

LeCroy

WavePro® 7 Zi Series

1.5 GHz – 6 GHz

The New Oscilloscope Experience



SPECIFICATIONS

| Vertical System | WavePro 715Zi | WavePro 725Zi (SDA) | WavePro 735Zi (SDA, DDA) | WavePro 740Zi (SDA) | WavePro 760Zi (SDA, DDA) |
|---|---|-----------------------|-------------------------------|--|--------------------------------------|
| Analog (ProLink Input) Bandwidth @ 50 Ω (-3 dB) (≥ 10 mV/div) | Not Applicable | Not Applicable | Not Applicable | 4 GHz (≥ 10 mV/div) | 6 GHz (≥ 10 mV/div) |
| Analog (ProBus Input) Bandwidth @ 50 Ω (-3 dB) | 1.5 GHz (≥ 10 mV/div) | 2.5 GHz (≥ 10 mV/div) | 3.5 GHz (≥ 10 mV/div) | 3.5 GHz (≥ 10 mV/div) | 3.5 GHz (≥ 10 mV/div) |
| Analog (ProBus Input) Bandwidth @ 1 MΩ (-3 dB) | 500 MHz (Typical) | 500 MHz (Typical) | 500 MHz (Typical) | 500 MHz (Typical) | 500 MHz (Typical) |
| Rise Time (Typical, 50 Ω) | 235 ps | 150 ps | 120 ps | 105 ps | 70 ps |
| Input Channels | 4 | | | | |
| Bandwidth Limiters | 20 MHz, 200 MHz, 1 GHz | | 20 MHz, 200 MHz, 1 GHz, 3 GHz | 20 MHz, 200 MHz, 1 GHz, 3 GHz | 20 MHz, 200 MHz, 1 GHz, 3 GHz, 4 GHz |
| Input Impedance | 50 Ω ±2% or 1 MΩ 16 pF, 10 MΩ 11 pF with supplied probe | | | | |
| Input Coupling | 1 MΩ: AC, DC, GND; 50 Ω: DC, GND | | | | |
| Maximum Input Voltage | 50 Ω: ±5 V _{rms} 1 MΩ: 250 V max. (peak AC: ≤ 10 kHz + DC) | | | 50 Ω (ProBus): ±5 V _{rms} 50 Ω (ProLink): ±4 V _{peak} 1 MΩ (ProBus): 250 V max. (peak AC: ≤ 10 kHz + DC) | |
| Channel-Channel Isolation | ≥ 100:1 at 2 GHz; ≥ 40:1 at 3 GHz; ≥ 20:1 at 4 GHz | | | | |
| Vertical Resolution | 8 bits; up to 11 bits with enhanced resolution (ERES) | | | | |
| Sensitivity | 50 Ω: 2 mV–1 V/div, fully variable (2–9.99 mV/div via zoom); 1 MΩ: 2 mV–10 V/div, fully variable | | | | |
| DC Gain Accuracy | ±1.5% of full scale | | | | |
| Offset Range | 50 Ω (ProBus Input): ±750 mV @ 10–170 mV/div ±4 V @ 172 mV/div–1 V/div 1 MΩ (ProBus Input): ±1 V @ 2–128 mV/div ±10 V @ 130 mV–1.28 V/div ±100 V @ 1.3 V–10 V/div | | | 50 Ω (ProLink Input): ±750 mV @ 10–118 mV/div ±4 V @ 120 mV/div–1 V/div 50 Ω (ProBus Input): ±750 mV @ 10–170 mV/div ±4 V @ 172 mV/div–1 V/div 1 MΩ (ProBus Input): ±1 V @ 2–128 mV/div ±10 V @ 130 mV–1.28 V/div ±100 V @ 1.3 V–10 V/div | |

Offset Accuracy ±(1.5% of full scale + 1.0% of offset value + 1 mV)

Horizontal System

| | | | | | |
|--------------------------------------|---|-------------------------------|------------------|-------------------------------|------------------|
| Timebases | Internal timebase common to 4 input channels; an external clock may be applied at the auxiliary input | | | | |
| Time/Division Range | Real time: 20 ps/div–1000 s/div (RIS mode: 20 ps/div–10 ns/div; Roll mode: up to 1000 s/div) | | | | |
| Clock Accuracy | ≤ 1 ppm + (aging of 0.5 ppm/yr from last calibration) | | | | |
| Time Interval Accuracy | < 0.06 / SR + (clock accuracy * Reading) (rms) | | | | |
| Jitter Noise Floor | 1.5 ps (Typical) | 1 ps (Typical) | 800 fs (Typical) | 750 fs (Typical) | 560 fs (Typical) |
| Trigger and Interpolator Jitter | 3 ps _{rms} (Typical) | 2 ps _{rms} (Typical) | | 1 ps _{rms} (Typical) | |
| Channel-Channel Deskew Range | ±9 x time/div. setting, 100 ms max., each channel | | | | |
| External Timebase Reference (Input) | 10 MHz; 50 Ω impedance, applied at the rear input | | | | |
| External Timebase Reference (Output) | 10 MHz; 50 Ω impedance, applied at the rear output | | | | |
| External Clock | 0.1 Hz–100 MHz, 50 Ω or 1 MΩ impedance, applied at the auxiliary input | | | | |

| Acquisition System | WP715Zi | WP725Zi (SDA) | WP735Zi (SDA, DDA) | WP740Zi (SDA) | WP760Zi (SDA, DDA) |
|--------------------------------------|--|---------------|------------------------------------|--------------------|--------------------|
| Single-Shot Sample Rate/Ch | 20 GS/s on 2 Ch 10 GS/s on 4 Ch (Option) WPZi-1.5GHZ-4X20GS doubles the sample rate) | | 40 GS/s on 2 Ch 20 GS/s on 4 Ch | | |
| Random Interleaved Sampling (RIS) | 200 GS/s for repetitive signals (20 ps /div. to 10 ns/div) | | | | |
| Maximum Trigger Rate | 1,250,000 waveforms/second (in Sequence Mode, up to 4 channels) | | | | |
| Intersegment Time | 800 ns | | | | |
| Maximum Acquisition Memory Points/Ch | (4 Ch / 2 Ch) | | | Number of Segments | |
| Standard Memory | 10 M / 20 M (Standard memory for SDA and DDA scopes are 20M / 40 M) | | | 5000 | |
| S-32 – Memory Option | 32 M / 64 M | | | 15,000 | |
| M-64 – Memory Option | 64 M / 128 M | | | 15,000 | |
| L-128 – Memory Option | 128 M / 256 M | | | 15,000 | |

SPECIFICATIONS

| Acquisition Processing | WavePro 715Zi | WavePro 725Zi (SDA) | WavePro 735Zi (SDA, DDA) | WavePro 740Zi (SDA) | WavePro 760Zi (SDA, DDA) |
|----------------------------|--|---------------------|--------------------------|---------------------|--------------------------|
| 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, or line; 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 | ±4.1 div from center | | | | |
| Trigger Sensitivity with Edge Trigger (Ch 1–4) ProBus Inputs | 2 div @ < 1 GHz 1.5 div @ < 500 MHz 1.0 div @ < 200 MHz (for DC, AC, LFRrej coupling, ≥ 10 mV/div, 50 Ω) | 2 div @ < 2.5 GHz 1.5 div @ < 1.25 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRrej coupling, ≥ 10 mV/div, 50 Ω) | 2 div @ < 3.5 GHz 1.5 div @ < 1.75 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRrej coupling, ≥ 10 mV/div, 50 Ω) | | |
| Trigger Sensitivity with Edge Trigger (Ch 1–4) ProLink Inputs | Not Applicable | | | 2 div @ < 4 GHz 1.5 div @ < 2 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRrej coupling, ≥ 10 mV/div, 50 Ω) | 2 div @ < 6 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, AC, LFRrej coupling, ≥ 10 mV/div, 50 Ω) |
| External Trigger Sensitivity, (Edge Trigger) | 2 div @ < 1 GHz 1.5 div @ < 500 MHz 1.0 div @ < 200 MHz (for DC, AC, LFRrej coupling) | | | | |
| Max. Trigger Frequency, SMART Trigger™ | 1.0 GHz @ ≥ 10 mV/div (minimum triggerable width 500 ps) | 2.0 GHz @ ≥ 10 mV/div (minimum triggerable width 300 ps) | 2.0 GHz @ ≥ 10 mV/div (minimum triggerable width 250 ps) | 2.0 GHz @ ≥ 10 mV/div (minimum triggerable width 200 ps) | |
| External Trigger Input Range | Aux (±0.4 V); Aux/10 (±4 V) | | | | |

Basic Triggers

| | |
|--------------------|--|
| Edge | Triggers when signal meets slope (positive, negative, or either) and level condition. |
| 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). |
| Window | Trigger when signal or exits a window defined by adjustable thresholds. |

SMART Triggers

| | |
|-------------------------|---|
| State or Edge Qualified | Triggers on any input source only if a defined state or edge occurred on another input source. Delay 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. Delay 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 (depending on oscilloscope bandwidth) 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 (depending on oscilloscope bandwidth) 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. Delay 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. |

SPECIFICATIONS

High-speed Serial Protocol Triggering

| | WavePro 715Zi | WavePro 725Zi (SDA) | WavePro 735Zi (SDA, DDA) | WavePro 740Zi (SDA) | WavePro 760Zi (SDA, DDA) |
|---------------------------------|---------------|--|--------------------------|--|--------------------------|
| Data Rates | Not available | (Option WPZi-MSPT, standard with SDA) 50 Mb/s–1.25 Gb/s | | (Option WPZi-HSPT, standard with SDA) 50 Mb/s–2.7 Gb/s | |
| Pattern Length | – | 80 bits, NRZ or 8b10b | | | |
| Clock and Data Outputs | – | 400 mV _{p-p} (Typical), AC coupled | | | |
| Clock Recovery Jitter | – | 1 ps rms + 0.3% Unit Interval rms for PRBS data patterns with 50% transition density | | | |
| Hardware Clock Recovery Loop BW | – | PLL Loop BW = Fbaud/5500, 50 Mb/s to 1.25 Gb/s (Typical) | | | |

Low-speed Serial Protocol Triggering (Optional)

| | |
|-----------|--|
| Available | I ² C, SPI (SPI, SSPI, SIOP), UART-RS232, CAN, LIN, FlexRay Reference individual datasheets for complete specifications. |
|-----------|--|

Color Waveform Display

| | |
|-------------------------|--|
| 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 8 traces. Simultaneously display channel, zoom, memory and math traces. |
| Grid Styles | Auto, Single, Dual, Quad, Octal, X-Y, Single+X-Y, Dual+X-Y |
| Waveform Representation | Sample dots joined, or sample dots only |

Integrated Second Display

| | |
|------------|--|
| Type | Color 15.3" flat panel TFT-Active Matrix LCD with high resolution touch screen |
| Resolution | WXGA; 1280 x 768 pixels |

LeCroy WaveStream Fast Viewing Mode

| | |
|-------------------------------|---|
| Intensity | 256 Intensity Levels, 1–100% adjustable via front panel control |
| Number of Channels | Up to 4 simultaneously |
| Type | Select analog or color graded |
| Max. Sampling Rate | 40 GS/s (20 GS/s for WavePro 715Zi without WPZi-1.5GHZ-4X20GS option) |
| Persistence Aging | Select from 500 ms to Infinite |
| Waveforms/Second (continuous) | Up to 2500 Waveforms/second |

Analog Persistence Display

| | |
|-------------------------------------|--|
| Analog and Color-Graded Persistence | Variable saturation levels; stores each trace's persistence data in memory |
| Persistence Types | Select analog, color, or three-dimensional |
| Trace Selection | Activate persistence on all or any combination of traces |
| Persistence Aging | Select from 500 ms to infinity |
| Sweep Display Modes | All accumulated, or all accumulated with last trace highlighted |

High-speed Digitizer Output (Option)

| | |
|------------------|--|
| Type | LeCroy LSIB |
| Transfer Rate | Up to 250 Mpts/s (Maximum) |
| Output Protocol | PCI Express, Gen1 (4 lanes utilized for data transfer) |
| Control Protocol | TCP/IP |
| Command Set | Via Windows Automation, or via LeCroy Remote Command Set |

Zoom Expansion Traces

Display up to 4 Zoom and 8 Math/Zoom traces

Processor/CPU

| | |
|------------------|---|
| Type | Intel® Core™ 2 Quad, 2.5 GHz (or better) |
| Processor Memory | 2 GB standard, up to 8 GB optional (4 GB standard with "S-32" memory, 8 GB standard with "M-64" or "L-128" memory) |
| Operating System | Microsoft Windows® Vista® Business Edition (64-bit) with SP1 |
| Real Time Clock | Date and time displayed with waveform and in hardcopy files. SNTP support to synchronize to precision internal clocks. |

Internal Waveform Memory

4 active waveform memory traces (M1–M4) store 16-bit/point full length waveforms.
Waveforms can be stored to any number of files limited only by the data storage media capacity.

Setup Storage

| | |
|-----------------------------------|---|
| Front Panel and Instrument Status | Store to the internal hard drive or to a USB-connected peripheral device. |
|-----------------------------------|---|

SPECIFICATIONS

| Interface | WavePro 715Zi | WavePro 725Zi (SDA) | WavePro 735Zi (SDA, DDA) | WavePro 740Zi (SDA) | WavePro 760Zi (SDA, DDA) |
|----------------------------------|---|---------------------|--------------------------|---------------------|--------------------------|
| Remote Control | Via Windows Automation, or via LeCroy Remote Command Set | | | | |
| Network Communication Standard | LXI Class C, VXI-11 and VICP | | | | |
| GPIB Port (Optional) | Supports IEEE – 488.2 | | | | |
| LSIB Port (Optional) | Supports PCI Express Gen1 x4 protocol with LeCroy supplied API | | | | |
| Ethernet Port | Supports 10/100/1000BaseT Ethernet interface (RJ45 port) | | | | |
| USB Ports | Minimum 6 total (Including 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. DVI and power connector to support LeCroy WPZi-EXTDISP-15 additional touch screen display accessory. Includes support for extended desktop operation with optional LeCroy or other second monitor. | | | | |
| Peripheral Bus | LeCroy LBUS standard | | | | |
| Auxiliary Input | | | | | |
| Signal Types | Select External Trigger or External Clock Input on the front panel | | | | |
| Coupling | 50 Ω : DC; 1 M Ω : AC, DC, GND | | | | |
| Max. Input Voltage | 50 Ω : 5 V _{rms} ; 1 M Ω : 250 V (Peak AC < 10 kHz + DC) | | | | |
| Auxiliary Output | | | | | |
| Signal Types | Select from calibrator, control signals or Off | | | | |
| Calibrator Signal | 500 Hz–5 MHz square wave or DC level; 0.0 to 500 mV into 50 Ω (0–1 V into 1 M Ω) | | | | |
| Control Signals | Trigger enabled, trigger out, pass/fail status | | | | |
| Automatic Setup | | | | | |
| Auto Setup | Automatically sets timebase, trigger, and sensitivity to display a wide range of repetitive signals | | | | |
| Find Vertical Scale | Automatically sets the vertical sensitivity and offset for the selected channel to display a waveform with the maximum dynamic range | | | | |
| General | | | | | |
| Auto Calibration | Ensures specified DC and timing accuracy is maintained for 1 year minimum. | | | | |
| Probes | | | | | |
| Probes | Qty. (4) \pm 10 Passive Probes | | | | |
| Probe System | ProBus (and ProLink on 4 and 6 GHz models). Automatically detects and supports a variety of compatible probes | | | | |
| Scale Factors | Automatically or manually selected depending on probe used | | | | |
| Calibration Output | 1 kHz square wave, 1 V _{p-p} (typical), output to probe hook | | | | |
| Power Requirements | | | | | |
| Voltage | 100–240 VAC \pm 10% at 50/60 Hz; 100–120 VAC \pm 10% at 400 Hz; Automatic AC Voltage Selection | | | | |
| Max. Power Consumption | 800 W/ 800 VA | | | | |
| Environmental | | | | | |
| Temperature (Operating) | +5 $^{\circ}$ C to +40 $^{\circ}$ C including CD-RW/DVD-ROM drive | | | | |
| Temperature (Non-Operating) | –20 $^{\circ}$ C to +60 $^{\circ}$ C | | | | |
| Humidity (Operating) | 5% to 80% relative humidity (non-condensing) up to +31 $^{\circ}$ C. Upper limit derates to 50% relative humidity (Non-condensing) at +40 $^{\circ}$ 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 $^{\circ}$ C | | | | |
| Altitude (Non-Operating) | Up to 40,000 ft. (12,192 m) | | | | |
| 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 as tested per MIL-PRF-28800F | | | | |
| Functional Shock | 20 g peak, half sine, 11 ms pulse, 3 shocks (positive and negative) in each of three orthogonal axes, 18 shocks total as tested per MIL-PRF-28800F | | | | |
| Physical Dimensions | | | | | |
| Dimensions (HWD) | 355 mm x 467 mm x 289 mm; 14" x 18.4" x 11.4" (height excludes feet) | | | | |
| Weight | 18.4 kg; 40 lbs. | | | | |
| Shipping Weight | 26.6 kg; 58 lbs. | | | | |
| Certifications | | | | | |
| | CE Compliant, UL and cUL listed; conforms to EN 61326, EN 61010-1, UL 61010 2nd edition, and CSA C22.2 No. 61010-1-04 | | | | |
| 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 | invert (negate) |
| average (summed) | log (base e) |
| average (continuous) | log (base 10) |
| derivative | product (x) |
| deskew (resample) | ratio (/) |
| difference (–) | reciprocal |
| enhanced resolution (to 11 bits vertical) | rescale (with units) |
| envelope | roof |
| exp (base e) | (sinx)/x |
| exp (base 10) | square |
| fft (power spectrum, magnitude, phase, up to 128 Mpts) | square root |
| floor | sum (+) |
| integral | zoom (identity) |

- Parameter math – add, subtract, multiply, or divide two different parameters
- Narrow-band power measurements
- Auto-correlation function
- Sparse function
- Cubic and Quadratic Interpolation function

Measure Tools

Display any 12 parameters together with statistics, including their average, high, low, and standard deviations. Histicons provide a fast, dynamic view of parameters and wave shape characteristics.

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

Standard

Jitter and Timing

Parametric Measurements:

- period@level • width@level • duty@level • frequency@level
- TIE@level • edge@level

Statistical Analysis:

Jitter Trend (1000 pts) • Histograms (1000 pts)

Software Options

Jitter and Timing Analysis Software Package (WPZi-JTA2)

This package provides jitter timing and analysis using time, frequency, and statistical views for common timing parameters, and also includes other useful tools. JTA2 includes:

- Jitter and timing parameters, with “Track” graphs of
 - Cycle-Cycle Jitter
 - N-Cycle
 - N-Cycle with start selection
 - Frequency
 - Period
 - Half Period
 - Width
 - Time Interval Error
 - Setup
 - Hold
 - Skew
 - Duty Cycle
 - Duty Cycle Error
- Edge@lv parameter (counts edges)
- 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 trace (mean, range, sigma)

Spectrum Analyzer Mode (WPZi-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 imaginary components
- frequency domain parameters • FFT on up to 128 Mpts.

Disk Drive Measurements Package (WPZi-DDM2)

This package provides disk drive parameter measurements and related mathematical functions for performing disk drive WaveShape Analysis.

- Disk Drive Parameters are as follows:

| | |
|----------------------------|-----------------------------|
| amplitude assymetry | local time trough-peak |
| local base | local time under threshold |
| local baseline separation | narrow band phase |
| local maximum | narrow band power |
| local minimum | overwrite |
| local number | pulse width 50 |
| local peak-peak | pulse width 50– |
| local time between events | pulse width 50+ |
| local time between peaks | resolution |
| local time between troughs | track average amplitude |
| local time at minimum | track average amplitude– |
| local time at maximum | track average amplitude+ |
| local time peak-trough | auto-correlation s/n |
| local time over threshold | non-linear transition shift |

ORDERING INFORMATION

Product Description

Product Code

WavePro 7 Zi Series Oscilloscopes

| | |
|---|---------------|
| 1.5 GHz, 10 GS/s, 4 Ch, 10 Mpts/Ch (20 GS/s and 20 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | WavePro 715Zi |
| 2.5 GHz, 20 GS/s, 4 Ch, 10 Mpts/Ch (40 GS/s and 20 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | WavePro 725Zi |
| 3.5 GHz, 20 GS/s, 4 Ch, 10 Mpts/Ch (40 GS/s and 20 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | WavePro 735Zi |
| 4 GHz, 20 GS/s, 4 Ch, 10 Mpts/Ch (40 GS/s and 20 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | WavePro 740Zi |
| 6 GHz, 20 GS/s, 4 Ch, 10 Mpts/Ch (40 GS/s and 20 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | WavePro 760Zi |

SDA Zi Series Serial Data Analyzers

| | |
|---|-----------|
| 2.5 GHz, 20 GS/s, 4 Ch, 20 Mpts/Ch (40 GS/s and 40 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | SDA 725Zi |
| 3.5 GHz, 20 GS/s, 4 Ch, 20 Mpts/Ch (40 GS/s and 40 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | SDA 735Zi |
| 4 GHz, 20 GS/s, 4 Ch, 20 Mpts/Ch (40 GS/s and 40 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | SDA 740Zi |
| 6 GHz, 20 GS/s, 4 Ch, 20 Mpts/Ch (40 GS/s and 40 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | SDA 760Zi |

DDA 7 Zi Series Oscilloscopes

| | |
|---|-----------|
| 3.5 GHz, 20 GS/s, 4 Ch, 20 Mpts/Ch (40 GS/s and 20 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | DDA 735Zi |
| 6 GHz, 20 GS/s, 4 Ch, 20 Mpts/Ch (40 GS/s and 20 Mpts/Ch in interleaved mode) with 50 Ω and 1 M Ω Input | DDA 760Zi |

Included with Standard Configuration

| | |
|--|-----------|
| \div 10, 500 MHz Passive Probe (Qty. 4) | |
| ProLink to SMA Adapter: 4 each | LPA-SMA-A |
| Optical 3-Button Wheel Mouse, USB 2.0 | |
| Protective Front Cover | |
| Printed Quick Reference Guide | |
| Printed Getting Started Manual | |
| Product Manual Set on CD-ROM | |
| Norton Anti-virus Software (Trial Version) | |
| Microsoft Windows® Vista® License | |
| Commercial NIST Calibration with Performance Certificate | |
| Power Cable for the Destination Country | |
| 3-year Warranty | |

Memory and Sample Rate Options

| | |
|---|-------------|
| 32 Mpts/Ch (64 Mpts/Ch Interleaved) Memory Option for WavePro 7 Zi. Includes an additional 2 GB of RAM (4 GB total) | WPZi-S-32 |
| 32 Mpts/Ch (64 Mpts/Ch Interleaved) Memory Option for DDA 7 Zi. Includes an additional 2 GB of RAM (4 GB total) | DDAPZi-S-32 |
| 32 Mpts/Ch (64 Mpts/Ch Interleaved) Memory Option for SDA 7 Zi. Includes an additional 2 GB of RAM (4 GB total) | SDAZi-S-32 |

Product Description

Product Code

Memory and Sample Rate Options (cont'd)

| | |
|---|--------------------|
| 64 Mpts/Ch (128 Mpts/Ch Interleaved) Memory Option for WavePro 7 Zi. Includes an additional 6 GB of RAM (8 GB total) | WPZi-M-64 |
| 64 Mpts/Ch (128 Mpts/Ch Interleaved) Memory Option for DDA 7 Zi. Includes an additional 6 GB of RAM (8 GB total) | DDAZi-M-64 |
| 64 Mpts/Ch (128 Mpts/Ch Interleaved) Memory Option for SDA7 Zi. Includes an additional 6 GB of RAM (8 GB total) | SDAZi-M-64 |
| 128 Mpts/Ch (256 Mpts/Ch Interleaved) Memory Option for WavePro 7 Zi. Includes an additional 6 GB of RAM (8 GB total) | WPZi-L-128 |
| 128 Mpts/Ch (256 Mpts/Ch Interleaved) Memory Option for DDA 7 Zi. Includes an additional 6 GB of RAM (8 GB total) | DDAZi-L-128 |
| 128 Mpts/Ch (256 Mpts/Ch Interleaved) Memory Option for SDA 7 Zi. Includes an additional 6 GB of RAM (8 GB total) | SDAPZi-L-128 |
| 20 GS/s (40 GS/s Interleaved) Sampling Rate Option for 1.5 GHz WavePro 715 Zi | WPZi-1.5GHZ-4X20GS |

CPU, Computer and Other Hardware Options

| | |
|--|-------------------|
| Upgrade from 2 GB to 8 GB CPU RAM | WPZi-2-UPG-8GBRAM |
| Upgrade from 4 GB to 8 GB CPU RAM | WPZi-4-UPG-8GBRAM |
| Upgrade from Standard Size Hard Drive to 200 GB Hard Drive | WPZi-200GB-HD |
| Additional 80 GB Hard Drive | WPZi-80GB-RHD-02 |
| Additional 200 GB Hard Drive | WPZi-200GB-RHD-02 |
| GPIO Option for LeCroy Oscilloscope | GPIO-B-2 |

Serial Data Options and Accessories

| | |
|--|-----------------------|
| 2.7 Gb/s High-speed Serial Pattern Trigger Option for 4–6 GHz Oscilloscopes (Standard on SDA 7 Zi and DDA 7 Zi) | WPZi-HSPT |
| 1.25 Gb/s Medium-speed Serial Pattern Trigger Option for 2.5–3.5 GHz Oscilloscopes (Standard on SDA 7 Zi and DDA 7 Zi) | WPZi-MSPT |
| Cable De-Embed (Standard on SDA7 Zi and DDA 7 Zi) | WPZi-CBL-DE-EMBED |
| 8b10b Decode only Option (Standard on SDA 7 Zi and DDA 7 Zi) | WPZi-8B10B D |
| I ² C Bus Trigger and Decode Option | WPZi-I2Cbus TD |
| SPI Bus Trigger and Decode Option | WPZi-SPIbus TD |
| LIN Trigger and Decode Option | WPZi-LINbus TD |
| UART and RS-232 Trigger and Decode Option | WPZi-UART-RS232bus TD |
| FlexRay Trigger and Decode Option | WPZi-FlexRayBus TD |
| FlexRay Bus Trigger, Decode, and Physical Layer Test Option | WPZi-FlexRayBus TDP |
| CANbus TDM Trigger, Decode and Measure/Graph Option | WPZi-CANbus TDM |
| CANbus TD Trigger and Decode Option | WPZi-CANbus TD |
| Ethernet Application Software | QPHY-ENET* |
| USB Application Software | QPHY-USB† |
| PCIe Gen1 Compliance and Development Software Package | QPHY-PCle |
| QualiPHY Enabled SATA Software Option | QPHY-SATA |
| WiMedia UWB Transmitter Measurement Software Option | QPHY-UWB |
| Eye Doctor (Virtual Probe and Equalizer emulation) Bundle | WPZi-EYEDR |
| Eye Doctor Virtual Probing Element | WPZi-EYEDR-VP |
| Eye Doctor Equalized Receiver Emulation | WPZi-EYEDR-EQ |

*TF-ENET-B required. †TF-USB-B required.

ORDERING INFORMATION

Product Description

Product Code

High-speed Digitizer Output

| | |
|---|----------------|
| High-speed PCIe Gen1 x4 Digitizer Output | LSIB-1 |
| PCI Express X4 Host Interface Board for Desktop PC | LSIB-HOSTBOARD |
| PCI Express X4 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

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|--|-----------|
| 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

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|--|---------------|
| Advanced Customization Software Package | WPZi-XDEV |
| Spectrum Analyzer and Advanced FFT Option | WPZi-SPECTRUM |
| EMC Pulse Parameter Software Package | WPZi-EMC |
| Serial Data Mask Software Package (Standard on SDA 7 Zi and DDA 7 Zi) | WPZi-SDM |
| Advanced Optical Recording Measurement Package | WPZi-AORM |
| Demodulation Software Package | WPZi-DMOD |
| Jitter Timing and Analysis Software Package (Standard on SDA7 Zi and DDA 7 Zi) | WPZi-JTA2 |
| Digital Filter Software Package | WPZi-DFFP2 |
| Disk Drive Measurements Software Package (Standard on DDA 7 Zi) | WPZi-DDM2 |
| Electrical Telecom Mask Test Software Package | WPZi-ET-PMT |

General Accessories

| | |
|--|-----------------|
| Top-mounted, Fully Integrated 15.3" WXGA with Touch Screen Display, Including all Cabling and Software | WPZi-EXTDISP-15 |
| Keyboard, USB | KYBD-1 |
| Probe Deskew and Calibration Test Fixture | TF-DSQ |
| Hard Carrying Case | WPZi-HARDCASE |
| Soft Carrying Case | WPZi-SOFTCASE |
| Rackmount Accessory for Converting a Zi Series Oscilloscope to an 8U Rack-mounted Package | RACKMOUNT-1 |
| ProLink to SMA Adapter | LPA-SMA-A |
| Kit of ProLink to SMA Adapters | LPA-SMA-KIT-A |
| Oscilloscope Cart with Additional Shelf and Drawer | OC1024 |
| Oscilloscope Cart | OC1021 |

Product Description

Product Code

Probes and Probe Accessories

| | |
|---|------------------------|
| 2.5 GHz, 0.7 pF Active Probe (± 10), Small Form Factor | HFP2500 |
| 1.5 GHz, 0.9 pF, 1 M Ω High Impedance Active Probe | ZS1500 |
| Set of 4 ZS1500, 1.5 GHz, 0.9 pF, 1 M Ω High Impedance Active Probe | ZS1500-QUADPAK |
| WaveLink 7.5 GHz, Differential Probe Adjustable Tip Module | D600A-AT* |
| WaveLink 3.5 GHz, 2.5 V _{p-p} Differential Probe Small Tip Module | D310* |
| WaveLink 3.5 GHz, 5 V _{p-p} Differential Probe Small Tip Module | D320* |
| WaveLink 6 GHz, 2.5 V _{p-p} Differential Probe Small Tip Module | D610* |
| WaveLink 6 GHz, 5 V _{p-p} Differential Probe Small Tip Module | D620* |
| WaveLink 6 GHz, Differential Positioner Mounted Tip Module | D500PT* |
| WaveLink ProLink Probe Body | WL-PLink |
| WaveLink ProBus Probe Body | WL-PBus |
| 7.5 GHz Low Capacitance Passive Probe (± 10 , 1 k Ω ; ± 20 , 500 Ω) | PP066 |
| 1 GHz, Active Differential Probe (± 1 , ± 10 , ± 20) | AP034 |
| Optical-to-Electrical Converter, 500–870 nm ProLink BMA Connector | OE525 |
| Optical-to-Electrical Converter, 950–1630 nm ProLink BMA Connector | OE555 |
| 10/100/1000Base-T Compliance Test Fixture | TF-ENET-B [†] |
| Telecom Adapter Kit 100 Ω Bal., 120 Ω Bal., 75 Ω Unbal. | TF-ET |
| SATA Gen1/Gen2 Compliance Test Fixture | TF-SATA |
| USB 2.0 Testing Compliance Test Fixture | TF-USB-B |

* For a complete probe, order a W-PLink or WL-PBus Probe Body with the Probe Tip Module

[†] Includes ENET-2CAB-SMA018 and ENET-2ADA-BNCSMA

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

Customer Service

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



1-800-5-LeCroy
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Local sales offices are located throughout the world.
To find the most convenient one visit www.lecroy.com