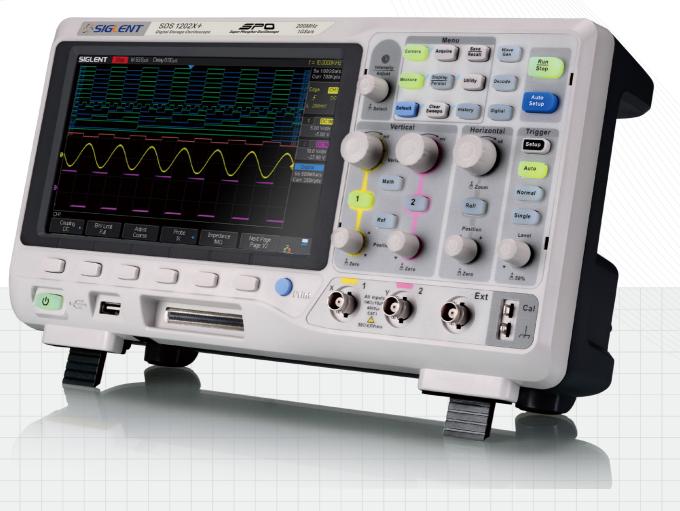
SDS1000X SDS1000X+ Series Digital Oscilloscope





SIGLENT TECHNOLOGIES CO.,LTD

SDS1102X SDS1202X SDS1102X+ SDS1202X+

Overview

SIGLENT's new SDS1000X/SDS1000X+ Series Super Phosphor Oscilloscopes are available in two bandwidths, 100 MHz and 200 MHz, have a sampling rate of 1 GSa/s and a standard record length of 14 Mpts. The most commonly used functions can be accessed with its user-friendly one-button design.

The SDS1000X/SDS1000X+ series employs a new generation of SPO technology. With its excellent signal fidelity, background noise is lower than similar products in the industry. It has a minimum vertical input range of 500 uV/div, an innovative digital trigger system with high sensitivity and low jitter, and a waveform capture rate of 60,000 frames/sec. It also employs not only the common 256-level intensity grading display function but also a color temperature display mode not found in other models in this class. Siglent's new oscilloscopes offering supports multiple powerful triggering modes including serial bus triggering and decoding. History waveform recording and sequential triggering allow for extended waveform records to be captured, stored, and analyzed. SDS1000X+ adds an integrated 25 MHz arbitrary waveform generator (standard), option for 16 digital channels. The features and high-performance of the SDS1000X/SDS1000X+ oscilloscopes cannot be matched else anywhere at this price.



Key Features

- 🚣 200 MHz, 100 MHz bandwidth models
- Real-time sampling rate up to 1 GSa/s
- New generation of SPO technology
 - Waveform capture rate up to 60,000 wfm/s (normal mode), and 400,000 wfm/s (sequence mode)
 - Supports 256-level intensity grading and color temperature display
 - Record length up to 14 Mpts
 - Digital trigger system
- Intelligent trigger: Edge, Slope, Pulse Width, Window, Runt, Interval, Time out (Dropout), Pattern
- Serial bus triggering and decode, supports protocols IIC, SPI, UART, RS232, CAN, LIN
- 🜆 Video trigger, supports HDTV
- Low background noise, supports 500µV / div to 10V / div voltage scales
- 10 types of one-button shortcuts, supports Auto Setup, Default, Cursors, Measure, Roll, History, Display/Persist, Clear Sweep, Zoom and Print
- Segmented acquisition (Sequence) mode, dividing the maximum record length into multiple segments (up to 80,000), according to trigger conditions set by the user, with a very small dead time segment to capture the qualifying event.
- History waveform record (History) function, the maximum recorded waveform length is 80,000 frames.
- Automatic measurement function on 37 parameters, supports Statistics, Gating measurement, Math measurement, History measurement and Ref measurement
- Math function (FFT, addition, subtraction, multiplication, division, integration, differential, square root)
- IIII High Speed hardware based Pass/ Fail function
- I6 Digital channels (MSO), Maximum waveform capture rate up to 500 MSa/s, Record length up to 14 Mpt/CH (Option for SDS1000X+ models)
- 25 MHz DDS arbitrary waveform generator, built-in 10 kinds of waveforms (Standard for SDS1000X+ models)
- Large 8 inch TFT-LCD display with 800 * 480 resolution
- Abundant interfaces: USB Host, USB Device (USB-TMC), LAN (VXI-11), Pass / Fail, Trigger Out
- Supports SCPI remote control commands

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Models and Key Specifications

Model	SDS1102X SDS1102X+	SDS1202X SDS1202X+
Bandwidth	100 MHz	200 MHz
Sampling Rate (Max.)	1 GSa/s	
Channels	2+EXT	
Memory Depth (Max.)	7 Mpts/CH (Dual-Channel); 14 Mpts/CH (Single-Channel)	
Waveform Capture Rate (Max.)	60,000 wfm/s (normal mode), 400,000 wfm/s (sequence mode)	
Trigger Type	Edge, Slope, Pulse width, Window, Runt, Interval, Dropout, Pattern, Video	
Serial Trigger	I ² C, SPI, UART/RS232, CAN, LIN	
Decode Type (Optional)	I ² C, SPI, UART/RS232, CAN, LIN	
DDS Waveform Generator	Single Channel, Max. Frequency up to 25 MHz, 125 MSa/s sampling	rate, 16 Kpts wave length
	SDS1000X+ Supported (Standard); SDS1000X Not supported	
16 Digital Channels (MSO	Maximum waveform capture rate up to 500 MSa/s, Record length u	p to 14 Mpts/CH
Option)	SDS1000X+ Supported (Optional); SDS1000X Not supported	
Logic Probe	SPL1016 (Optional)	
I/O	USB Host, USB Device, LAN, Pass/Fail, Trigger Out, 1 KHz Cal	
Probe (Std)	2 pcs passive probe PP510	2 pcs passive probe PP215
Display	8 inch TFT-LCD (800x480)	
Weight	Without package 3.26 Kg; with package 4.25 Kg	

Function & Characteristics

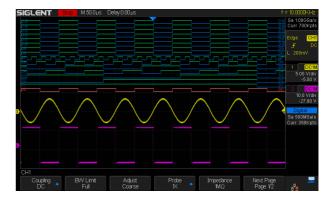
8 inch TFT-LCD display and 10 one-button menus



8-inch TFT-LCD display with 800 * 480 resolution

Most commonly used functions are accessible using 10 different one-button operation keys: Auto Setup, Default, Cursor, Measure, Roll, History, Persist, Clear Sweep, Zoom, Print

16 Digital Channels/MSO (Optional for SDS1000X+)



2 analog channels plus 16 digital channels enables users to acquire and trigger on the waveforms then analyze the pattern, simultaneously with one instrument.

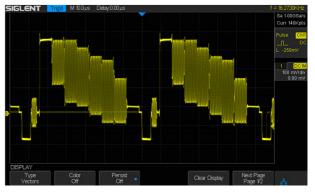
Characteristics

Waveform capture rate up to 400,000 wfms/s

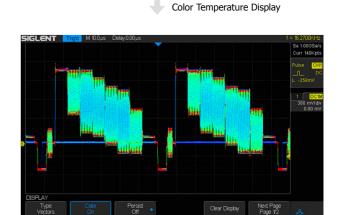


With a waveform capture rate of up to 400,000 wfm/s (sequence mode), the oscilloscope can easily capture the unusual or low-probability events.

256 intensity grading and color temperature display



SPO display technology provides for fast refresh rates. The resulting intensity-graded trace is brighter for more often-occurring display points and dimmer in less-often-occurring points

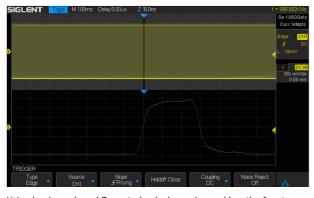


The color temperature display is similar to the intensity-graded trace except that the trace occurrence is represented by different colors (color "temperature") as opposed to changes in the intensity of one color. Red represents the most common occurrences or probabilities while blue is the least common points.

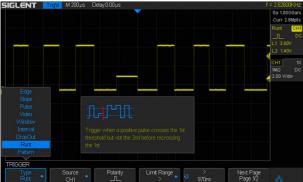


SDS1000X/SDS1000X+ displays the decoding through the events list. Bus protocol information can be quickly and intuitively displayed in table form.

Record length of up to 14 Mpts

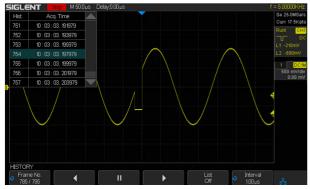


Using hardware-based Zoom technologies and record length of up to 14 Mpts, users are able to use a higher sampling rate to capture more of the signal, and then quickly zoom in to focus on the area of interest



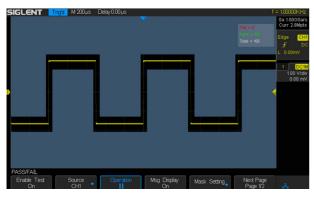
SDS1000X/SDS1000X+ has a wealth of trigger modes, including Edge, Slope, Pulse, Video, Windows, Runt, Interval, Time out (Dropout), Pattern, IIC, SPI, UART/RS232, LIN, CAN

History Waveforms (History) mode and segmented acquisition (Sequence)



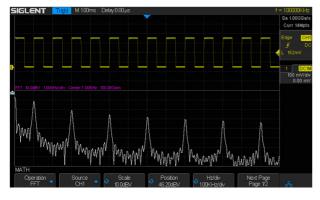
Playback history waveform to observe unusual events and locate the source quickly through the cursor or measurements, located on the keyboard Panel, this function is easily enabled. Segmented memory collection will store the waveform into multiple (up to 80,000) memory segments, each segment will store a triggered waveform and dead time information

Hardware-Based High Speed Pass/Fail Function



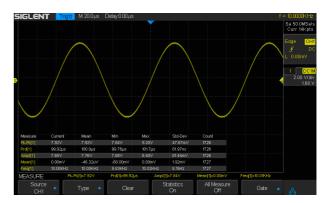
The SDS1000X/SDS1000X+ utilizes a hardware-based Pass / Fail function, performing up to 40,000 Pass / Fail decisions each second. With easy to generate user-defined test templates, the SDS1000X/SDS1000X+ compares the current measured trace to the template mask trace making it suitable for long-term signal monitoring or automated production line testing.

Advanced Math Function



In addition to the traditional (+, -, X, /) operation, SDS1000X/ SDS1000X+ oscilloscopes supports FFT, integration, differentiation, and square root operations.

Comprehensive statistical functions



Parametric statistical functions to display any parameters of the five measurements: current, average, minimum value, maximum value, and the standard deviation. The measurement count is also displayed. The maximum number of parameters that can be measured and simultaneously analyzed statistically is five. Supports Gating measurements, Math measurement, History measurement, Ref measurement.

Built-in 25 MHz function/arbitrary waveform generator (Standard for SDS1000X+ Models)



The SDS1000X+ has a built-in 25 MHz function / arbitrary waveform generator (standard), including 10 built-in waveforms plus 4 ARBs. The arbitrary waveforms can be accessed and edited by the EasyWave PC software

Complete connectivity



SDS1000X/SDS1000X+ supports USB Host, USB Device (USB-TMC), LAN(VXI-11), Pass/Fail and Trigger Out

Specifications

Acquire System		
Sampling Rate	1 GSa/s (Single-Channel), 500 MSa/s (Daul-Channel)	
Memory Depth	Max 14 Mpts/Ch (Single-Channel), 7 Mpts/Ch (Dual- Channel)	
Peak Detect	1 ns	
Average	Averages: 4,16, 32,64,128,256,512,1024	
Eres	Enhance bits: 0.5, 1, 1.5, 2, 2.5, 3 Selectable	
Waveform interpolation	Sinx/x, Linear	

Input		
Channel	2	
Coupling	DC, AC, GND	
Impodance	DC: (1 MΩ±2%) (18 pF ±2 pF)	
Impedance	50 Ω: 50 Ω±2%	
Max Input voltage	1 MΩ ≤400 Vpk(DC + Peak AC <=10 kHz),	
Max Input Voltage	50 Ω ≤5 Vrms	
CH to CH Isolation	DC~Max BW >40 dB	
Probe attenuator	1 X, 10 X, 50 X, 100 X, 500 X , 1000 X	

Vertical System	
Pandwidth (2 dP)	200 MHz (SDS1202X/SDS1202X+) 100 MHz (SDS1102X/SDS1102X+)
Vertical Resolution	8 bit
Vertical Scale (Probe 1X)	500 µV/div - 10 V/div (1-2-5)
Offset Range (Probe 1X)	500 μV ~ 150 mV: ± 1 V 152 mV ~ 1.5 V: ± 10 V 1.52 V ~ 10 V: ± 100 V
Bandwidth Limit	20 MHz ±40%
	DC ~ 10%(BW): ± 1 dB 10% ~ 50%(BW): ± 2 dB 50% ~ 100%(BW): + 2 dB / -3 dB
Low Frequency Response (AC-3 dB)	≤10 Hz (at input BNC)
NUISE	ST-DEV ≤0.7 division (<1 mV/div) ST-DEV ≤0.3 division(<2 mV/div) ST-DEV ≤0.2 division(≥2 mV/div)
SFDR including harmonics	≥35 dB
DC Gain Accuracy	≤±3.0%: 5 mV/div ~10 V/div ≤±4.0%: ≤2 mV/div
Offset Accuracy	±(1%* Offset+1.5%*8*div+2 mV): ≥2 mV/div ±(1%* Offset+1.5%*8*div+500 uV): ≤1 mv/div
	Typical 1.8 ns (SDS1202X/SDS1202X+) Typical 3.5 ns (SDS1102X/SDS1102X+)
Overshoot (500 ps Pulse)	<10%

Horizontal System	
Time base Scale	2.0 ns/div ~ 50 s/div
Channel Skew	<100 ps
Waveform Capture Rate	Up to 60,000 wfm/s (normal mode), 400,000 wfm/s (sequence mode)
Intensity grading	256 Levels
Display Format	Y-T, X-Y, Roll
Time base Accuracy	±25 ppm
Roll Mode	50 ms/div ~ 50 s/div (1-2-5 step)

Trigger System	
Trigger Mode	Auto, Normal, Single
	Internal: ±4.5 div from the center of the screen
Trigger Level	EXT: ±0.6 V
	EXT/5: ±3 V
Hold-off Range	80 ns ~ 1.5 s
Trigger Coupling	AC , DC, LFRJ, HFRJ , Noise RJ (CH1~CH2)
	DC: Passes all components of the signal
Coupling Frequency Decouped	AC: Blocks DC components and attenuates signals below 5.8 Hz
Coupling Frequency Response (CH1~CH2)	LFRJ: Blocks the DC component and attenuates the low-frequency components below 2 MHz
	HFRJ: Attenuates the high-frequency components above 1.27 MHz
	DC: Passes all components of the signal
Coupling Frequency Response	AC: Blocks DC components and attenuates signals below 30 Hz
(EXT)	LFRJ: Blocks the DC component and attenuates the low-frequency components below 300 Hz
. ,	HFRJ: Attenuates the high-frequency components above 7 MHz
Trigger Accuracy (Typical)	Internal: ±0.2 div EXT: ±0.4 div
Trigger Sensitivity	CH1~CH2: DC~ Max BW 0.6 div EXT: 200 mVpp DC ~ 10 MHz 300 mVpp 10 MHz ~ BW frequency EXT/5: 1 Vpp DC ~ 10 MHz 1.5 Vpp 10 MHz ~ BW frequency
Trigger Jitter	<100 ps (CH1~CH2)
Trigger Displacement	Pre-Trigger: 0~100% Memory Delay Trigger: 0 to 10,000 div

Slope Trigger	
Slope	Rising, Falling
Limit Range	<, >, <>, ><
Source	CH1/CH2
Time Range	2 ns ~ 4.2 s
Resolution	1 ns
Edge Trigger	
Slope	Rising, Falling, Rising & Falling
Source	CH1/CH2 /EXT/(EXT/5)/AC Line
Pulse Trigger	
Polarity	+wid , -wid
Limit Range	<, >, <>, ><
Source	CH1/CH2
Pulse Range	2 ns ~ 4.2 s
Resolution	1 ns
Video Trigger	
Signal Standard	NTSC, PAL, 720p/50, 720p/60, 1080p/50, 1080p/60, 1080i/50,
Source	1080i/60, Custom
Source	CH1/CH2
Sync	Any, Select
Trigger condition	Line, Field
Interval Trigge	r
Slope	Rising, Falling
Limit Range	<, >, <>, ><
Source	CH1/CH2

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Time Range

Resolution

2 ns ~ 4.2 s

1 ns

SDS1000X/SDS1000X+ Digital Oscilloscope

Dropout Trigger	
Time out Type	Edge, State
Source	CH1/CH2
Slope	Rising, Falling
Time Range	2 ns ~ 4.2 s
Resolution	1 ns

Runt Trigger		
Polarity	+wid , -wid	
Limit Range	<, >, <>, ><	
Source	CH1/CH2	
Time Range	2 ns ~ 4.2 s	
Resolution	1 ns	
Pattern Trigger		
Pattern Setting	Invalid, Low, High	
Logic	AND, OR, NAND, NOR	
Source	CH1/CH2	
Limit Range	<, >, <>, ><	
Time Range	2 ns ~ 4.2 s	
Resolution	1 ns	
Window Trigger		

Window TypeAbsolute, RelativeSourceCH1/CH2

Serial Trigger	
I ² C Trigger	
Condition	Start, Stop, Restart, No Ack, EEPROM, 7 bits Address & Data, 10 bits Adress & Data, Data Length
Source (SDA/SCL)	CH1, CH2
Data format	Hex
Limit Range	EEPROM: =, >, <
Data Length	EEPROM: 1 byte
	Addr & Data: 1~2 byte
	Data Length: 1~12 byte
R/W bit	Addr & Data: Read, Write, Do not care

SDI Triggor	
SPI Trigger	
Condition	Data
Source (CS/CL/Data)	CH1, CH2
Data format	Binary
Data Length	4 ~ 96 bit
Bit Value	0, 1, X
Bit Order	LSB, MSB
UART/ RS232 T	rigger
Condition	Start, Stop, Data, Parity Error
Source (RX/TX)	CH1, CH2
Data format	Hex
Limit Range	=, >, <
Data Length	1 byte
Data Width	5 bit, 6 bit, 7 bit, 8 bit
Parity Check	None, Odd, Even
Stop Bit	1 bit, 1.5 bit, 2 bit
Idle Level	High, Low
Baud (Selectable)	600/1200/2400/4800/9600/19200/38400/57600/115200 bit/s
(Custom)	300 bit/s ~ 334000 bit/s

CAN Trigger	
Condition	All, Remote, ID, ID + Data, Error
Source	CH1,CH2
ID	STD (11 bit), EXT (29 bit)
Data Format	Hex
Data Length	1~2 byte
Baud Rate (Selectable)	5k/10k/20k/50k/100k/125k/250k/500k/800k/1M bit/s
Baud Rate (Custom)	5 kbit/s~1 Mbit/s
LIN Trigger	
Condition	Break, Frame ID, ID+Data, Error
Source	CH1, CH2
ID	1 byte
Data Format	Hex
Data Length	1~2 byte
Baud Rate (Selectable)	600/1200/2400/4800/9600/19200 bit/s
Baud Rate (Custom)	300 bit/s~20 kbit/s

Serial Decoder ((Optional)
I ² C Decoder	
Signal	SCL, SDA
Address	7bit, 10 bit
Threshold	-4.5~4.5 div
List	1~7 lines
SPI Decoder	
Signal	SCL, MISO, MOSI, CS
Edge Select	Rising, Falling
Idle	Low, High
Bit Order	MSB, LSB
Threshold	-4.5~4.5 div
List	1~7 lines
UART/ RS232 D	ecoder
Signal	RX, TX
Data Width	5 bit, 6 bit, 7 bit, 8 bit
Parity Check	None, Odd, Even
Stop Bit	1 bit, 1.5 bit, 2 bit
Idle Level	Low, High
Threshold	-4.5~4.5 div
List	1~7 lines
CAN Decoder	
Signal	CAN_H, CAN_L
Source	CAN_H, CAN_L, CAN_H-CAN_L
Threshold	-4.5~4.5 div
List	1 ~ 7 lines
LIN Decoder	
LIN Specification Package Revision	Ver1.3, Ver2.0
Threshold	-4.5 ~ 4.5 div
List	1 ~ 7 lines

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Statistics Current, Mean, Min, Max, Std-Dev, Count	Cursors	Manual : Time X1, X2, (X1-X2), (1/ΔT) Voltage Y1, Y2, (Y1-Y2)		
	Statistics			
	Counter			

Math Function	
Operation	+, -, *, /, FFT, d/dt,∫dt,√
FFT window	Rectangular, Blackman, Hanning, Hamming
FFT display	Full Screen, Split
Decoding number	2
SDS1000X+)	n Generator (Standard for
Channel	1
Max. Output Frequency	25 MHz
Sampling Rate	125 MSa/s
Frequency Resolution	1 μHz
Frequency Accuracy	±50 ppm
Vertical Resolution	14 bits
Amplitude Range	-1.5 ~ +1.5 V (50 Ω)
	-3 ~ +3 V (High-Z)
Waveform Type	Sine, Square, Ramp, Pulse, DC, Noise, Cardiac, Gaus Pulse, Exp Rise, Exp Fall, Arb
Output impedance	50 Ω±2%
Protection	Short-Circuit Protection
Sine	
Frequency	1 μHz ~ 25 MHz
Offset Accuracy (100 KHz)	±(0.3 dB*Offset Setting Value +1 mVpp)
Amplitude flatness (100 kHz, 5Vpp)	±0.3 dB
SFDR	DC ~ 1 MHz -60 dBc
	1 MHz ~ 5 MHz -55 dBc
	5 MHz ~ 25 MHz -50 dBc
HD	DC-5 MHz -50 dBc
HD	DC-5 MHz -50 dBc 5 MHz - 25 MHz -45 dBc
Square/Pulse	5 MHz - 25 MHz -45 dBc
Square/Pulse Frequency	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz
Square/Pulse Frequency Duty Cycle	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80%
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz,	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical)	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3%
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3%
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter Ramp	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100%
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter Ramp Frequency Linearity(Typical)	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry)
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter Ramp Frequency Linearity(Typical) Symmetry	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100%
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter Ramp Frequency Linearity(Typical)	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry) 0% ~ 100% (Adjustable)
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter Ramp Frequency Linearity(Typical) Symmetry	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry)
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter Ramp Frequency Linearity(Typical) Symmetry DC	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry) 0% ~ 100% (Adjustable) ±1.5 V (50 Ω)
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter Ramp Frequency Linearity(Typical) Symmetry DC Offset range	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry) 0% ~ 100% (Adjustable) ±1.5 V (50 Ω) ±3 V (High-Z)
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter Ramp Frequency Linearity(Typical) Symmetry DC Offset range Accuracy	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry) 0% ~ 100% (Adjustable) ±1.5 V (50 Ω) ±3 V (High-Z)
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1Vpp, Typical) Pulse Width Jitter Ramp Frequency Linearity(Typical) Symmetry Symmetry DC Offset range Accuracy Bandwidth	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry) 0% ~ 100% (Adjustable) #1.5 V (50 Ω) ±3 V (High-Z) ±(offset *1%+3 mV)
Square/Pulse Frequency Fuely Cycle Rise/Fall time Vovershoot (1kHz, 1Vpp, Typical) Pulse Width Utter Inter Ramp Frequency Linearity(Typical) Symmetry DC Offset range Accuracy Bandwidth Arbitrary Wave	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry) 0% ~ 100% (Adjustable) #1.5 V (50 Ω) ±3 V (High-Z) ±(Ioffset]*1%+3 mV) >25 MHz (-3 dB)
Square/Pulse Frequency Duty Cycle Cise/Fall time Cise/Fall time Cise/Fall time Cise/Fall time Cise/Fall time Cise/Fall time Cise/Fall Cise/Fall Cise/Fall Cise/Cise/Cise/Cise/Cise/Cise/Cise/Cise/	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry) 0% ~ 100% (Adjustable) 4 ±1.5 V (50 Ω) ±3 V (High-Z) ±(offset *1%+3 mV) 2 25 MHz (-3 dB) 1 μHz ~ 5 MHz
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, Vypp, Typical) Pulse Width Dutse Width Chearency Frequency Symmetry Doc Symmetry Coffset range Coffset range Accuracy Accuracy Bandwidth Coffset Frequency Frequency Wave Length	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry) 0% ~ 100% (Adjustable) 4 ±1.5 V (50 Ω) ±3 V (High-Z) ±(Ioffset *1%+3 mV) 225 MHz (-3 dB) 1 μHz ~ 5 MHz 16 Kpts
Square/Pulse Frequency Duty Cycle Rise/Fall time Overshoot (1kHz, 1/vpp, Typical) Pulse Width Jitter Ramp Frequency Cinearity(Typical) Symmetry DC Offset range Accuracy Noise Bandwidth Arbitrary Wave Frequency	5 MHz - 25 MHz -45 dBc 1 μHz ~ 10 MHz 20% ~ 80% < 24 ns (10% ~ 90%) < 3% > 50 ns < 500 ps + 10 ppm 1 μHz ~ 300 kHz < 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 100% Symmetry) 0% ~ 100% (Adjustable) 4 ±1.5 V (50 Ω) ±3 V (High-Z) ±(offset *1%+3 mV) 2 25 MHz (-3 dB) 1 μHz ~ 5 MHz

Digital Channels (Optional for SDS1000X+)			
No. of Channels	16		
Max. Sampling Rate	500 MSa/s		
Memory Depth	14 Mpts/CH		
Min. Detectable Pulse Width	4 ns		
Level Group	D0~D7, D8~D15		
Level Range	-3 V~3 V		
Logic Type	TTL, CMOS, LVCMOS 3.3, LVCMOS 2.5, custom		
Skew	D0~D15: ±1 sampling interval Digital to Analog: ± (1 sampling interval +1 ns)		

I/O Standard USB Host, USB Device, LAN, Pass/Fail, Trigger Out Pass/Fail 3.3 V TTL Output **Display (Screen)** Display Type 8 inch TFT-LCD **Display Resolution** 800×480 **Display** Color 24 bit Contrast (Typical) 500:1 Backlight 300 nit 8 x 14 divisions Range **Display (Waveform)** Display Mode Dot, Vector Persist Time Off, 1 Sec, 5 Sec, 10 Sec, 30 Sec, Infinite Color Display Normal, Color Screen Saver $1\ \text{min},\,5\ \text{min},\,10\ \text{min},\,30\ \text{min},\,1\ \text{hour, Off}$ Language Simplified Chinese, Traditional Chinese, English, French, Japanese, Korean, German, Russian, Italian, Portuguese **Environments** Temperature Operating: 10 °C \sim +40 °C Non-operating: -20 $^\circ\text{C}$ +60 $^\circ\text{C}$ Humidity Operating: 85%RH, 40 °C , 24 hours Non-operating: 85%RH, 65 $^\circ\!\mathrm{C}$, 24 hours Height Operating: ≤3000 m Non-operating: ≤15,266 m Electromagnetic 2004/108/EC Compatibility Execution Standard EN 61326-1:2006 EN 61000-3-2:2006 + A2:2009, EN 61000-3-3:2008 Safety 2006/95/EC Execution Standard EN 61010-1:2010/EN 61010-2-030:2010 **Mechanical** Dimensions Length 340 mm Width 123 mm Height 184 mm Weight N.W: 3.26 Kg; G.W: 4.25 Kg **Power Supply** Input Voltage 100 ~ 240 VAC, CAT II, Auto selection 50/ 60/ 400 Hz Frequency 50 W Max Power

SDS1000X/SDS1000X+ Probes & Accessories

Туре	Model	Picture	Specifications
Passive Probe	PP470		Bandwidth: 70 MHz, 1 X/10 X, 1 M/10 Mohm, 300 V/600 V
	PP510		Bandwidth: 100 MHz, 1 X/10 X, 1 M/10 Mohm, 300 V/600 V
	PP215		Bandwidth: 200 MHz, 1 X/10 X, 1 M/10 Mohm, 300 V/600 V
Logic Probe	SPL1016		16 Channel Logic Probe
Current Probe	CP4020		Bandwidth: 100 KHz; Maximum continuous current 20 Arms; Peak current 60 A; Switching ratio: 50 mV/A; 5 mV/A; DC measurement accuracy: 50 mV/A (0.4 A-10 ApK) ± 2%; 5 mV/A (1 A-60 ApK)±2%; 9 V battery-powered
	CP4050		Bandwidth: 1 MHz; Maximum continuous current 50 Arms; Peak current 140 A; Switching ratio: 500 mV/A; 50 mV/A; DC measurement measurement accuracy: 500 mV/A (20 mA-14 ApK) ±3%±20 mA; 50 mV/A (200 mA-100 ApK)±4%± 200 mA; 50 mV/A (100 A-140 ApK)±15% max; 9 V battery-powered
	CP4070		Bandwidth: 150 KHz; Maximum continuous current 70 Arms; Peak current 200 A; Switching ratio: 50 mV/A; 5 mV/A; DC measurement accuracy: 50 mV/A (0.4 A-10 ApK)±2%±5 mV/A (1 A-200 ApK)±2%; 9 V battery-powered
	CP4070A		Bandwidth: 300 KHz; Maximum continuous current 70 Arms; Peak current 200 A; Switching ratio: 100 mV/A;10 mV/A; DC measurement accuracy: 100 mV/A (50 mA-10 ApK) ±3%±50 mA; 10 mV/A (500 mA-40 ApK) ±4%±50 mA; 10 mV/A (40 A-200 ApK) ±15% max; 9 V battery-powered
	CP5030		Bandwidth: 50 MHz; Maximum continuous current 30 Arms; Peak current 50 A;Switching ratio: 100 mV/A, 1 V/A; AC/DC measurement accuracy: 1 A (±1%±1 mA); 100 mV/A (±1%±10 mA); Standard DC 12 V/1.2 A power adapter
	СР5030А		Bandwidth: 100 MHz; Maximum continuous current 30 Arms; Peak current 50 A; Switching ratio: 100 mV/A, 1 V/A; AC/DC measurement accuracy: 1 A (±1%±1 mA); 100 mV/A (±1%±10 mA); Standard DC 12 V/1.2 A power adapter
	CP5150		Bandwidth: 12 MHz; Maximum continuous current 150 Arms; Peak current 300 A; Switching ratio: 100 mV/A, 1 V/A; AC/DC measurement accuracy: 100 mV/A (±1%±1 mA); 10 mV/A (±1%±10 mA); Standard DC 12 V/1.2 A power adapter
	CP5500		Bandwidth: 5 MHz; Maximum continuous current 500 Arms; Peak current 750 A; Switching ratio: 100 mV/A, 10 mV/A; AC/DC measurement accuracy: 100 mV/A (±1%±1 mA); 10 mV/A (±1%±10 mA); Standard DC 12 V/1.2 A power adapter
High Voltage Differential Probe	DPB4080		Bandwidth: 50 MHz; Maximum input differential voltage 800 V (DC + Peak AC); Range selection (attenuation ratio):10 X/100 X; Accuracy: ±1%; Standard DC 9 V/1 A power adapter
	DPB5150		Bandwidth: 70 MHz; Maximum input differential voltage 1500 V (DC + Peak AC); Range selection (attenuation ratio): 50 X/500 X; Accuracy: ±2%; Standard 5 V/1 A USB power adapter

Туре	Model	Picture	Specifications
High Voltage Differential Probe	DPB5150A		Bandwidth: 100 MHz; Maximum input differential voltage 1500 V (DC + Peak AC); Range selection (attenuation ratio): 50 X/500 X; Accuracy: ±2%; Standard 5 V/1 A USB power adapter
	DPB5700		Bandwidth: 70 MHz; Maximum input differential voltage 7000 V (DC + Peak AC); Range selection (attenuation ratio): 100 X/1000 X; Accuracy: ±2%; Standard 5 V/1 A USB power adapter
	DPB5700A		Bandwidth: 100 MHz; Maximum input differential voltage 7000 V (DC + Peak AC); Range selection (attenuation ratio): 100 X/1000 X; Accuracy: ±2%; Standard 5 V/1 A USB power adapter
High Voltage Probe	HPB4010		Bandwidth: 40 MHz; Maximum measurement voltage DC: 10 KV; AC (rms) : 7 KV (sine) ; AC (Vpp) : 20 KV (Pulse); attenuation ratio 1:1000; Accuracy: ≤3%
Isolated front end	ISFE		USB 5 V power supply, plug and play, the maximum input voltage 600 Vp-p, floating test. Work with oscilloscopes.
Demo board	STB Test Board		Optional accessories for experimental teaching and product demos
Deskew fixture	DF2001A		Deskew fixture for voltage and current probes

Ordering information

Product Description	Product Name
100 MHz Two Channels	SDS1102X
200 MHz Two Channels	SDS1202X
100 MHz Two Channels, Built-In Waveform Generator (Standard), 16 Digital Channels (Option, *Requires SPL1016 & SDS-1000X-LA)	SDS1102X+
200 MHz Two Channels, Built-In Waveform Generator (Standard), 16 Digital Channels (Option, *Requires SPL1016 & SDS-1000X-LA)	SDS1202X+

Standard Accessories	
USB Cable -1	
Quick Start-1	
Certification-1	
Passive Probe-2	
Power Cord -1	
CD (Included User Manual and EasyScopeX software)-1	
Optional Accessories	
I2C,SPI,UART/RS232,CAN,LIN Decoder	SDS-1000X-DC
16 Channels MSO (Software)	SDS-1000X-LA
16 Digital Channels Logic Probe	SPL1016
Isolated Front End	ISFE
STB Demo Source	STB
High Voltage Probe	HPB4010
Current Probe	CP4020/CP4050/CP4070/ CP4070A/CP5030/CP5030A/ CP5150/CP5500
Differential Probe	DPB4080/DPB5150/DPB5150A/DPB5700/DPB5700A



SDS1000X SDS1000X+ Series Digital Oscilloscope



About SIGLENT

SIGLENT is an international high-tech company, concentrating on R&D, sales, production and services of electronic test & measurement instruments.

SIGLENT first began developing digital oscilloscopes independently in 2002. After more than a decade of continuous development, SIGLENT has extended its product line to include digital oscilloscopes, function/arbitrary waveform generators, digital multimeters, DC power supplies, spectrum analyzers, isolated handheld oscilloscopes and other general purpose test instrumentation. Since its first oscilloscope, the ADS7000 series, was launched in 2005, SIGLENT has become the fastest growing manufacturer of digital oscilloscopes. We firmly believe that today SIGLENT is the best value in electronic test & measurement.

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