Specific Software Options

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Product Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectrum Analyzer for LabMaster 10 Zi - 1 trace</td>
<td>LM10Zi-SPECTRUM-1</td>
</tr>
<tr>
<td>Spectrum Analyzer for LabMaster 10 Zi - 2 traces + reference</td>
<td>LM10Zi-SPECTRUM-PRO-2R</td>
</tr>
<tr>
<td>MAUI Studio Pro Offline Remote and PC Analysis Software License</td>
<td>MAUI Studio Pro</td>
</tr>
<tr>
<td>Digital Filter Software Package</td>
<td>LM10Zi-DFP2</td>
</tr>
<tr>
<td>Serial Data Mask Software Package</td>
<td>LM10Zi-SDM</td>
</tr>
<tr>
<td>Disk Drive Measurements Software Package</td>
<td>LM10Zi-DDM2</td>
</tr>
<tr>
<td>Disk Drive Analyzer Software Package</td>
<td>LM10Zi-DDA</td>
</tr>
<tr>
<td>Advanced Optical Recording Measurement Package</td>
<td>LM10Zi-AORM</td>
</tr>
<tr>
<td>EMC Pulse Parameter Software Package</td>
<td>LM10Zi-EMC</td>
</tr>
<tr>
<td>Clock Jitter Analysis with Four Views Software Package</td>
<td>LM10Zi-JITKIT</td>
</tr>
</tbody>
</table>

## Probes and Probe Accessories

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Product Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 GHz differential probe with 2.92mm interface</td>
<td>DH25-2.92MM</td>
</tr>
<tr>
<td>30 GHz differential probe with 2.92mm interface</td>
<td>DH30-2.92MM</td>
</tr>
<tr>
<td>DH series high-sensitivity solder-in tip, 30 GHz BW, 2.0 Vpp range</td>
<td>DH-SI-HS</td>
</tr>
<tr>
<td>DH series solder-in tip, 30 GHz BW, 3.5 Vpp range</td>
<td>DH-SI</td>
</tr>
<tr>
<td>DH series high-temperature solder-in tip, 16 GHz BW, 3.5 Vpp range</td>
<td>DH-HITEMP</td>
</tr>
<tr>
<td>DH series QuickLink adapter, 8 GHz BW</td>
<td>DH-QL</td>
</tr>
<tr>
<td>DH series QuickLink adapter kit with 3 x QL-SI tips</td>
<td>DH-QL-3SI</td>
</tr>
<tr>
<td>DH series PT browser tip, 16 GHz BW, 3.5 Vpp range</td>
<td>DH-PT</td>
</tr>
<tr>
<td>WaveLink 1.3 GHz, 2.0 Vp-p Differential Probe System</td>
<td>D1305-A-PS</td>
</tr>
<tr>
<td>WaveLink 16 GHz, 2.0 Vp-p Differential Probe System</td>
<td>D1605-A-PS</td>
</tr>
<tr>
<td>WaveLink 20 GHz, 2.0 Vp-p Differential Probe System</td>
<td>D2005-A-PS</td>
</tr>
<tr>
<td>WaveLink 25 GHz, 2.0 Vp-p Differential Probe System</td>
<td>D2505-A-PS</td>
</tr>
<tr>
<td>Power/Voltage Rail Probe</td>
<td>RP4030</td>
</tr>
<tr>
<td>4 GHz, 1.2x, ±30V offset, ±800mV dynamic range</td>
<td></td>
</tr>
<tr>
<td>RP2050/RP4050 Browser Tip accessory. Includes 0 Ohm (1x), 450 Ohm (10x) and 950 Ohm (20x) tps.</td>
<td>RP4000-BROWSER</td>
</tr>
<tr>
<td>Qty 3 MCX 4 GHz solder-in lead accessories (additional to those supplied with rail probe) 18cm long</td>
<td>RP4000-MCX-LEAD-SI</td>
</tr>
<tr>
<td>2.92mm to ProLink Adapter with probe power and communications pass through</td>
<td>L2.92A-PLINK</td>
</tr>
<tr>
<td>2.92mm to ProBus Adapter with probe power and communications pass through</td>
<td>L2.92A-PBUS</td>
</tr>
</tbody>
</table>

## Miscellaneous

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Product Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCM-Zi-A Rackmount Kit</td>
<td>MCM-Zi-RACKMOUNT</td>
</tr>
<tr>
<td>LabMaster 10 Zi-A Acquisition Module Rackmount Kit</td>
<td>LM10Zi-ACQMOD-RACKMOUNT</td>
</tr>
</tbody>
</table>

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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