

LeCroy

WaveExpert® 100H

Wide Bandwidth Oscilloscopes
for Next Generation
Serial Data Standards



Specifications

Timebase

Parameter	Sequential	With Coherent Timebase (WE-CIS and WE-HCIS)
Sample Rate	1 MS/s	10 MS/s
Frequency Range	DC to 5 GHz, using Trigger input 5 GHz–14 GHz, using CLK/Prescale input up to 40 GHz, using SDA-TPS accessory	62.5 MHz–125 MHz, using Trigger input 125 MHz–14 GHz, using CLK/Prescale input up to 40 GHz, using SDA-TPS accessory
Pattern Lock	N/A	YES, up to PRBS23
Minimum Time Per Division	1 ps	1 ps
Time Resolution	100 fs rms	100 fs rms
Timebase Range	1 ps/div to 1 ms/div	1 ps/div to 500 ns/div (4 M memory)
Timebase Delay Time Range	25 ns–10 ms	±1 pattern
Time Interval Accuracy	±1 ps ±0.1% of reading	Determined by trigger signal
Long Term Stability	±5 ppm	Determined by trigger signal
Maximum Record Length		
Standard	100k samples	64 M samples 1 Ch, 16 M samples 4 Ch
Optional	N/A	510 M/1 Ch, 256 M/2 Ch, 128 M/4 Ch
Jitter	1 ps typical, 1.2 ps guaranteed	HCIS: 230 fs rms typical, 250 fs rms guaranteed CIS: 500 fs rms typical, 600 fs rms guaranteed (3 Gb/s–40 Gb/s)

Trigger and Clock Inputs

Parameter	Trigger Input	CLK/Prescale Input
Connector Type	2.92 mm	2.92 mm
Impedance	50 Ω nominal	50 Ω nominal
Input Amplitude	±1 V	0.0 dBm ±6 dBm
Max. Input Voltage	±2.5 V	±2.5 V
Coupling	DC	AC coupled
Trigger Sensitivity	-10 dBm at 100 MHz, -5 dBm at 5 GHz	-5 dBm at 14 GHz
Trigger Gating (Sequential mode only)	Enable: 2.0–3.5 V Disable: 0–0.8 V	
Trigger Gating Delay (Sequential mode only)	Disable: 24 ns+ trigger period + time window setting Enable: 32 ns	

Electrical Sampling Modules

Parameter	ST-20 (20 GHz)	SE-30 (30 GHz)	SE-50 (50 GHz)
Connector Type	2.92 mm	2.92 mm	2.4 mm
Rise Time	18 ps	12 ps	8 ps
Bandwidth	20 GHz	30 GHz	50 GHz
Input Voltage Range	2 V _{p-p}	2 V _{p-p}	2 V _{p-p}
DC Vertical Voltage Accuracy	< 1% (800 mV _{p-p} signal)	< 1% (800 mV _{p-p} signal)	< 1% (800 mV _{p-p} signal)
Aberrations	First 40 ps: ±10%, 40 ps–200 ps: ±5%, 200 ps–10 ns ±2%	First 40 ps: ±10%, 40 ps–200 ps: ±5%, 200 ps–10 ns ±2%	First 40 ps: ±10%, 40 ps–200 ps: ±5%, 200 ps–10 ns ±2%
RMS Noise	700 μV max. (500 μV typical)	1 mV (max.)	2 mV (max.), 1 mV (typical)
Offset Range	±1 V	±1 V	±1 V

Parameter	SE-70 (70 GHz)	SE-100 (100 GHz)
Connector Type	1.85 mm	1 mm
Rise Time	5 ps	4 ps
Bandwidth	70 GHz	100 GHz
Input Voltage Range	2 V _{p-p}	2 V _{p-p}
DC Vertical Voltage Accuracy	< 1% (800 mV _{p-p} signal)	< 1% (800 mV _{p-p} signal)
Aberrations	First 40 ps: ±10%, 40 ps–200 ps: ±5%, 200 ps–10 ns ±2%	First 40 ps: ±10%, 40 ps–200 ps: ±5%, 200 ps–10 ns ±2%
RMS Noise	3 mV (max.)	3 mV (max.)
Offset Range	±1 V	±1 V

Specifications

TDR Step Generator (ST-20)

Parameter	Nominal
Step Rise Time	20 ps
TDR Step Voltage	250 mV
Resistance	50 Ω
TDR Pulse Rate	1 MHz
Offset Range	± 1 V
Step Flatness	First 40 ps: $\pm 10\%$, 40 ps–200 ps: $\pm 5\%$, 200 ps–10 ns $\pm 2\%$
Pulse Width	300 ns ± 15 ns

Power Requirements

100–200 V_{rms} ($\pm 10\%$) at 50/60 Hz; 115 V_{rms} ($\pm 10\%$) at 400 Hz, Automatic AC Voltage Selection Installation Category: 300 V CAT II; Max. Power Consumption: 400 VA (400 W)

Environmental

Temperature (Operating)	+5 °C to +40 °C including CD-ROM drive
Temperature (Non-Operating)	-20 °C to +60 °C
Humidity (Operating)	5% to 80% relative humidity (non-condensing) up to +30 °C. Upper limit derates to 25% relative humidity (non-condensing) at +40 °C
Altitude (Operating)	Up to 10,000 ft. (3048 m) at or below +25 °C
Altitude (Non-Operating)	Up to 40,000 ft. (12,192 m)
Random Vibration (Operating)	0.31 g_{rms} 5 Hz–500 Hz, 15 minutes in each of three orthogonal axes
Random Vibration (Non-Operating)	2.4 g_{rms} 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
Functional Shock	20 g_{peak} , half sine, 11 ms pulse, 3 shocks (positive and negative) in each of three orthogonal axes, 18 shocks total

Physical Dimensions

Dimensions (HWD)	264 mm x 397 mm x 491 mm; 10.4" x 15.6" x 19.3" (height excludes feet)
Weight	40 lbs; 18 kg
Shipping Weight	52 lbs; 24 kg

Certifications

CE Compliant, UL and cUL listed; Conforms to EN 61326; EN 61010-1; UL 61010-1; and CSA C22.2 No. 61010-1

Ordering Information

Product Description

Product Code

WaveExpert 100H

Standard 4-slot Mainframe	WE 100H
Serial Data Package (Jitter Analysis)	WE-SDA
510 M (1 Ch), 255 M (2 Ch), 128 M (4 Ch) Waveform Memory	WE-XXL

Software Options

Eye Doctor (Virtual probe and equalizer emulation bundle)	EYEDR
Virtual Probe	EYEDR-VP
Equalizer Emulation	EYEDR-EQ

Timebase Options

CIS Timebase – 600 fs rms Jitter, Pattern Lock, 10 Ms/s	WE-CIS
HCIS Timebase – 250 fs rms Jitter, Pattern Lock, 10 Ms/s	WE-HCIS

Electrical Sampling Modules

100 GHz Electrical Sampling Module	SE-100
70 GHz Electrical Sampling Module	SE-70
50 GHz Electrical Sampling Module	SE-50
30 GHz Electrical Sampling Module	SE-30
20 GHz Electrical Sampling Module with TDR	ST-20

Coaxial Adapters

2.92 mm F-F Adapter	ADAPT-292
2.92 mm – SMA F-F Adapter	ADAPT-292-SMA
1.85 mm F-F Adapter	ADAPT-185
1 mm F-F Adapter	ADAPT-100
1 mm – 1.85 mm F-F Adapter	ADAPT-100-185

Product Description

Product Code

Hardware Options and Accessories

40 GHz Trigger Prescaler (for clock frequencies to 40 GHz)	SDA-TPS
3.5 mm Coaxial Calibration Kit (includes Open, Short, and 50 ohm reference standards)	CALKIT-OSL
1.5 Meter Module Extender Cable	ME-15
Blank Cover Module	WE-CM
IEEE-488 GPIB Remote Control Interface	GPIB-1
Dual Monitor Display	DMD-1
Keyboard, USB	KYBD-1
Oscilloscope Cart with Extra Shelf and Drawer	OC1024
Oscilloscope Cart	OC1021
Rackmount Adapter with 25" (64 cm) Slides	RMA-25
Rackmount Adapter with 30" (76 cm) Slides	RMA-30
Removable Hard Drive Package	WE9K-RHD
Additional Removable Hard Drive (includes USB, CD-ROM and Spare Hard Drive)	WE9K-RHD-02
4 in.-lb. Torque Wrench	TW-4
8 in.-lb. Torque Wrench	TW-8

Customer Service

LeCroy oscilloscopes are designed, built, and tested to ensure high reliability. In the unlikely event you experience difficulties, the WaveExpert Series oscilloscope mainframes are warranted for a period of three years, and modules are warranted for a period of one year. Our probes are warranted for one year.

This warranty includes:

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



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