

WAVESURFER Xs-A SPECIFICATIONS

	WaveSurfer 24Xs-A	WaveSurfer 44Xs-A	WaveSurfer 42Xs-A	WaveSurfer 64Xs-A	WaveSurfer 62Xs-A	WaveSurfer 104Xs-A
Bandwidth (@ 50 Ω)	200 MHz	400 MHz		600 MHz		1 GHz
Rise Time	1.75 ns	875 ps		500 ps		300 ps
Input Channels	4	4	2	4	2	4
Display	10.4" Color flat-panel TFT-LCD, 800 x 600 SVGA, touch screen					
Sample Rate (single-shot)	2.5 GS/s					2.5 GS/s (5 GS/s Interleaved)
Sample Rate (RIS mode)	50 GS/s					
Standard Record Length	5 Mpts/Ch (all channels)					
Standard Capture Time	Up to 2 ms at full sample rate on all four channels					
Vertical Resolution	8-bits					
Vertical Sensitivity (V/div)	2 mV/div–10 V/div (1 MΩ); 2 mV/div–1 V/div (50 Ω)					
Vertical (DC Gain) Accuracy	±1.0% of full scale (typical); ±1.5% of full scale ≥ 10 mV/div (warranted)					
BW Limit	20 MHz	20 MHz, 200 MHz				
Maximum Input Voltage	50 Ω: 5 V _{rms} , 1 MΩ: 400 V max. (DC + Peak AC ≤ 5 kHz)					50 Ω: 5 V _{rms} 1 MΩ: 250 V max. (DC + Peak AC ≤ 10 kHz)
Input Coupling	AC, DC, GND (DC and GND for 50 Ω)					
Input Impedance	1 MΩ 16 pF, or 50 Ω					1 MΩ 20 pF, or 50 Ω
Probing System	BNC or ProBus					
Probes	One PP009 (5 mm) per channel (standard)					One PP011 (5 mm) per channel (standard)
Timebase Range	200 ps/div–1000 s/div (roll mode from 500 ms/div–1000 s/div)					
Timebase Accuracy	≤ 5 ppm @ 25 °C (typical) (≤ 10 ppm @ 5–40 °C)					
Trigger Modes	Normal, Auto, Single, and Stop					
Trigger Sources	Any input channel, External, Ext/10, or line; slope and level unique to each source (except for line trigger)					
Trigger Coupling	DC, AC, HFRej, LFRrej					
Pre-trigger Delay	0–100% of full scale					
Post-trigger Delay	0–10,000 divisions					
Trigger Hold-off	1 ns to 20 s or 1 to 1,000,000,000 events					
Internal Trigger Level Range	±4.1 div from center					
External Trigger Range	EXT/10 ±4V; EXT ±400 mV					

Triggering

Standard Edge, Glitch, Width, Logic (Pattern), TV (NTSC, PAL, SECAM, HDTV – 720p, 1080i, 1080p)

Measure, Zoom, and Math Tools

Standard Parameter Measurements Up to 6 of the following parameters can be calculated at one time on any waveform: Amplitude, Area, Base (Low), Delay, Duty, Fall Time (90%-10%), Fall Time (80%-20%), Frequency, Maximum, Mean, Minimum, Overshoot+, Overshoot-, Period, Peak-Peak, Phase, Rise Time (10%-90%), Rise Time (20%-80%), RMS, Skew, Standard Deviation, Top (High), Width+, Width-. Measurements can be gated.

Zooming Use front panel QuickZoom button, or use touch screen or mouse to draw a box around the zoom area.

Standard Math Operators include Sum, Difference, Product, Ratio, and FFT (up to 25 kpts with power spectrum output and rectangular, VonHann, and FlatTop windows). 1 math function may be defined at a time.

Physical

Dimensions (HWD) 260 mm x 340 mm x 152 mm Excluding accessories and projections (10.25" x 13.4" x 6")

Net Weight 7.26 kg. (16.0 lbs.)

Options

Advanced (WS Xs-ADVTRIG) Runt, Slew Rate, Interval (Signal or Pattern), Dropout, Qualified (State or Edge)

Extended Math (WSXs-MATHSURF Option) Adds the following additional math functions: Absolute Value, Averaging (summed and continuous), Derivative, Envelope, Enhanced Resolution (to 11-bits), Floor, Integral, Invert, Reciprocal, Rescale (change scale and units), Roof, Square, and Square Root. Also adds chaining of two math functions and 1 Mpts FFTs.

WAVESURFER MXs-A SPECIFICATIONS

	WaveSurfer 24MXs-A	WaveSurfer 44MXs-A	WaveSurfer 64MXs-A	WaveSurfer 104MXs-A
Bandwidth (@ 50 Ω)	200 MHz	400 MHz	600 MHz	1 GHz
Rise Time	1.75 ns	875 ps	500 ps	300 ps
Input Channels	4			
Display	10.4" Color flat-panel TFT-LCD, 800 x 600 SVGA, touch screen			
Sample Rate (single-shot)	2.5 GS/s		2.5 GS/s (5 GS/s Interleaved)	5 GS/s
Sample Rate (RIS mode)	50 GS/s			
Standard Record Length	10 Mpts/Ch (all channels)			
Standard Capture Time	Up to 4 ms at 2.5 GS/s (2 ms at 5 GS/s)			
Vertical Resolution	8-bits			
Vertical Sensitivity (V/div)	2 mV/div–10 V/div (1 MΩ); 2 mV/div–1 V/div (50 Ω)			
Vertical (DC Gain) Accuracy	±1.0% of full scale (typical); ±1.5% of full scale ≥ 10 mV/div (warranted)			
BW Limit	20 MHz	20 MHz, 200 MHz		
Maximum Input Voltage	50 Ω: 5 V _{rms} , 1 MΩ: 400 V max. (DC + Peak AC ≤ 5 kHz)			50 Ω: 5 V _{rms} 1 MΩ: 250 V max. (DC + Peak AC ≤ 10 kHz)
Input Coupling	AC, DC, GND (DC and GND for 50 Ω)			
Input Impedance	1 MΩ 16 pF, or 50 Ω			1 MΩ 20 pF, or 50 Ω
Probing System	BNC or ProBus			
Probes	One PP009 (5 mm) per channel (standard)			One PP011 (5 mm) per channel (standard)
Timebase Range	200 ps/div–1000 s/div (roll mode from 500 ms/div–1000 s/div)			
Timebase Accuracy	≤ 5 ppm @ 25 °C (typical) (≤ 10 ppm @ 5–40 °C)			
Trigger Modes	Normal, Auto, Single, and Stop			
Trigger Sources	Any input channel, External, Ext/10, or line; slope and level unique to each source (except for line trigger)			
Trigger Coupling	DC, AC, HFRej, LFRej			
Pre-trigger Delay	0–100% of full scale			
Post-trigger Delay	0–10,000 divisions			
Trigger Hold-off	1 ns to 20 s or 1 to 1,000,000,000 events			
Internal Trigger Level Range	±4.1 div from center			
External Trigger Range	EXT/10 ±4V; EXT ±400 mV			

Triggering

Standard	Edge, Glitch, Width, Logic (Pattern), TV (NTSC, PAL, SECAM, HDTV – 720p, 1080i, 1080p), Runt, Slew Rate, Interval (Signal or Pattern), Dropout, Qualified (State or Edge)
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Measure, Zoom, and Math Tools

Standard Parameter Measurements	Up to 6 of the following parameters can be calculated at one time on any waveform: Amplitude, Area, Base (Low), Delay, Duty, Fall Time (90%-10%), Fall Time (80%-20%), Frequency, Maximum, Mean, Minimum, Overshoot+, Overshoot-, Period, Peak-Peak, Phase, Rise Time (10%-90%), Rise Time (20%-80%), RMS, Skew, Standard Deviation, Top (High), Width+, Width-. Measurements can be gated.
Zooming	Use front panel QuickZoom button, or use touch screen or mouse to draw a box around the zoom area.
Standard Math	Operators include Sum, Difference, Product, Ratio, Absolute Value, Averaging (summed and continuous), Derivative, Envelope, Enhanced Resolution (to 11-bits), Floor, Integral, Invert, Reciprocal, Rescale (change scale and units), Roof, Square, Square Root and FFT (up to 1 Mpts with power spectrum output and rectangular, VonHann, and FlatTop windows). 1 math function may be defined at a time, 2 functions may be chained together.

Physical

Dimensions (HWD)	260 mm x 340 mm x 152 mm Excluding accessories and projections (10.25" x 13.4" x 6")
Net Weight	7.26 kg. (16.0 lbs.)

ORDERING INFORMATION

Product Description

Product Code

WaveSurfer Xs-A Oscilloscopes

1 GHz, 2.5 GS/s, 4 Ch, 5 Mpts/Ch (5 GS/s interleaved) with 10.4" Color Touch Screen Display	WaveSurfer 104Xs-A
600 MHz, 2.5 GS/s, 4 Ch, 5 Mpts/Ch with 10.4" Color Touch Screen Display	WaveSurfer 64Xs-A
600 MHz, 2.5 GS/s, 2 Ch, 5 Mpts/Ch with 10.4" Color Touch Screen Display	WaveSurfer 62Xs-A
400 MHz, 2.5 GS/s, 4 Ch, 5 Mpts/Ch with 10.4" Color Touch Screen Display	WaveSurfer 44Xs-A
400 MHz, 2.5 GS/s, 2 Ch, 5 Mpts/Ch with 10.4" Color Touch Screen Display	WaveSurfer 42Xs-A
200 MHz, 2.5 GS/s, 4 Ch, 5 Mpts/Ch with 10.4" Color Touch Screen Display	WaveSurfer 24Xs-A

WaveSurfer MXs-A Oscilloscopes

1 GHz, 5 GS/s, 4 Ch, 10 Mpts/Ch with 10.4" Color Touch Screen Display	WaveSurfer 104MXs-A
600 MHz, 2.5 GS/s (5 GS/s interleaved) 4 Ch, 10 Mpts/Ch with 10.4" Color Touch Screen Display	WaveSurfer 64MXs-A
400 MHz, 2.5 GS/s, 4 Ch, 10 Mpts/Ch with 10.4" Color Touch Screen Display	WaveSurfer 44MXs-A
200 MHz, 2.5 GS/s, 4 Ch, 10 Mpts/Ch with 10.4" Color Touch Screen Display	WaveSurfer 24MXs-A

Included with Standard Configuration (WaveSurfer Xs-A and MXs-A)

±10, 500 MHz, 10 MΩ Passive Probe (Total of 1 Per Channel)	
Getting Started Manual and Quick Reference Guide	
Standard Ports: 10/100Base-T Ethernet, USB 2.0 (5), SVGA Video Out, Audio In/Out, RS-232	
Protective Front Cover	
Anti-virus Software (Trial Version)	
Standard Commercial Calibration and Performance Certificate	
3-year Warranty	

Included with WaveSurfer MXs-A

10 Mpts/Ch Standard Memory	
Advanced Triggering with LeCroy SMART Triggers	
Extended Math with 15 Math Functions and Improved FFT Capabilities	
LabNotebook Documentation and Report Generation	

Memory Option

10 Mpts/Ch Memory Option (for 4 Ch WaveSurfer Xs-A)	WSXs-VL
10 Mpts/Ch Memory Option (for 2 Ch WaveSurfer Xs-A)	WSXs-VL2

General Accessories

Keyboard Accessory	WSXs-KYBD
Optical Mouse Accessory	WSXs-MOUSE
External GPIB Accessory	WS-GPIB
Hard Carrying Case	WSXs-HARDCASE
Soft Carrying Case	WSXs-SOFTCASE
Rack Mount Accessory	WSXs-RACK
Accessory Pouch	WSXs-POUCH

Mounting Accessory

Clamp Mounting Stand	WSXs-MS-CLAMP
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Product Description

Product Code

Local Language Overlays

German Front Panel Overlay	WSXs-A-FP-GERMAN
French Front Panel Overlay	WSXs-A-FP-FRENCH
Italian Front Panel Overlay	WSXs-A-FP-ITALIAN
Spanish Front Panel Overlay	WSXs-A-FP-SPANISH
Japanese Front Panel Overlay	WSXs-A-FP-JAPANESE
Korean Front Panel Overlay	WSXs-A-FP-KOREAN
Chinese (Tr) Front Panel Overlay	WSXs-A-FP-CHNES-TR
Chinese (Simp) Front Panel Overlay	WSXs-A-FP-CHNES-SI
Russian Front Panel Overlay	WSXs-A-FP-RUSSIAN

Software Options

Advanced Trigger Software Package	WSXs-ADVTRIG
Extended Math Software Package	WSXs-MATHSURF
Electrical Telecom Mask Test Software Package	WSXs-ET-PMT

Serial Data Options

I ² C Trigger and Decode Option	WSXs-I2Cbus TD
UART and RS-232 Trigger and Decode Option	WSXs-UART-RS232bus TD
SPI Trigger and Decode Option	WSXs-SPIbus TD
LIN Trigger and Decode Option	WSXs-LINbus TD
CAN Trigger and Decode Option	WSXs-CANbus TD
MIL-STD-1553 Trigger and Decode Option	WSXs-1553 TD
Audiobus Trigger and Decode Option	WSXs-Audiobus TD
for I ² S, LJ, RJ, and TDM	

Mixed Signal Oscilloscope Options

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

Probes and Amplifiers*

Set of 4 ZS1500, 1.5 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS1500-QUADPAK
Set of 4 ZS1000, 1 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS1000-QUADPAK
1 GHz Active Differential Probe (±1, ±10, ±20)	AP034
500 MHz Active Differential Probe (x10, ±1, ±10, ±100)	AP033
30 A; 100 MHz Current Probe – AC/DC; 30 A _{rms} ; 50 A _{peak} Pulse	CP031
30 A; 50 MHz Current Probe – AC/DC; 30 A _{rms} ; 50 A _{peak} Pulse	CP030
30 A; 50 MHz Current Probe – AC/DC; 30 A _{rms} ; 50 A _{peak} Pulse	AP015
150 A; 10 MHz Current Probe – AC/DC; 150 A _{rms} ; 500 A _{peak} Pulse	CP150
500 A; 2 MHz Current Probe – AC/DC; 500 A _{rms} ; 700 A _{peak} Pulse	CP500
1,400 V, 100 MHz High-Voltage Differential Probe	ADP305
1,400 V, 20 MHz High-Voltage Differential Probe	ADP300
1 Ch, 100 MHz Differential Amplifier with Precision Voltage Source	DA1855A

*A wide variety of other passive, active, and differential 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
www.lecroy.com

Local sales offices are located throughout the world.
Visit our website to find the most convenient location.