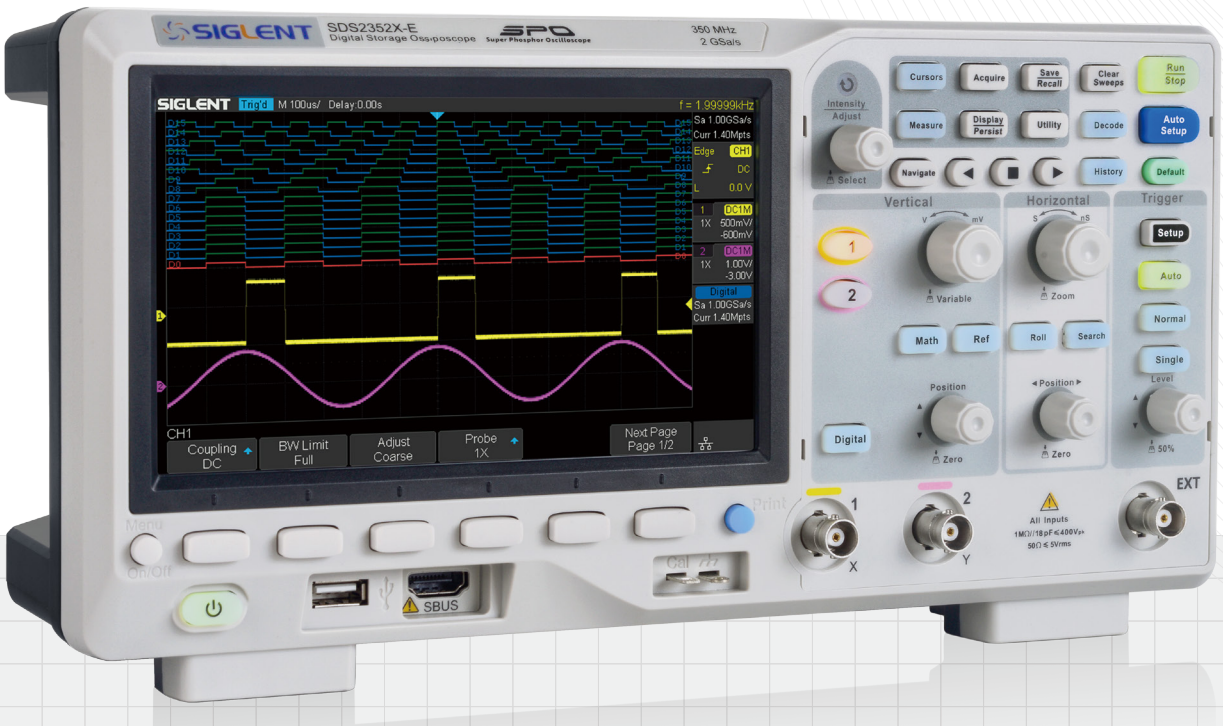
SDS2000X-E Series

Super Phosphor Oscilloscope

SIGLENT®

DataSheet-2020.11



SIGLENT TECHNOLOGIES CO.,LTD

SDS2202X-E
SDS2352X-E

Product overview

SIGLENT's new SDS2000X-E Series Super Phosphor Oscilloscopes are available in two bandwidths; 200 MHz and 350 MHz. They each have a maximum sampling rate of 2 GSa/s and a standard record length of 28 Mpts. The most commonly used functions can be accessed with its user-friendly one-button design.

The SDS2000X-E 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 400,000 frames/sec (sequence mode). It also employs a 256-level intensity grading display function and a color temperature display mode not found in other models in this class. Siglent's newest oscilloscope 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. Also included is the deep memory FFT. This math function uses up-to 1 M samples for the FFT calculation, providing the SDS2000X-E with very high frequency resolution. The hardware co-processor executes true fast measurement and math to all of 28M sample points so that there is minimal distortion on analysis. It also supports searching and navigating, on-screen Bode plot, 16 channel digital /MSO (optional), an external USB powered 25 MHz AWG function generator module (option), a USB WIFI adapter for wireless control and monitoring (option), and an embedded application that allows remote control via web browser. The features and high-performance of the SDS2000X-E oscilloscopes cannot be matched else anywhere at this price.

Key Features

- 200MHz, 350MHz bandwidth models
- Real-time sampling rate up to 2 GSa/s (1 GSa/s per channel, if both channels active)
- The newest generation of SPO technology
  - Waveform capture rate up to 110,000 wfm/s (normal mode), and 400,000 wfm/s (sequence mode)
  - Supports 256-level intensity grading and color display modes
  - Record length up to 28 Mpts
  - Digital trigger system
- Intelligent trigger: Edge, Slope, Pulse Width, Window, Runt, Interval, Time out (Dropout), Pattern
- Serial bus triggering and decoding (standard), supports protocols IIC, SPI, UART, CAN, LIN
- Video trigger, supports HDTV
- Low background noise with voltage scales from 500μV/div to 10V/div
- 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, divides 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 qualifying events
- History waveform record (history) function (maximum recorded waveform length is 80,000 frames)
- Automatic measurement function for 38 parameters as well as Measurement Statistics, Zoom, Gating, Math, History and Reference functions
- 1 Mpt FFT
- Math and measurement functions use all sampled data points in memory (up to 28 Mpts)
- Math functions (FFT, addition, subtraction, multiplication, division, integration, differential, square root)
- Preset key can be customized for user settings or factory "defaults"
- Security Erase mode
- High Speed hardware based Pass/ Fail function
- 16 Digital channels (MSO) (option)
- Bode plot
- Search and navigate
- USB AWG module(option)
- USB WIFI adapter(option)
- Web Browser based control
- Large 7 inch TFT -LCD display with 800 * 480 resolution
- Multiple interface types: USB Host, USB Device (USB -TMC), LAN, Pass / Fail, Trigger Out
- Supports SCPI remote control commands
- VXI-11+SCPI, Telnet (port 5024) +SCPI and Socket (port 5025) +SCPI programming over LAN
- Supports web control and virtual instrument control panel for both PC and mobile terminals
- Web control update rate of up-to 10 times/s provides nearly real-time update rate
- Supports Multi-language display and embedded online help

Models and key Specification

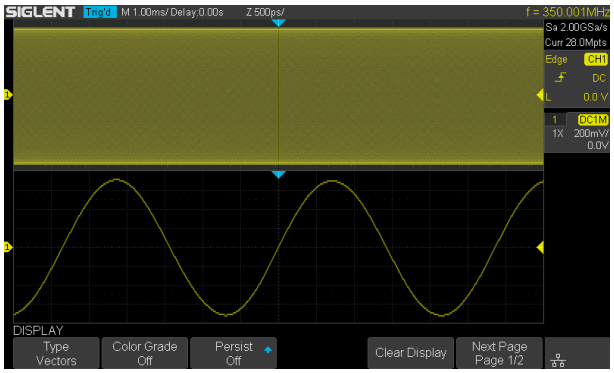
Model	SDS2202X-E	SDS2352X-E
Bandwidth	200 MHz	350 MHz
Sampling Rate (Max.)	2 GSa/s	
Channels	2+EXT	
Memory Depth (Max.)	14 Mpts/CH (not interleave mode) 28 Mpts/CH (interleave mode)	
Waveform Capture Rate (Max.)	110,000 wfm/s (normal mode), 400,000 wfm/s (sequence mode)	
Trigger Type	Edge, Slope, Pulse Width, Window, Runt, Interval, Dropout, Pattern, Video	
Serial Trigger and decoder (Standard)	IIC, SPI, UART, CAN, LIN	
16 Digital Channels (option)	Maximum waveform capture rate up to 1GSa/s, Record length up to 14 Mpts/CH	
USB AWG module (option)	One channel, 25 MHz, sample rate of 125 MHz, 16 kpts waveform memory sample size, isolated output (SAG1021I only)	
Bode plot	Minimum start frequency of 10 Hz, minimum scan bandwidth of 500 Hz, maximum scan bandwidth of 120 MHz (dependent on Oscilloscope and AWG bandwidth), 500 maximum scan frequency points	
USB WIFI adapter (option)	802.11b/g/n, WPA-PSK NOTE: To ensure compatibility, we recommend using only SIGLENT WiFi accessories	
I/O	USB Host, USB Device, LAN, Pass/Fail, Trigger Out, Sbus (Siglent MSO)	
Probe (Std)	2 pcs passive probe PP215	2 pcs passive probe SP2035
Display	7 inch TFT–LCD (800 x 480 pixels)	
Weight	Without package 2.6 Kg; With package 3.8 Kg	

Function & Characteristics

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

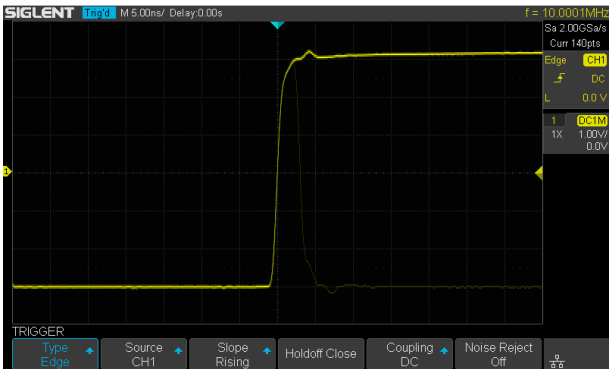
- 7-inch TFT-LCD display with 800 * 480 resolution
- Most commonly used functions are accessible using 10 different one-button operation keys: Auto Setup, Default, Cursor, Measure, Roll, History, Persist, Clear Sweep, Zoom, Print.

Maximum sample rate of 2 GSa/s, record Length of up to 28 Mpts



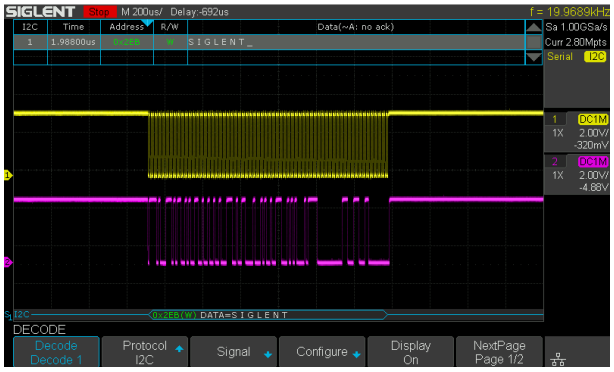
Using hardware-based Zoom technologies and max record length of up to 28 Mpts, users are able to oversample to capture for longer time periods at higher resolution and use the zoom feature to see more details within each signal.

Waveform Capture Rate up to 400,000 wfm/s



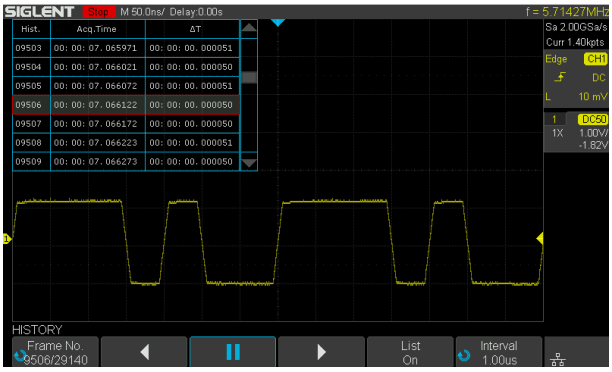
With a waveform capture rate of up to 400,000 wfm/s (sequence mode), the oscilloscope can easily capture the unusual or low-probability events.

Serial Bus Decoding Function (Standard)



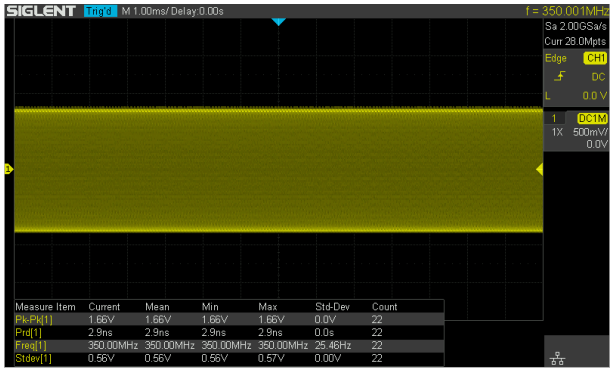
SDS2000X-E displays the decoding through the events list. Bus protocol information can be quickly and intuitively displayed in a tabular format.

History Waveforms (History) Mode and Segmented Acquisition (Sequence)



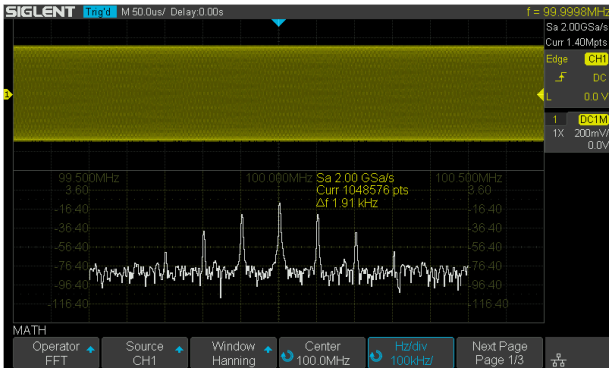
Playback the latest triggered events using the history function. Segmented memory collection will store trigger events into multiple (Up to 80,000) memory segments, each segment will store triggered waveforms and timestamp of each frame.

True measurement to 28 M points



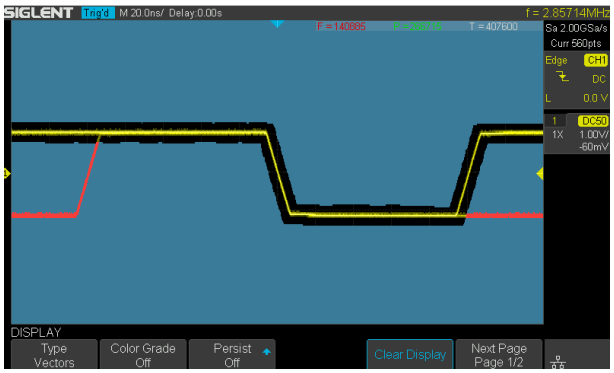
SDS2000X-E can apply automatic measurements on all sampled data points up to 28 Mpts. This ensures the accuracy of measurements while the math co-processor decreases measurement time and increases ease-of-use.

1 Mpoint FFT



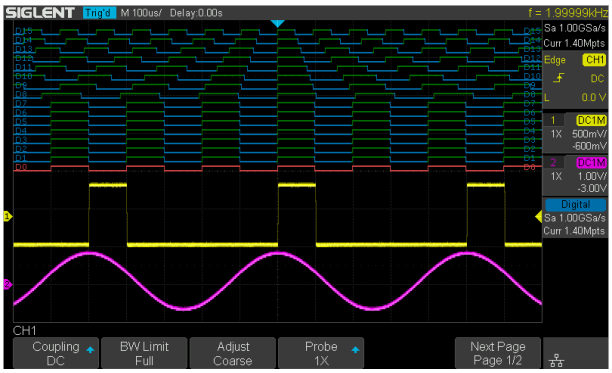
The new math co-processor enables FFT analysis of incoming signals using up to 1 million samples per waveform. This provides high frequency resolution with a fast refresh rate. The FFT function also supports a variety of window functions so that it can adapt to different spectrum measurement needs.

Hardware-Based High Speed Pass/Fail function



The SDS2000X-E utilizes a hardware-based Pass/Fail function, performing up to 40,000 Pass / Fail decisions each second. Easily generate user defined test templates provide trace mask comparison making it suitable for long-term signal monitoring or automated production line testing.

16 Digital Channels/MSO (option)



16 digital channels enables users to acquire and trigger on digital input channels and view both digital and analog waveforms simultaneously with one instrument.

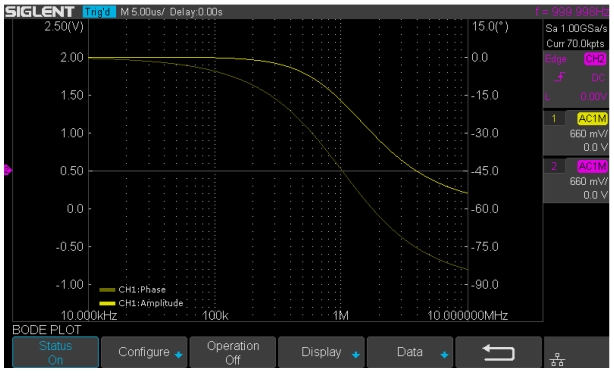
USB 25 MHz AWG Module (option)

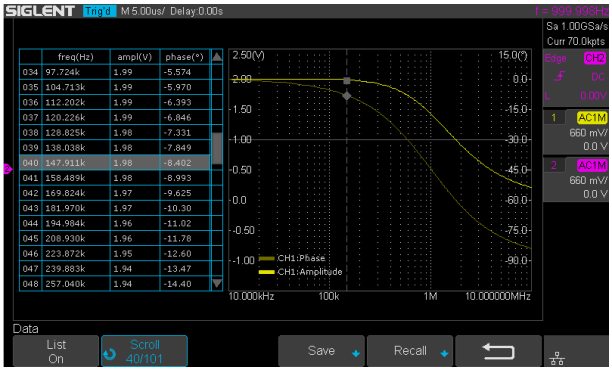
The optional 25 MHz function/arbitrary waveform generator is operated from the USB host connection. Functions include Sine, Square, Ramp, Pulse, Noise, DC and 45 additional built-in waveforms. The arbitrary waveforms can be accessed and edited by the SIGLENT EasyWave PC software.

Search and Navigate

The SDS2000X-E can search events specified by the user in a frame. It can also navigate by time (delay position) and historical frames.

Bode Plot



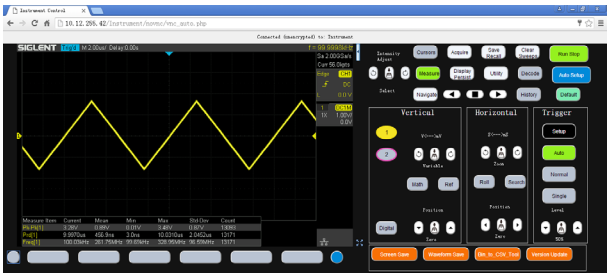


SDS2000X-E can control the USB AWG module or an independent SIGLENT SDG instrument, scan a circuits amplitude and phase frequency response, and display the data as a Bode Plot. It can also show the result lists, and export the data to a USB disk.

USB WIFI Adapter (option)

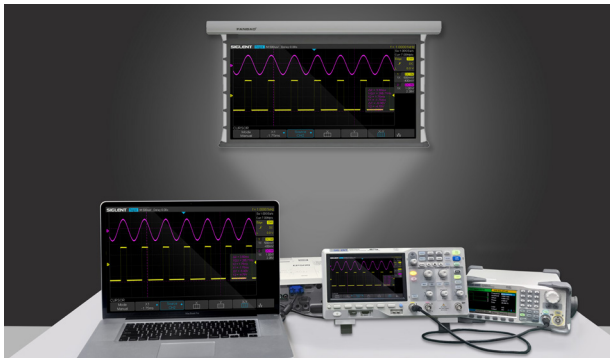
WiFi control of instrumentation can provide a convenient and safe method of configuring and collecting data. This new feature works with a SIGLENT approved WiFi adapter to provide wireless control and communications with SIGLENT SDS2000X-E scopes.

Web control



With the new embedded web server, users can control the SDS2000X-E from a simple web page. This provides wonderful remote troubleshooting and monitoring capabilities. The web page has PC and mobile styles that include an embedded virtual control panel.

Real-time update screen in web page



With 100 Mbps LAN, the internal web page can update at a rate of up to 10 times/s, providing a nearly-real time update of waveform data and measurements. When viewed on a PC, the screen can be displayed in full screen mode. With this feature and a PC VGA interface, you can easily use a projector or other video display device to deliver the screen information to a larger audience.

Complete Connectivity

SDS2000X -E supports USB Host, USB Device (USB -TMC), LAN, Pass/Fail and Trigger Out.

Specifications

Acquire System	
Sampling Rate	2 GSa/s (single channel), 1 GSa/s (two channels)
Memory Depth	Max 28 Mpts/Ch (single channel), 14 Mpts/Ch(two channels)
Peak Detect	1 nsec
Average	Averages: 4, 16, 32, 64, 128, 256, 512, 1024
Eres	Enhance bits: 0.5, 1.5, 2, 2.5, 3
Waveform interpolation	Sin(x)/x, Linear

Input	
Channels	2+EXT
Coupling	DC, AC, GND
Impedance	DC 1 MΩ: (1 MΩ ± 2%) || (18 pF ± 2 pF) DC 50 Ω: 50 Ω ± 2%
Max. Input voltage	1 MΩ: ≤ 400 Vpk (DC + Peak AC <= 10 kHz) 50 Ω: ≤ 5V rms
CH to CH Isolation	DC-Max BW :> 40 dB
Probe attenuation	0.1X, 0.2X, 0.5X, 1X, 2X, 5X, 10X……1000X, 2000X, 5000X, 10000X, Custom

Vertical System	
Bandwidth (-3 dB)	350 MHz (SDS2352X-E) 200 MHz (SDS2202X-E)
Vertical Resolution	8-bit
Vertical Scale (Probe 1 X)	500 μV/div - 10 V/div (1-2-5 sequence)
Offset Range (Probe 1 X)	500 μV - 100 mV: ± 2 V
	102 mV- 1 V: ± 20 V
	1.02 V - 10 V: ± 200 V
Bandwidth Limit	20 MHz ± 40%
Channel Flatness (Inner 50 Ω)	DC - 60% (BW): ± 1 dB
	60% - 100% (BW): + 1 dB/-3 dB
Low Frequency Response (AC -3 dB)	≤ 2 Hz (at input BNC)
Noise	ST-DEV ≤ 0.5 division (< 1 mV/div)
	ST-DEV ≤ 0.2 division (< 2 mV/div)
	ST-DEV ≤ 0.1 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
Risetime	Typical 1.0 ns (SDS2352X-E)
	Typical 1.8 ns (SDS2202X-E)

Horizontal System

Timebase Scale	500 ps/div-100 s/div
Channel Skew	<100 ps
Waveform Capture Rate	Up to 110,000 wfm/s (normal mode), 400,000 wfm/s (sequence mode)
Intensity Grading	256 Levels
Display Format	Y-T, X-Y, Roll
Timebase Accuracy	±25 ppm
Roll Mode	50 ms/div-100 s/div (1-2-5 step)

Trigger System

Trigger Mode	Auto, Normal, Single
Trigger Level	Internal: ±4.5 div from the center of the screen
	EXT: ±0.6 V
	EXT/5: ±3 V
Holdoff Range	80 ns - 1.5 s
Trigger Coupling	AC DC LFRJ HFRJ Noise RJ
Coupling Frequency Response	DC: Passes all components of the signal
	AC: Blocks DC components and attenuates signals below 8 Hz
	LFRJ: Blocks the DC component and attenuates the low-frequency components below 2 MHz
	HFRJ: Attenuates the high-frequency components above 1.2 MHz
Coupling Frequency Response (EXT)	DC: Passes all components of the signal
	AC: Blocks DC components and attenuates signals below 10 Hz
	LFRJ: Blocks the DC components and attenuates low-frequency components below 6 KHz
	HFRJ: Attenuates high-frequency components above 200 KHz
Trigger Accuracy (typical)	Internal: ±0.2 div
	EXT: ±0.4 div
Trigger Sensitivity	DC - Max BW 0.6 div
	EXT: 200 mVpp DC – 10 MHz
	300 mVpp 10 MHz - BW frequency (External 50 Ω)
	EXT/5: 1 Vpp DC – 10 MHz
	1.5 Vpp 10 MHz -BW frequency (External 50 Ω)
Trigger Jitter	< 100 ps
Trigger Displacement	Pre-Trigger: 0 - 100% Memory
	Delay Trigger: 0 to 10,000 div
Edge Trigger	
Slope	Rising, Falling, Rising&Falling
Source	All channels / EXT / (EXT/5) / AC Line
Slope Trigger	
Slope	Rising, Falling
LimitRange	<, >, <>, ><
Source	All channels
TimeRange	2 ns - 4.2 s
Resolution	1 ns

Pulse Trigger	
Polarity	+wid , -wid
Limit Range	<, >, <>, ><
Source	All channels
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, 1080i/60, Custom
Source	All channels
Sync	Any, Select
Trigger condition	Line, Field
Window Trigger	
Window Type	Absolute, Relative
Source	All channels
Interval Trigger	
Slope	Rising, Falling
Limit Range	<, >, <>, ><
Source	All channels
Time Range	2 ns - 4.2 s
Resolution	1 ns
Dropout Trigger	
Timeout Type	Edge, State
Source	All channels
Slope	Rising, Falling
Time Range	2 ns - 4.2 s
Resolution	1 ns
Runt Trigger	
Polarity	+wid , -wid
Limit Range	<, >, <>, ><
Source	All channels
Time Range	2 ns - 4.2 s
Resolution	1 ns
Pattern Trigger	
Pattern Setting	Invalid, Low, High
Logic	AND, OR, NAND, NOR
Source	All channels
Limit Range	<, >, <>, ><
Time Range	2 ns - 4.2 s
Resolution	1 ns

Search	
Event	Edge, Slope, Pulse, Interval, Runt
Event Number	Y-T: 700 ROLL: No limitation Stop After ROLL: 700

Serial Trigger	
I2C Trigger	
Condition	Start, Stop, Restart, No Ack, EEPROM, 7 bits Address & Data, 10 bits Address & Data, Data Length
Source (SDA/SCL)	All channels
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
SPI Trigger	
Condition	Data
Source (CS/CL/Data)	All channels
Data Format	Binary
Data Length	4-96-bit
Bit Value	0, 1, X
Bit Order	LSB, MSB
UART Trigger	
Condition	Start, Stop, Data, Parity Error
Source (RX/TX)	All channels
Data Format	Hex
Limit Range	=, >, <
Data Length	1 byte
Data Width	5, 6, 7, 8-bits
Parity Check	None, Odd, Even
Stop Bit	1, 1.5, 2-bits
Idle Level	High, Low
Baud Rate (Selectable)	600/1200/2400/4800/960019200/38400/57600/115200 bit/s
Baud Rate (Custom)	300-5000000 bit/s
CAN Trigger	
Condition	Start Remote, ID, ID + Data, Error
Source	All channels
ID	STD (11 bit), EXT (29 bit)
Data Format	Hex
Data Length	1-2 byte
Baud Rate	5 k/ 10 k/ 20 k/ 50k/ 100 k/ 125 k/ 250 k/ 500 k/ 800 k/ 1 M bit/s
LIN Trigger	
Condition	Break, Frame ID, ID+Data, Error
Source	All channels
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	
Number of Decoders	2
I2C Decoder	
Signal	SCL, SDA
Address	7, 10 bits
Threshold	-4.5 - 4.5 div
List	1 - 7 lines
SPI Decoder	
Signal	SCL, MISO, MOSI, CS (2 channel scopes can only use 2 signal identifiers)
Edge Select	Rising, Falling
Idle Level	Low, High
Bit Order	MSB, LSB
Threshold	-4.5 - 4.5 div
List	1 - 7 lines
UART Decoder	
Signal	RX, TX
Data Width	5, 6, 7, 8-bits
Parity Check	None, Odd, Even
Stop Bit	1, 1.5, 2-bits
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	Ver 1.3, Ver 2.0
Threshold	-4.5 - 4.5 div
List	1 - 7 lines

Measurement		
Source	All channels, All channels in Zoom, Math, All References, History	
Number of Measurements	Display 4 measurements at the same time. 5 measurements displayed in statistics table	
Measurement Range	Screen or Gate region	
Measurement Parameters (38 Types)		
Vertical (Voltage)	Max	Highest value in input waveform
	Min	Lowest value in input waveform
	Pk - Pk	Difference between maximum and minimum data values
	Ampl	Difference between top and base in a bimodal signal, or between max and min in a singal mode signal
	Top	Value of most probable higher state in a bimodal waveform
	Base	Value of most probable lower state in a bimodal waveform
	Mean	Average of all data values
	Cmean	Average of data values in the first cycle
	Stdev	Standard deviation of all data values
	Cstd	Standard deviation of all data values in the first cycle
	VRMS	Root mean square of all data values
	Crms	Root mean square of all data values in the first cycle
	FOV	Overshoot after a falling edge; (base -min)/Amplitude
	FPRE	Overshoot before a falling edge; (max -top)/Amplitude
	ROV	Overshoot after a rising edge; (max -top)/Amplitude
	RPRE	Overshoot before a rising edge; (base -min)/Amplitude
	Level@X	The voltage value of the trigger point
Horizontal (Time)	Period	Time between the middle threshold points of two consecutive, like-polarity edges
	Freq	Reciprocal of period
	+Wid	Width measured at 50% level and positive slope
	-Wid	Width measured at 50% level and negative slope
	Rise Time	Duration of rising edge from 10-90%
	Fall Time	Duration of falling edge from 90-10%
	Bwid	Time from the first rising edge to the last falling edge, or the first falling edge to the last rising edge at the 50% crossing
	+Dut	Time difference between the 50% threshold of a rising edge to the 50% threshold of the next falling edge of the pulse
	-Dut	Time difference between the 50% threshold of a falling edge to the 50% threshold of the next rising edge of the pulse
	Delay	Time from the trigger to the first transition at the 50% crossing
	Time@Level	Time from the trigger to each rising edge at the 50% crossing. When Statistics is Off, it shows the time from the trigger to the last rising edge at the 50% crossing. When Statistics is On, it shows the Current, Mean, Min, Max, Standard Deviation of time from the trigger to each rising edge at the 50% crossing in multiple frames (number = Count).
Delay	Phase	Phase difference between two edges
	FRR	Time from the first rising edge of channel A to the following first rising edge of channel B
	FRF	Time from the first rising edge of channel A to the following first falling edge of channel B
	FFR	Time from the first falling edge of channel A to the following first rising edge of channel B
	FFF	Time from the first falling edge of channel A to the following first falling edge of channel B
	LRR	Time from the first rising edge of channel A to the last rising edge of channel B
	LRF	Time from the first rising edge of channel A to the last falling edge of channel B
	LFR	Time from the first falling edge of channel A to the last rising edge of channel B
	LFF	Time from the first falling edge of channel A to the last falling edge of channel B
	Skew	Time of source A edge minus time of nearest source B edge

Measurement	
Cursors	Manual : Time X1, X2, (X1 -X2), (1/ΔT) Voltage Y1, Y2, (Y1 -Y2) Track: Time X1, X2, (X1 -X2)
Statistics	Current, Mean, Min, Max, Stdev, Count
Counter	Hardware 6-digit counter (channels are selectable)

Math Function	
Operation	+ , - , * , / , FFT, d/dt, ∫dt, √
FFT window	Rectangular, Blackman, Hanning, Hamming, Flattop
FFT display	Full Screen, Split, Exclusive

USB AWG Module (option)	
Channel	1
Max. Output Frequency	25 MHz
Sampling Rate	125 MSa/s
Frequency Resolution	1 μHz
Frequency Accuracy	±50 ppm
Vertical Resolution	14-bit
Amplitude Range	-1.5 ~ +1.5 V (50 Ω load)
	-3 ~ +3 V (High-Z load)
Waveform Type	Sine, Square, Ramp, Pulse, Noise, DC and 45 built-in waveforms
Output impedance	50 Ω ± 2%
Protection	Over-Voltage Protection, Current-Limiting Protection
Insulation Voltage	±42 Vpk (for SAG2021I only)
Sine	
Frequency	1 μHz ~ 25 MHz
Offset Accuracy (10 kHz)	± (1%*Offset Setting Value +3 mVpp)
Amplitude flatness (10 kHz, 5 Vpp)	±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
	5 MHz ~ 25 MHz -45 dBc
Square/Pulse	
Frequency	1 μHz ~ 10 MHz
Duty Cycle	1% ~ 99%
Rise/Fall Time	< 24 ns (10% ~ 90%)
Overshoot (1 kHz, 1 Vpp, Typical)	< 3% (typical 1 kHz, 1 Vpp)
Pulse Width	> 50 ns
Jitter	< 500 ps + 10 ppm
Ramp	
Frequency	1 μHz ~ 300 kHz
Linearity (Typical)	< 0.1% of Pk-Pk (Typical, 1 kHz, 1 Vpp, 50% Symmetry)
Symmetry	0% ~ 100%

DC	
Offset range	±1.5 V (50 Ω load)
	±3 V (High-Z load)
Accuracy	± (|offset|* 1% + 3 mV)
Noise	
Bandwidth	> 25 MHz (-3 dB)
Arbitrary Wave	
Frequency	1 μHz ~ 5 MHz
Wave Length	16 kpts
Sampling Rate	125 MSa/s
Lead In	EasyWave and U-Disk

Digital Channels (option)	
No. of Channels	16
Max. Sampling Rate	1 GSa/s
Memory Depth	14 Mpts/CH
Min. Detectable Pulse Width	4 ns
Level Group	D0 ~ D7, D8 ~ D15
Level Range	-8 V ~ 8 V
Logic Type	TTL, CMOS, LVCMOS3.3, LVCMOS2.5, custom
Skew[2]	D0 ~ D15: ±1 sampling interval Digital to Analog: ± (1 sampling interval +1 ns)

I/O	
Standard	USB Host*2, USB Device, LAN, Pass/Fail, Trigger Out
Pass/Fail	3.3 V TTL Output

Display (Screen)	
Display Type	7-inch TFT LCD
Display Resolution	800 × 480 pixels
Display Color	24-bit
Contrast (Typical)	500:1
Backlight	300 nits
Range	8 x 14 divisions

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 min, 5 min, 10 min, 30 min, 1 hour, Off
Language	Simplified Chinese, Traditional Chinese, English, French, Japanese, Korean, German, Russian, Italian, Portuguese

Environments

Temperature	Operating: 0℃ ~ +40℃
	Non-operating: -20℃ ~ +60℃
Humidity	Operating: 85% RH, 40℃ , 24 hours
	Non-operating: 85% RH, 65℃ , 24 hours
Height	Operating: ≤3000 m
	Non-operating: ≤15,000 m

Standards

Electromagnetic compatibility	Meets EMC directive (2014/30/EU), meets or exceeds IEC 61326-1:2012/EN61326-1:2013 (Basic)		
	Conducted disturbance	CISPR 11/EN 55011	CLASS A group 1, 150kHz-30MHz
	Radiated disturbance	CISPR 11/EN 55011	CLASS A group 1, 30MHz-1GHz
	Electrostatic discharge (ESD)	IEC 61000-4-2/EN 61000-4-2	4.0 kV (Contact), 8.0 kV (Air)
	Radio-frequency electromagnetic field Immunity	IEC 61000-4-3/EN 61000-4-3	10 V/m (80 MHz to 1 GHz) 3 V/m (1.4 GHz to 2 GHz) 1 V/m (2.0 GHz to 2.7GHz)
	Electrical fast transients (EFT)	IEC 61000-4-4/EN 61000-4-4	2kV (Input AC Power Ports)
	Surges	IEC 61000-4-5/EN 61000-4-5	1kV (Line to line) 2kV (Line to ground)
	Radio-frequency continuous conducted Immunity	IEC 61000-4-6/EN 61000-4-6	3 V, 0.15-80MHz
	Voltage dips and interruptions	IEC 61000-4-11/EN 61000-4-11	Voltage Dips: 0% UT during 1 cycle; 40% UT during 10/12 cycles; 70% UT during 25/30 cycles Voltage interruptions:0% UT during 250/300 cycles
Safety	UL 61010-1:2012/R: 2018-11; CAN/CSA-C22.2 No. 61010-1:2012/A1:2018-11. UL 61010-2-030:2018; CAN/CSA-C22.2 No. 61010-2-030:2018.		

Power Supply

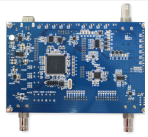
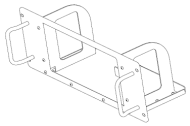
Input Voltage	100 - 240 Vrms (± 10%), 50 / 60 Hz 100 - 120 Vrms (± 10%), 400 Hz
Power	50W Max

Mechanical

Dimensions	Length: 312 mm
	Width: 132.6 mm
	Height: 151 mm
Weight	N.W: 2.6 kg; G.W: 3.8 kg

Probes and Accessories

Probe	Model	Picture	Description
Passive	PP510		Bandwidth: 200 MHz, 1X/10X, 1 M/10 Mohm, 300 V/600 V Bandwidth: 350 MHz, 1X/10X, 1 M/1 Mohm, 150 V/300 V
	PP215		
	SP2035		
Current Probe	CP4020		Bandwidth: 100 KHz, Max. continuous current: 20 Arms, Peak current: 60 A Switch Ratio: 50 mV/A, 5 mV/A, Accuracy: 50 mV/A (0.4 A-10 Apk)±2%, 5 mV/A (1 A-60 Apk) ±2%, 9 V battery source
	CP4050		Bandwidth: 1MHz, Max. continuous current: 50Arms, Peak current: 140 A Switch Ratio: 500 mV/A, 50 mV/A Accuracy: 500 mV/A (20 mA -14ApK) ± 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 source
	CP4070		Bandwidth: 150 kHz, Max. continuous current: 70 Arms, Peak current: 200 A Switch Ratio: 50 mV/A, 5 mV/A, Accuracy: 50 mV/A (0.4 A -10 ApK) ± 2% , 5 mV/A (1 A -200 ApK) ± 2%, 9 V battery source
	CP5030		Bandwidth: 50 MHz, Max. continuous current: 30 Arms, Peak current: 50 A Switch Ratio: 100 mV/A, 1 V/A, Accuracy: 1 V/A (± 1% ± 1mA), 100 mV/A (± 1% ± 10 mA), DC 12 V/ 1.2 A power adapter
	CP5030A		Bandwidth: 100 MHz, Max. continuous current: 30 Arms, Peak current: 50 A Switch Ratio: 100 mV/A, 1 V/A, Accuracy: 1 V/A (± 1% ± 1 mA), 100 mV/A (± 1% ± 10 mA), DC 12V/1.2 A power adapter
	CP5150		Bandwidth: 12 MHz, Max. continuous current: 150 Arms, Peak current: 300 A Switch Ratio: 100 mV/A, 10 mV/A, Accuracy: 100 mV/A (± 1% ± 10 mA), 10 mV/A (± 1% ± 100 mA), DC 12 V/1.2 A power adapter
	CP5500		Bandwidth: 5 MHz, Max. continuous current: 500 Arms, Peak current: 750 A Switch Ratio: 100 mV/A, 10 mV/A, Accuracy: 100 mV/A (± 1% ± 10 mA), 10 mV/A (± 1% ± 100 mA), DC 12 V/1.2 A power adapter
Differential Probe	DPB4080		Bandwidth: 50 MHz, Differential Range: 800 V (DC + Peak AC), 100X/200X/500X/1000X, Accuracy: ±1%, DC 9 V/1 A power adapter
	DPB5150		Bandwidth: 70 MHz, Differential Range: 1500 V (DC + Peak AC), 50X/500X Accuracy: ± 2%, DC 5 V/1A USB adapter

Probe	Model	Picture	Description
	DPB5150A		Bandwidth: 100 MHz, Differential Range: 1500 V (DC + Peak AC), 50X/500X , Accuracy: ±2% DC 5 V/1 A USB adapter
	DPB5700		Bandwidth: 70 MHz, Differential Range: 7000 V (DC + Peak AC), 100X/1000X , Accuracy: ±2%, DC 5 V/1 A USB adapter
	DPB5700A		Bandwidth: 100 MHz Differential Range: 7000 V (DC + Peak AC), 100X/1000X Accuracy: ±2% DC 5 V/1 A USB adapter
High Voltage	HPB4010		Bandwidth: 40 MHz Differential Range: DC 10 KV, AC (rms): 7 KV (sine), AC (Vpp): 20 KV (Pulse) 1000X Accuracy: ≤3%
Isolated front end	ISFE		Provides isolation between standard oscilloscope channels, isolation between the measured signal and ground. Uses USB 5 V power supply, plug and play. The maximum input voltage allowed is up to ± 600 Vpk
Demo Board	STB-3 Test Board		Output signals including square, sine, AM, fast edge, pulse, PWM, I2C, CAN, LIN etc. Used in teaching and demonstrations
USB AWG Module	SAG1021		Output Sine, Square, Ramp, pulse, Noise, DC and 45 built-in waveforms. The arbitrary waveforms can be accessed and edited by the EasyWave PC software
Rack Mount	SDS1X-E-RMK		The height is 4U

Ordering information

Product Name	SDS2000X-E Series Digital Oscilloscope	
	SDS2202X-E 200 MHz	
	SDS2352X-E 350 MHz	
Standard Accessories	USB Cable -1	
	Quick Start -1	
	Passive Probe -2	
	Certification of Calibration -1	
	Power Cord -1	
Optional Accessories	16 Channels MSO Software	SDS2000X-E-16LA
	16 Channels Logic Analyzer	SLA1016
	AWG Software	SDS2000X-E-FG
	USB Isolated AWG Module Hardware	SAG1021I
	WIFI Software	SDS2000X-E-WIFI
	USB WIFI Adapter	TL_WN725N
	Isolated Front End	ISFE
	STB Demo Source	STB-3
	High Voltage Probe	HPB4010
	Current Probes	CP4020/CP4050/CP4070/CP4070A/CP5030/CP5030A/CP5150/CP5500
	Differential Probes	DPB4080/DPB5150/DPB5150A/DPB5700/DPB5700A
	Rack Mount	SDS1X-E-RMK

SDS2000X-E Series

Super Phosphor 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, isolated handheld oscilloscopes, function/arbitrary waveform generators, RF/MW signal generators, spectrum analyzers, vector network analyzers, digital multimeters, DC power supplies, electronic loads and other general purpose test instrumentation. Since its first oscilloscope 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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