

SDS5000X Series

Digital Storage Oscilloscope



DataSheet-2019.01

SDS5104X/SDS5102X SDS5054X/SDS5052X SDS5034X/SDS5032X

Product Overview

SIGLENT's SDS5000X series Digital Storage Oscilloscopes are available in bandwidths of 1 GHz, 500 MHz and 350 MHz, have a maximum sample rate of 5 GSa/s, maximum record length of 250 Mpts, and display up to 4 analog channels + 16 digital channels mixed signal analysis ability.

The SDS5000X series employs Siglent's SPO technology with a maximum waveform capture rate of up to 110,000 wfm/s (normal mode, up to 480,000 wfm/s in Sequence mode), 256-level intensity grading display function plus a color temperature display mode. It also employs an innovative digital trigger system with high sensitivity and low jitter. The trigger system supports multiple powerful triggering modes including serial bus triggering. History waveform recording, Sequence acquisition, Search and Navigate functions allow for extended waveform records to be captured, stored, and analyzed. An impressive array of measurement and math capabilities, options for a 25 MHz arbitrary waveform generator, as well as serial decoding are also features of the SDS5000X.

The large 10.1" display capacitive touch screen supports multi-touch gestures, with the addition of user-friendly one-button design for most commonly used functions, can greatly improve the operation efficiency of the SDS5000X. It also supports mouse and external keyboard control.



Key Features

- ⚡ 1 GHz, 500 MHz, 350 MHz models with real-time sample rate up to 5 GSa/s
- ⚡ SPO technology
 - Waveform capture rates up to 110,000 wfm/s (normal mode), and 480,000 wfm/s (sequence mode)
 - Supports 256-level intensity grading and color temperature display modes
 - Record length up to 250 Mpts
 - Digital trigger system
- ⚡ Intelligent trigger: Edge, Slope, Pulse, Window, Runt, Interval, Dropout, Pattern, Qualified and Video (HDTV supported). Trigger zone helps to simplify advanced triggering
- ⚡ Serial bus triggering and decoder, supports protocols I2C, SPI, UART, CAN, LIN, CAN FD, FlexRay, I2S and MIL-STD-1553B
- ⚡ Low background noise, supports 0.5 mV/div to 10 V/div voltage scales
- ⚡ Segmented acquisition (Sequence) mode, dividing the maximum record length into multiple segments (up to 100,000), according to trigger conditions set by the user, with a very small dead time between segments to capture the qualifying event
- ⚡ History waveform record (History) function, the maximum recorded waveform length is 100,000 frames
- ⚡ Automatic measurement function on 39 parameters, supports statistics with histogram, Gating measurement, Math measurement, History measurement and Ref measurement
- ⚡ Math function (2 Mpts FFT, addition, subtraction, multiplication, division, integration, differential, square root), supports math on math
- ⚡ Search and Navigate
- ⚡ Digital Voltmeter
- ⚡ Waveform Histogram
- ⚡ High Speed hardware-based Average, Eres (Enhanced Resolution)
- ⚡ High Speed hardware-based Mask Test function, with Mask Editor tool for creating user-defined masks
- ⚡ 16 digital channels (optional) with maximum waveform capture rate up to 1.25 GSa/s, record length up to 62.5 Mpts
- ⚡ 25 MHz function / arbitrary waveform generator, built-in multiple predefined waveforms
- ⚡ Large 10.1" TFT-LCD display with 1024 * 600 resolution; Capacitive touch screen supports multi-touch gestures
- ⚡ Supports external mouse and keyboard
- ⚡ 10 types of one-button shortcuts
- ⚡ Multiple interfaces: USB Host, USB Device (USBTMC), LAN (VXI-11, telnet, socket, web), Pass/Fail, Trigger Out, 10 MHz In, 10 MHz Out, VGA output
- ⚡ Built-in web server supports remote control by the LAN port using a web browser
- ⚡ Supports SCPI remote control commands

Models and Key Specifications

Model	SDS5034X SDS5032X	SDS5054X SDS5052X	SDS5104X SDS5102X
Bandwidth	350 MHz	500 MHz	1GHz
Sample rate (Max.)	5 GSa/s (interleaving mode), 2.5 GSa/s (non-interleaving mode)		
Analog channels	2/4 + EXT		
Memory depth (Max.)	250 Mpts (interleaving mode), 125 Mpts (non-interleaving mode)		
Waveform capture rate (Max.)	110,000 wfm/s (normal mode), 480,000 wfm/s (sequence mode)		
Trigger type	Edge, Slope, Pulse width, Window, Runt, Interval, Dropout, Pattern, Video, Qualified		
Serial trigger and decode	I2C, SPI, UART, CAN, LIN, CAN FD, FlexRay, I2S, MIL-STD-1553B		
Digital channel (optional)	16-channel; maximum waveform capture rate up to 1.25 GSa/s; record length up to 62.5 Mpts		
Waveform generator (optional)	Single channel, frequency up to 25 MHz, 125 MSa/s sample rate, 16 kpts waveform memory		
I/O	USB Host, USB Device, LAN, Pass/Fail, Trigger Out, 10 MHz In, 10 MHz Out, VGA Output		
Probe (standard)	1 probe supplied for each channel		
Display	10.1" TFT-LCD with capacitive touch screen (1024*600)		

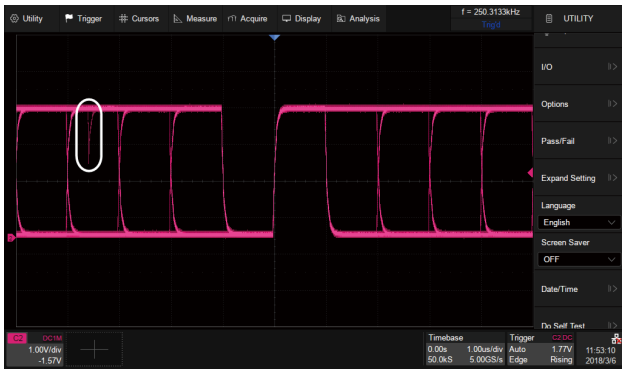
Functions & Characteristics

10.1" TFT-LCD display with capacitive touch screen



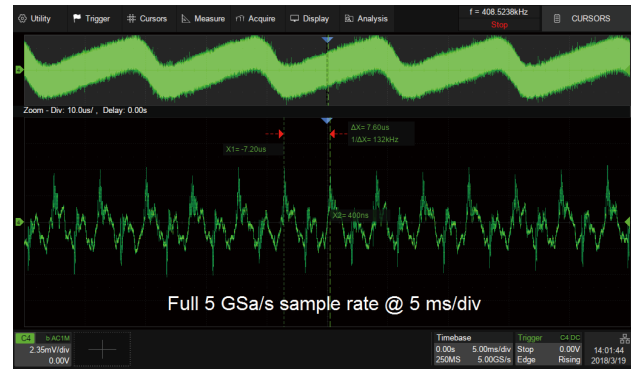
- 10.1" display with 1024*600 resolution
- Capacitive touch screen, supporting multi-touch gestures, can move or scale the waveform traces quickly by finger-touch movements, which greatly improves the operation efficiency.

Up to 110,000 wfms/s waveform update rate



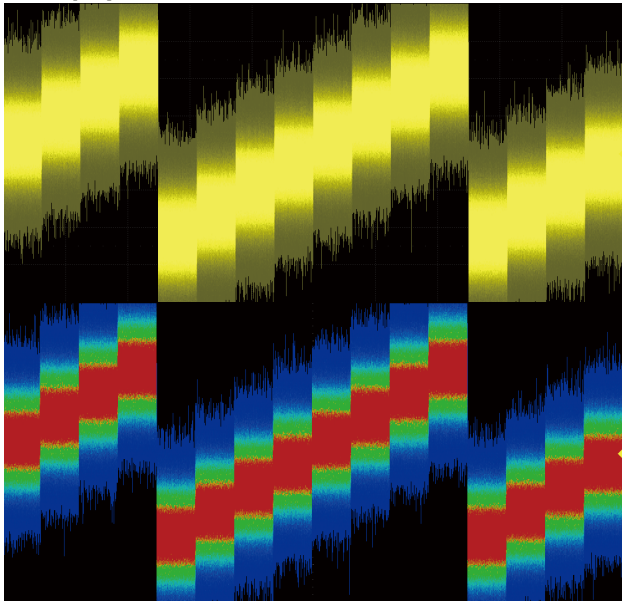
With a waveform update rate of up to 110,000 wfms/s, the oscilloscope can easily capture unusual or low-probability events. In Sequence mode the waveform capture rate can reach 480,000 wfms/s

Record Length of up to 250 Mpts/ch

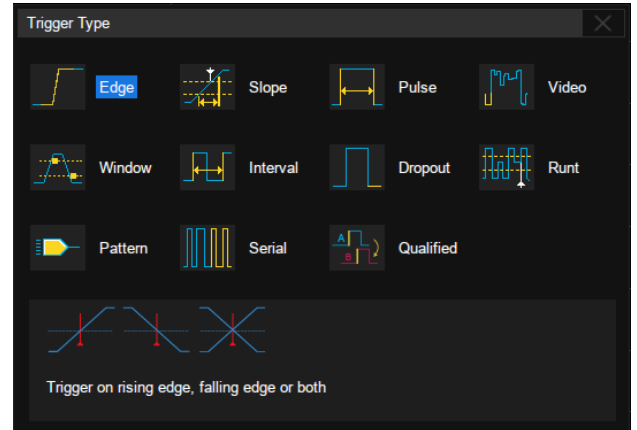


Using hardware-based Zoom technique and record length of up to 250 Mpts, users can select a slower timebase without compromising the sample rate, and then quickly zoom in to focus on the area of interest

256-level Intensity Grading and Color Temperature Display Modes

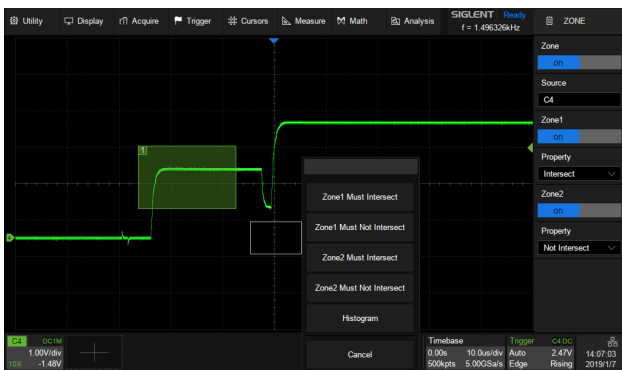


Multiple Trigger Functions



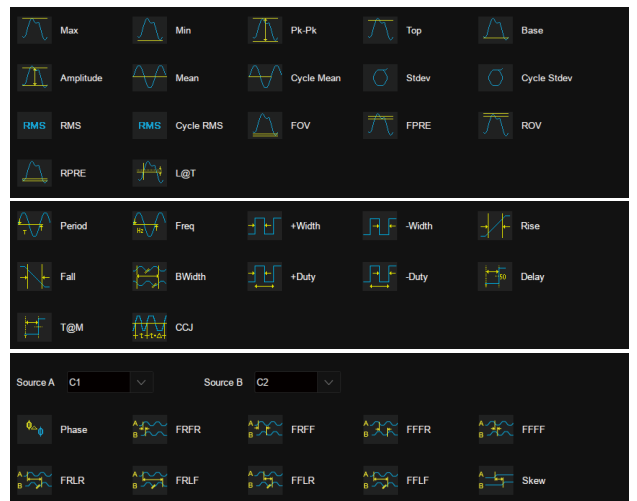
Edge, Slope, Pulse, Video, Windows, Runt, Interval, Dropout, Pattern, Qualified and serial trigger

Trigger Zone



Trigger Zone is available for advanced triggering

Measurements of a Variety of Parameters



Parameter measurements includes 3 categories: horizontal, vertical and CH delay providing a total of 39 different types of measurements. Measurements can be performed within a specified gate period. Measurements on Math, Reference and History frames are supported

Parameter statistics function

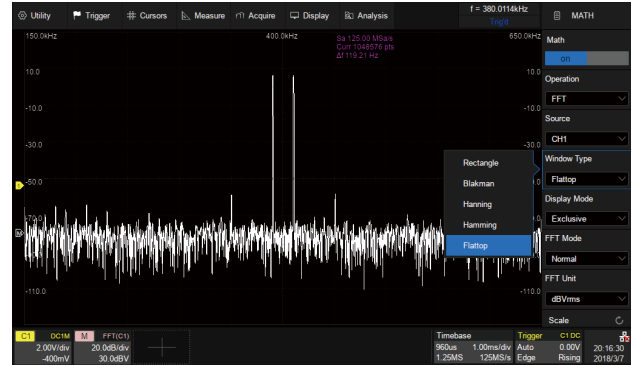


Statistics shows the current value, maximum value, minimum value, standard deviation and mean value of up to 5 parameters simultaneously. Histogram is available to show the probability distribution of a parameter.

Advanced Math Function

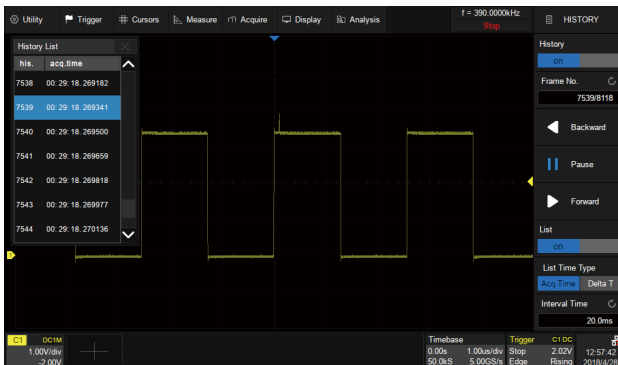


In addition to the traditional (+, -, X, /) operations, FFT, integration, differential and square root operations are supported. Math on math is available for more complex operations



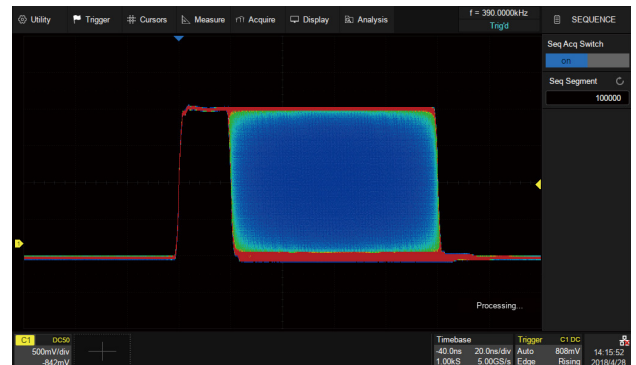
Hardware accelerated FFT supports up to 2 Mpts operation. This provides high frequency resolution with a fast refresh rate. The FFT function also supports a variety of window functions so that it can adapt to different spectrum measurement needs. Three modes (Normal, Average and Max hold) can satisfy different requirements for observing the power spectrum

History Mode



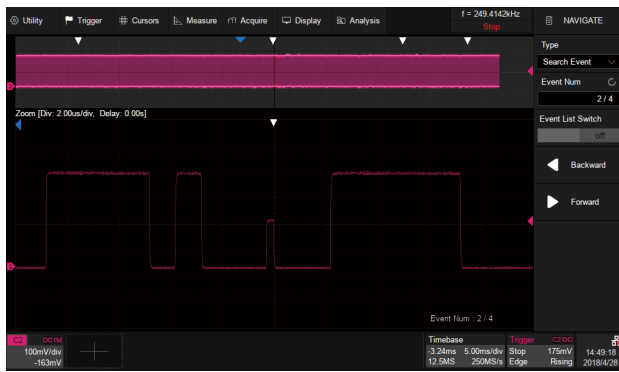
History function can record up to 100,000 frames of waveforms. The recording is executed automatically, so that the customer can play back the history waveforms at any time in order to observe unusual events and quickly locate the area of interest using the cursors or measurements

Sequence Mode



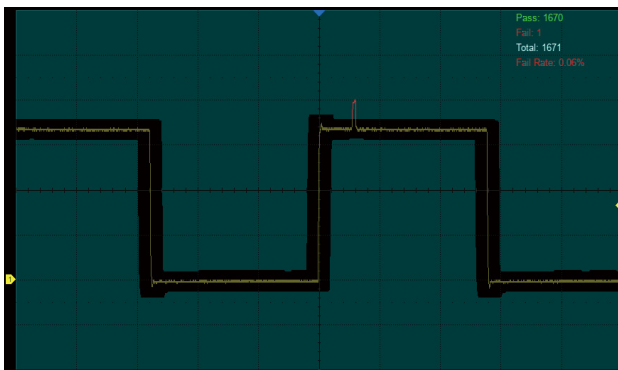
Segmented memory collection will store the waveform into multiple memory segments (up to 100,000) and each segment will store a triggered waveform as well the dead time information. The dead time between segments can be as small as 2 μ s. All of the segments can be played back using the History function

Search and Navigate



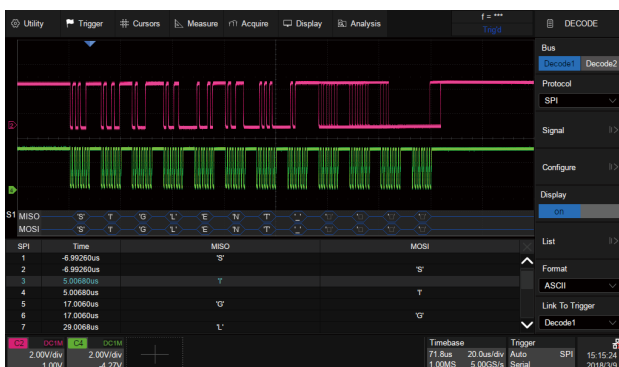
The SDS5000X can search events specified by the user in a frame. Events flagged by the Search can be recalled automatically using Navigate. It can also navigate by time (delay position) and history frames

Hardware-based High Speed Mask Test Function



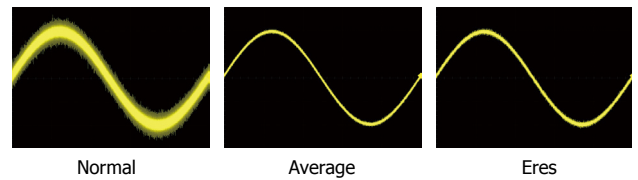
The SDS5000X utilizes a hardware-based Mask Test function, performing up to 110,000 Pass / Fail decisions each second. It is easy to generate user-defined test templates in order to provide trace mask comparisons, making it suitable for long-term signal monitoring or automated production line testing

Serial Bus Decode

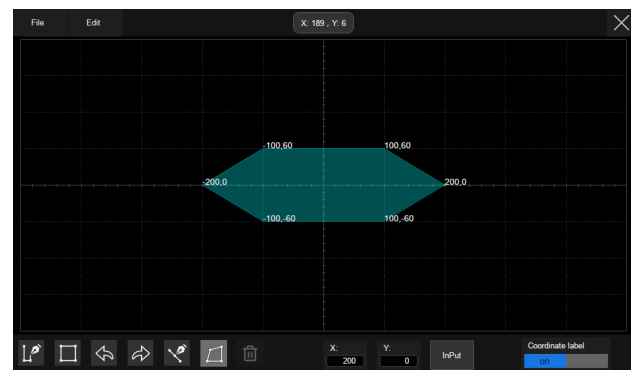


Display the decoded characters through the events list. Bus protocol information can be quickly and intuitively displayed in tabular form. I2C, SPI, UART, CAN, LIN, CAN FD, FlexRay, I2S and MIL-STD-1553B are supported

Hardware-based Average and Eres Acquisition

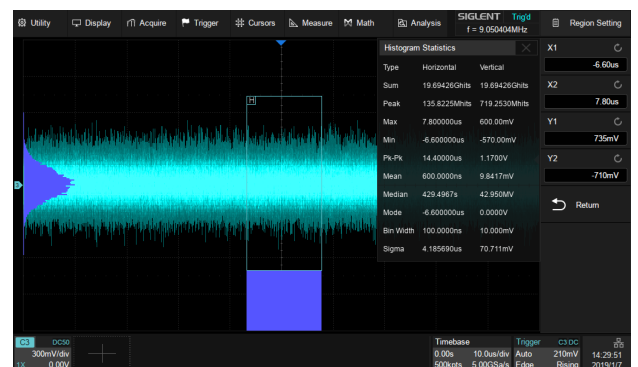


Average and Eres (Enhanced Resolution) acquisition modes are hardware-based, allowing the waveforms to be captured at a faster rate



Built-in Mask Editor application helps to create custom masks

Waveform Histogram



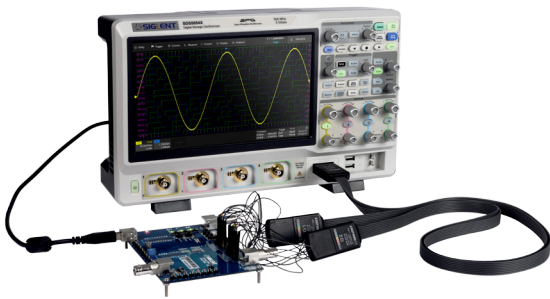
The Waveform Histogram feature provides a statistics view of the waveform in horizontal and vertical directions

Digital Voltmeter Function



4-digit voltmeter and 7-digit frequency counter. Any analog channel can be selected as a source. Bar, Histogram and Trend diagrams are supported

Digital Channels / MSO (Optional)



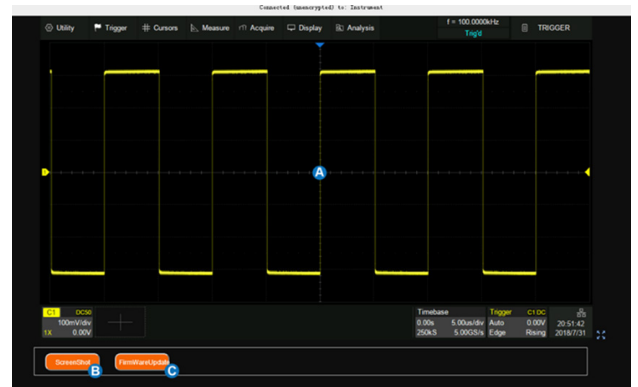
Four analog channels plus 16 digital channels enable users to acquire and trigger on the waveforms then analyze the pattern, simultaneously with one instrument

Complete Connectivity



USB Host, USB Device (USBTMC), LAN (VXI-11, telnet, socket, web), Pass/Fail, Trigger Out, 10 MHz In/Out and VGA output

Web control



With the new embedded web server, users can control the oscilloscope from a simple web page. This provides wonderful remote troubleshooting and monitoring capabilities.

Built -in 25 MHz Function/Arbitrary Waveform Generator (Optional)



the SDS5000X can control the SAG1021 USB Function/Arbitrary waveform generator to output waveform with up to 25 MHz frequency and ± 3 V amplitude. Six basic waveforms plus multiple types of arbitrary waveforms are built-in

Specifications

All specifications are not guaranteed unless the following conditions are met:

- The oscilloscope calibration period is current
- The oscilloscope has been working continuously for at least 30 minutes at the specified temperature (18°C ~ 28°C)

Acquire System (analog channel)

Sample rate	5 GSa/s (interleaving mode), 2.5 GSa/s (non-interleaving mode)
Memory depth	250 Mpts (interleaving mode), 125 Mpts (non-interleaving mode)
Peak detect	400 ps
Average	4, 16, 32, 64, 128, 256, 512
Eres	Enhanced bit: 0.5, 1, 1.5, 2, 2.5, 3
Sequence	Up to 100,000 segments, dead time = 2 μ s min
History	Up to 100,000 frames
Interpolation	sinx/x, x

Vertical System	SDS5034X SDS5032X	SDS5054X SDS5052X	SDS5104X SDS5102X
Bandwidth (-3dB) @50 Ω	350 MHz*	500 MHz**	1 GHz**
Rise time (typical) @50 Ω	1.0 ns	0.7 ns	0.4 ns
Vertical range	8 divisions		
Vertical scale (probe 1X)	1 M Ω : 500 μ V/div – 10 V/div(setting range), 1 mV/div – 10 V/div(specified range) 50 Ω : 500 μ V/div – 1 V/div(setting range), 1 mV/div – 1 V/div(specified range)		
DC gain accuracy	$\leq 3.0\%$		
Offset range (probe 1X)	500 μ V/div ~ 100 mV/div: ± 1 V 102 mV/div ~ 1 V/div: ± 10 V 1.02 V/div ~ 10 V/div: ± 100 V		
Offset accuracy	$\pm(1.5\%*\text{offset}+1.5\%*\text{full scale}+1\text{mV})$		
Bandwidth flatness (>2 mV/div, @50 Ω)	10 kHz ~ BW/10: ± 0.5 dB BW/10 ~ BW/3: ± 0.8 dB BW/3 ~ BW2/3: +1.0 dB, -1.2 dB BW2/3 ~ BW: +2.0 dB, -2.5 dB		
Bandwidth limit	20 MHz ($\pm 40\%$) 200 MHz ($\pm 40\%$)		
Low frequency response (AC coupling -3 dB)	5 Hz (typical)		
Overshoot (150 ps pulse @50 Ω)	<10% (typical)	<10% (typical)	<15% (typical)
Max. Input voltage	1 M $\Omega \leq 400$ Vpk(DC + AC), (DC~10 kHz) 50 $\Omega \leq 5$ Vrms, ± 10 V Peak		
Coupling	DC, AC, GND		
Impedance	(1 M $\Omega \pm 2\%$) (16 pF ± 2 pF) 50 Ω : 50 $\Omega \pm 1\%$		
SFDR	≥ 32 dBc		
CH to CH Isolation (@50 Ω)	DC ~ 100 MHz >40 dB 100 MHz ~ BW: ≥ 34 dB		
Probe Attenuation	1X, 10X, 100X, custom		

* Below 1 mV/div (included) the bandwidth is limited to 200 MHz

** Below 2.45 mV/div (included) the bandwidth is limited to 200 MHz

Horizontal System	SDS5034X SDS5032X	SDS5054X SDS5052X	SDS5104X SDS5102X
Time scale	1 ns/div – 1000 s/div	500 ps/div – 1000 s/div	200 ps/div – 1000 s/div
Waveform update rate	Up to 110,000 wfm/s		
Intensity grading	256-level		
Display mode	Y-T, X-Y, Roll		
Roll mode	≥ 50 ms/div		
Skew (CH1~CH4)	< 150 ps		
Time base Accuracy	±1ppm initial; ±1ppm 1st year aging; ±3.5ppm 10-year aging		

Trigger System				
Mode	Auto, Normal, Single			
Level	Internal: ±4.1 div from the center of the screen			
	EXT: ±0.61 V			
	EXT/5: ±3.05 V			
Hold off range	By time: 8 ns ~ 30 s (8 ns step)			
	By event: 1 ~ 108			
Coupling (CH1 ~ CH4)	DC: Passes all components of the signal AC: Blocks DC components and attenuates signals below 8 Hz LFRJ: Attenuates the frequency components below 1.2 MHz HFRJ: Attenuates the frequency components above 740 kHz Noise RJ: Increases the trigger hysteresis			
Coupling (EXT)	DC: Passes all components of the signal AC: Blocks DC components and attenuates signals below 10 Hz LFRJ: Attenuates the frequency components below 400 kHz HFRJ: Attenuates the frequency components above 1.6 MHz			
Accuracy (typical)	CH1 ~ CH4: ±0.2 div EXT: ±0.3 div			
Sensitivity	CH1 ~ CH4:		Noise RJ = OFF	Noise RJ = ON
		>10 mV/div:	0.3 div	0.7 div
		5 mV/div~10 mV/div:	0.5 div	0.7 div
	≤2 mV/div:	1 div	1.5 div	
	EXT: 200 mVpp DC ~ 10 MHz 300 mVpp 10 MHz ~ bandwidth			
EXT/5: 1 Vpp DC ~ 10 MHz; 1.5 Vpp 10 MHz ~ bandwidth				
Jitter	<100 ps (CH1 ~ CH4)			
Displacement	Pre-Trigger: 0 ~ 100% memory Delay-Trigger: 0 ~ 5,000 div			
Zone	Up to 2 zones Source: CH1~CH4 Property: Intersect, Not Intersect			
Edge Trigger				
Slope	Rising, Falling, Rising & Falling			
Source	CH1~CH4/EXT/(EXT/5)/AC Line/D0~D15			

Slope Trigger	
Slope	Rising, Falling
Source	CH1 ~ CH4
Limit range	<, >, < >, > <
Time range	2 ns ~ 20 s
Resolution	1 ns
Pulse Width Trigger	
Polarity	+wid, -wid
Limit Range	<, >, < >, > <
Source	CH1~CH4/D0~D15
Pulse Width Range	2 ns ~ 20 s
Resolution	1 ns
Video Trigger	
Standard	NTSC, PAL, 720p/50, 720p/60, 1080p/50, 1080p/60, 1080i/50, 1080i/60, Custom
Source	CH1~CH4
Synchronization	Any, Select
Trigger Condition	Line, Field
Window Trigger	
Window type	Absolute, Relative
Source	CH1~CH4
Interval Trigger	
Slope	Rising, Falling
Limit Range	<, >, < >, > <
Source	CH1~CH4/D0~D15
Time Range	2 ns ~ 20 s
Resolution	1 ns
Dropout Trigger	
Timeout type	Edge, State
Source	CH1~CH4/D0~D15
Slope	Rising, Falling
Time Range	2 ns ~ 20 s
Resolution	1 ns
Runt Trigger	
Slope	Rising, Falling
Limit Range	<, >, < >, > <
Source	CH1~CH4
Time Range	2 ns ~ 20 s
Resolution	1 ns

Pattern Trigger	
Pattern Setting	Don't Care, Low, High
Logic	AND, OR, NAND, NOR
Source	CH1~CH4/D0~D15
Limit Range	<, >, < >, > <
Time Range	2 ns ~ 20 s
Resolution	1 ns
Qualified Trigger	
Type	State, State with Delay, Edge, Edge with Delay
Qualified Source	CH1~CH4/D0~D15
Edge Trigger Source	CH1~CH4/D0~D15
Serial Trigger	
Protocol	I2C, SPI, UART, CAN, LIN, CAN FD, FlexRay, I2S, MIL-STD-1553B
Source	CH1~CH4/D0~D15
I2C Trigger	Type: Start, Stop, Restart, No Ack, EEPROM, Address & Data, Data Length
SPI Trigger	Type: Data
UART Trigger	Type: Start, Stop, Data, Parity Error
CAN Trigger	Type: All, Remote, ID, ID+Data, Error
LIN Trigger	Type: Break, Frame ID, ID+Data, Error
CAN FD Trigger	Type: Start, Remote, ID, ID+Data, Error
FlexRay Trigger	Type: TSS, Frame, Symbol, Errors
I2S Trigger	Type: Data, Mute, Clip, Glitch, Rising Edge, Falling Edge
Serial Decoder	
Decoders	2
Threshold	-4.1 ~ 4.1 div
List	1 ~ 7 lines
Decoder type	Full duplex
I2C	
Signal	SCL, SDA
Address	7 bit, 10 bit
SPI	
Signal	CLK, MISO, MOSI, CS
Edge Select	Rising, Falling
Chip select	Active high, active low, clock timeout
Bit Order	LSB, MSB
UART	
Signal	RXTX
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
Bit Order	LSB, MSB
CAN	
Source	CH1~CH4/D0~D15
LIN	
LIN Specification Package Revision	Ver1.3, Ver2.0
Baud Rate	5 kbps, 10 kbps, 20 kbps, 50 kbps, 100 kbps, 125 kbps, 250 kbps, 500 kbps, 800 kbps, 1 Mbps, Custom
CAN FD	
Source	CH1~CH4/D0~D15
Nominal Baud Rate	10 kbps, 25 kbps, 50 kbps, 100 kbps, 250 kbps, 1 Mbps, Custom
Data Baud Rate	500 kbps, 1 Mbps, 2 Mbps, 5 Mbps, 8 Mbps, 10 Mbps, Custom
FlexRay	
Source	CH1~CH4/D0~D15
Data Baud Rate	2.5 Mbps, 5 Mbps, 10 Mbps, Custom
I2S	
Signal	BCLK, WS, DATA
Audio Variant	Audio-I2S, Audio-LJ, Audio-RJ
Start Bits	0~32
Data Bits	0~32
MIL-STD-1553B	
Source	CH1~CH4

Measurement

Source	CH1~CH4, Math, Ref, History, Zoom
No. of Measurements	Display 5 measurements at the same time
Range	Screen, Gating
Measurement Parameters	
Vertical	Max, Min, Pk-Pk, Top, Base, Amplitude, Mean, Cycle Mean, Stdev, Cycle Stdev, RMS, Cycle RMS, FOV, FPPE, ROV, RPRE, L@T
Horizontal	Period, Freq, +Width, -Width, Rise, Fall, BWidth, +Duty, -Duty, Delay, T@M, CCJ
Delay	Phase, FRFR, FRFF, FFFR, FFFF, FRLR, FRLF, FFLR, FFLF, Skew
Cursors	Manual : Time X1, X2, (X1-X2), (1/ Δ T) Voltage/ampere Y1, Y2, (Y1-Y2) Track: Time X1, X2, (X1-X2)
Statistics	Current, Mean, Min, Max, Sdev, Count
Frequency Counter	7 digits

Math

Operation	+, -, *, /, FFT, d/dt, \int dt, square root
FFT	Window: Rectangular, Blackman, Hanning, Hamming, Flattop Display: Full Screen, Split, Exclusive Mode: Normal, Max hold, Average

Function/Arbitrary Waveform Generator (Optional)

Channels	1
Max. Output Frequency	25 MHz
Sampling Rate	125 MSa/s
Frequency Resolution	1 μ Hz
Frequency Accuracy	\pm 50 ppm
Vertical Resolution	14-bit
Amplitude Range	-1.5 V ~ +1.5 V (into 50 Ω) -3 V ~ +3 V (into Hi-Z)
Waveforms	Sine, Square, Ramp, Pulse, DC, Noise, 45 Arbs
Output Impedance	50 Ω \pm 2%
Protection	Over voltage protection, Current limit
Sine	
Frequency	1 μ Hz ~ 25 MHz
Offset accuracy (10 kHz)	\pm (1%*offset setting value +3 mVpp)
Amplitude flatness	\pm 0.3 dB, compare to 10 kHz, 5 Vpp
SFDR	DC ~ 1 MHz -60 dBc 1 MHz ~ 5 MHz -55 dBc 5 MHz ~ 25 MHz -50 dBc
Harmonic distortion	DC ~ 5 MHz -50 dBc 5 MHz ~ 25 MHz -45 dBc

Square/Pulse	
Frequency	1 μ Hz ~ 10 MHz
Duty cycle	1% ~ 99%
Edge	< 24 ns (10% ~ 90%)
Overshoot	< 3% (typical, 1 kHz, 1 Vpp)
Pulse width	> 50 ns
Jitter (cycle-cycle)	< 500 ps + 10 ppm
Ramp	
Frequency	1 μ Hz~ 300 kHz
Linearity	< 0.1% of Pk-Pk (typical, 1 kHz, 1 Vpp, 50% symmetry)
Symmetry	0% ~ 100%
DC	
Offset range	± 1.5 V (into 50 Ω) ± 3 V (into Hi-Z)
Accuracy	$\pm(\text{setting value} *1\%+3 \text{ mV})$
Noise	
Bandwidth	>25 MHz (-3dB)
Arb	
Frequency	1 μ Hz ~ 5 MHz
Waveform memory	16 kpts
Sample rate	125 MSa/s
Wave import	From EasyWave or U-disk

Digital Channels (Optional)

No. of Channels	16
Max. Sampling Rate	1.25 GSa/s
Memory Depth	62.5 Mpts/ch
Min. Detectable Pulse Width	3.3 ns
Level Group	D0~D7, D8~D15
Level Range	-10 V~10 V
Logic Type	TTL, CMOS, LVCMOS3.3 , LVCMOS2.5, custom
Skew	D0~D15: ± 1 sampling interval Digital to Analog: $\pm (1 \text{ sampling interval} + 1 \text{ ns})$

I/O

Standard	3 USB Hosts, 1 USB Device, LAN, AUX(Pass/Fail+Trigger Out), 10 MHz In/ Out
Pass/Fail	3.3 V TTL output

Display

Display Type	10.1 TFT LCD
Resolution	1024×600
Contrast	500:1 (typical)
Backlight	500 nit
Range	8 x 10 grid
Touch screen type	Capacitive

Waveform Display

Type	Dot, vector
Persistence Time	OFF, 1 s, 5 s, 10 s, 30 s, infinite
Color Display	Normal, Color

Environmental

Temperature	Operating: 10 °C ~ 40 °C Non-operating: -20 °C ~ 60 °C
Humidity	Operating: 85%RH, 40 °C , 24 hours Non-operating: 85%RH, 65 °C, 24 hours
Altitude	Operating: ≤3,000 m Non-operating: ≤15,266 m
Electromagnetic Compatibility	2014/30/EU Execution Standard EN 61326-1:2013
Safety	2014/35/EU Execution Standard EN 61010-1:2010

Power Supply

Input Voltage & Frequency	100 ~ 240 Vrms 50/60 Hz 100 ~ 120 Vrms 400 Hz
Power consumption	100 W max., 70 W typical, 4 W typical in standby mode

Mechanical

Dimensions	Length*Width*Height = 370 mm×144 mm×231 mm
Weight	N.W 3.9 kg(2-ch); 4.0 kg(4-ch) G.W 5.4 kg(2-ch); 5.6 kg(4-ch)

Ordering Information

Mode	Description
SDS5104X	1 GHz, 4 CH, 5 GSa/s (Max.)
SDS5102X	1 GHz, 2 CH, 5 GSa/s (Max.)
SDS5054X	500 MHz, 4 CH, 5 GSa/s (Max.)
SDS5052X	500 MHz, 2 CH, 5 GSa/s (Max.)
SDS5034X	350 MHz, 4 CH, 5 GSa/s (Max.)
SDS5032X	350 MHz, 2 CH, 5 GSa/s (Max.)

Standard Accessories

USB cable x1

Quick start x1

Passive probe x2 (2-ch model); x4 (4-ch model), SP2035A for 350 MHz models and SP3050A for 500 MHz / 1 GHz models

Certificate of calibration x1

Power cord x1

Optional Accessories

SDS-5000X-4BW05	350 MHz to 500 MHz bandwidth upgrade (4-ch model) *
SDS-5000X-2BW05	350 MHz to 500 MHz bandwidth upgrade (2-ch model) *
SDS-5000X-4BW10	500 MHz to 1 GHz bandwidth upgrade (4-ch model)
SDS-5000X-2BW10	500 MHz to 1 GHz bandwidth upgrade (2-ch model)
SDS-5000X-FG	Waveform generator software
SAG1021	25 MHz USB function/arbitrary waveform generator
SDS-5000X-16LA	16 digital channels (software)
SPL2016	16-channel logic probe
SDS-5000X-I2S	I2S trigger & decode
SDS-5000X-CANFD	CAN FD trigger & decode
SDS-5000X-FlexRay	FlexRay trigger & decode
SDS-5000X-1553B	MIL-STD-1553B trigger & decode
STB3	STB3 demo signal source
SAP1000	1 GHz active probe
HPB4010	High voltage probe
CP4020/CP4050/CP4070/ CP4070A/ CP5030/ CP5030A/CP5150/CP5500	Current probe
DPB4080/DPB5150/ DPB5150A/ DPB5700/ DPB5700A	High voltage differential probe

* SDS5034X/SDS5032X cannot be upgraded to SDS5104X/SDS5102X