

SDS800X HD

digital oscilloscope



Data sheet

CN01A



SDS804X HD
SDS814X HD
SDS824X HD

SDS802X HD
SDS812X HD
SDS822X HD

Product overview

SDS800X HD series of high-resolution digital oscilloscopes with the highest 12-bit vertical resolution, excellent background noise performance and vertical measurement accuracy can meet higher precision measurement needs. SDS800X HD has the maximum bandwidth of 200 MHz, the highest sampling rate 2 GSa/s, has 2 1/4 analog channels and 16 digital channels, with a storage depth of up to 100 Mpts. SDS800X HD adopted SPO technology, with waveform capture rates as high as 500,000 frames/second with 256 level brightness level and color temperature display; innovative digital trigger system with high trigger sensitivity and small trigger jitter; supports rich intelligent triggering, serial bus triggering and decoding; supports history (History) mode, segmented collection (Sequence), template testing, search, navigation, Bode plot and power analysis and other advanced analysis modes; it has rich measurement and mathematical operation functions. SDS800X HD adopted 7 inch 1-inch capacitive touch screen supports a variety of gestures to perform common operations on waveforms and menus. Combined with multiple one-touch operation buttons on the front panel, it greatly optimizes the efficiency of operating the oscilloscope and improves the user experience.

Features and Benefits

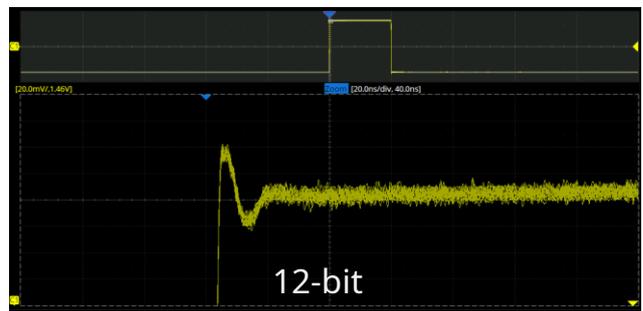
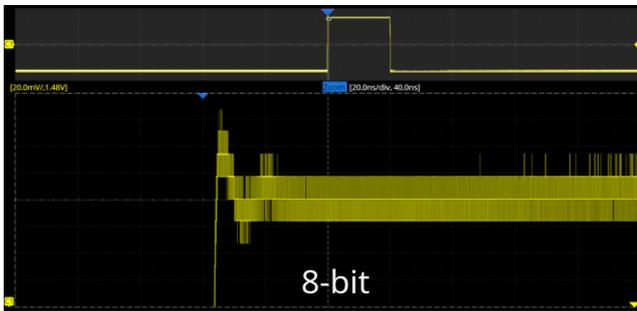
-  Analog Channel Bandwidth: Maximum 200 MHz; Real-time sampling rate up to 2 GSa/s
-  Vertical resolution: 12-bit
-  Low noise floor, in 200 MHz at full bandwidth, down to 70 μ Vrms
-  SPO technology
 - Waveform capture rate up to 500,000 frames/second (Sequence model), 120,000 frames/second (normal mode)
 - support 256 level waveform brightness and color temperature display
 - Storage depth up to 100 Mpts
 - digital trigger
-  Intelligent triggering: edge, slope, pulse width, window, runt, interval, timeout, pattern, video trigger (supported HDTV), premise edge, No. NEdge, delay, setup/hold time serial bus triggering and decoding, supported protocols include standard I²C, SPI, UART, CAN, LIN
-  Segmented collection (Sequence) mode, the maximum storage depth can be divided into 8000 segments, according to the trigger conditions set by the user, events that meet the conditions are captured in segments with a very small dead time.
-  History mode (History), the maximum recordable 8000 dozens of automatic measurement functions for frame waveforms, supporting measurement statistics, Gating Measurement, Math Measurement, History Measurement, Ref Measurement. Supports histogram and trend chart statistics of measured parameters
-  4 independent waveform operation, supporting 2M point FFT and 20A variety of commonly used time domain operations; supports custom expressions to achieve complex nesting Operation
-  Multiple advanced data analysis and processing capabilities: search and navigation, high-speed Mask test, Bode plot, power analysis (option), counter, etc.
-  16 digital channels (optional)
-  25 MHz Arbitrary waveform generator (optional)
-  7 inch capacitive touch display, resolution 1024*600 Rich interface: SBUS (Siglent logic analyzer interface), 2 individual USB Host, USB Device, LAN, Pass/Fail, Trigger Outwait
-  Supports external mouse and keyboard operation; built-in Web Server Support controlling instruments through web pages; support NTP (Network Time Protocol)
-  supports rich SCPI remote control command
-  Multi-language display and embedded online help

Model and main parameters

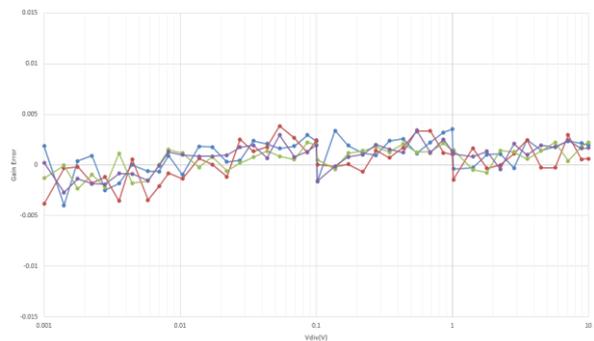
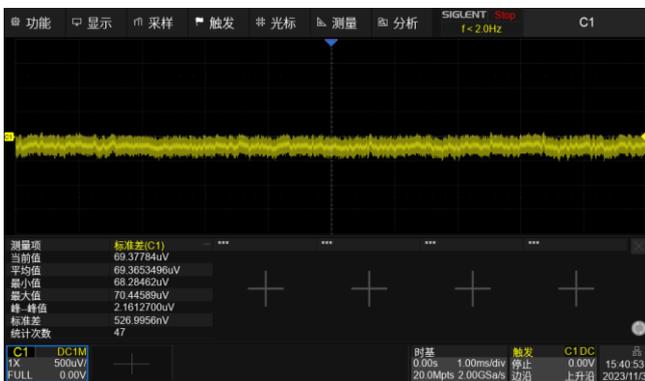
model	SDS804X HD SDS802X HD	SDS814X HD SDS812X HD	SDS824X HD SDS822X HD
Number of channels	4(4channel series) 2(2channel series)		
bandwidth	70MHz	100MHz	200MHz
Maximum real-time sampling rate	Single channel mode:2GSa/s Dual channel mode:1GSa/s Four channel mode:500MSa/s		
Maximum storage depth	Single channel mode:50 Mpts/ch Dual channel mode:25 Mpts/ch Four channel mode:10 Mpts/ch	Single channel mode:100 Mpts/ch Dual channel mode:50 Mpts/ch Four channel mode:25 Mpts/ch	
Waveform capture rate	Normal mode: highest80,000 wfm/s;SequenceMode: highest500,000 wfm/s		Normal mode: Highest 120,000wfm/s;Sequence Mode: highest500,000 wfm/s
vertical resolution	12-bit		
Trigger type	edge(Edge), slope (Slope), pulse width (Pulse width),window(Window), runt (Runt), interval (Interval),time out(Dropout), code type (Pattern),video(Video), premise edge (Qualified), No.Nedge(Nth edge),Delay(Delay), setup/hold time (Setup/Hold time), serial trigger		
Serial triggering and decoding	Standard configuration:I2C,SPI,UART,CAN,LIN		
Measurement	Exceed50parameter measurement, and supports histogram, trend graph and trajectory graph statistics		
computation	4road;2MpointFFTSpectrum analysis; digital filtering; addition, subtraction, multiplication, division, integration, differentiation, square root, average, ERES, absolute value, sign, equivalence, negation, logarithm, exponential, interpolation, maximum hold, minimum hold and other time domain operations; supports formula editor to implement complex nested operations		
data analysis and processing tools	Search, navigation, history, mask test, Bode plot, power analysis (optional), counter		
Digital channel (optional)	16road,1GSa/sSampling Rate,10 Mpts/chStorage depth		
USBarbitrary waveform Generator (optional)	Single channel, maximum output frequency25MHz,Sampling Rate125MSa/s, waveform length16kpts, isolated output		
interface	SBUS(Siglentlogic analyzer interface),USB 2.0 Host x2,USB 2.0 Device,10M/100M LAN, auxiliary output (TRIG OUT,PASS/FAIL)		
Probe	4set/2set of passive probesPB470	4set/2set of passive probesPP510	4set/2set of passive probesPP215
show	7inch capacitive touch display, resolution1024*600		

design feature

High-resolution oscilloscope to meet higher-precision testing needs



12-bit-high-resolution sampling, overlaying horizontally and verticallyZoomFunction,Taking into account both the overall and detailed observation of waveforms



Excellent noise floor performance in200MHzThe noise floor value at full bandwidth is only 70 μ Vrms,let12-bit ADCGet the most out of your performance

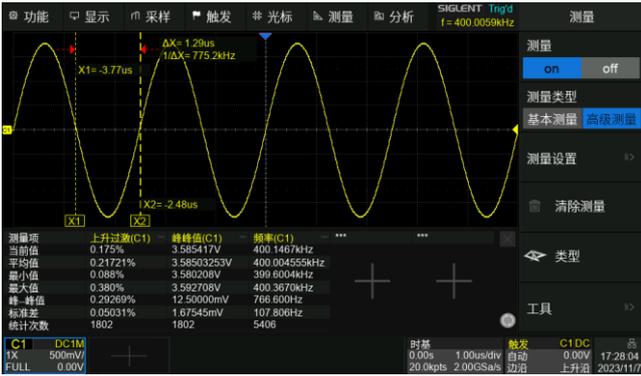
0.5%DC gain accuracy of

Excellent user interface and user experience

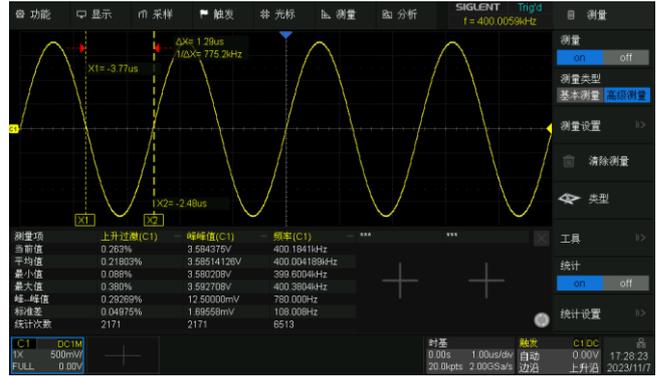


- equipped7inchTFT-LCDLarge display, resolution 1024*600
- Flat capacitive touch screen, specifically defined for oscilloscope operation
- Various gestures greatly improve the efficiency of instrument control
- EmbeddedWebServer, you can remotely access and operate the oscilloscope directly through the web page
- Support mouse and keyboard operation

The user interface has optional font sizes to meet the observation needs of different groups of people.

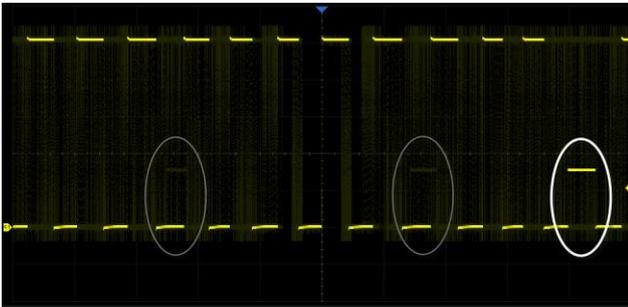


Large font size for on-device use



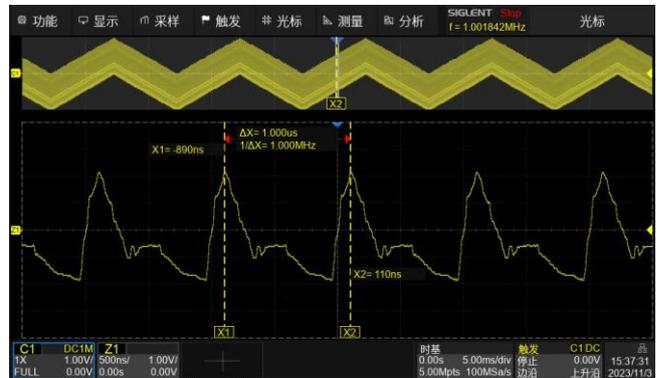
Small font size, exquisite display, suitable for VNC waiting for the big screen to display the scene

High refresh rate helps catch anomalies quickly



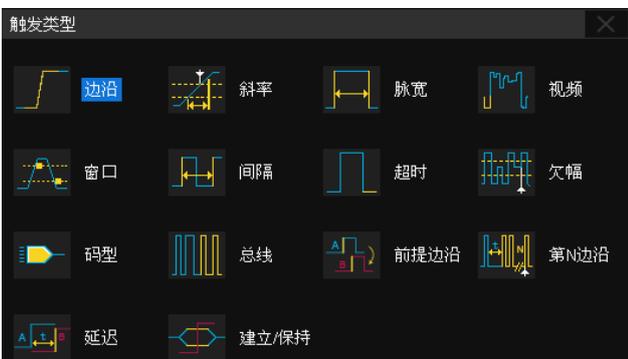
In normal mode 120,000 frames/second, Sequence mode 500,000 The frame/second waveform refresh rate enables the oscilloscope to easily capture low-probability abnormal events.

Large storage depth takes into account both overall and details



maximum 100 Mpts/The deep memory of the channel enables users to capture signals for longer periods of time using higher sampling rates, combined with horizontal and vertical zoom functions to achieve both overall and detailed consideration.

Rich advanced triggering functions



It has rich trigger functions, including edge, slope, pulse width, video, window, interval, timeout, runt, pattern, premise edge, third N Edges, delays, setup/hold times and multiple bus triggers (serial triggers)

Various mathematical operation functions

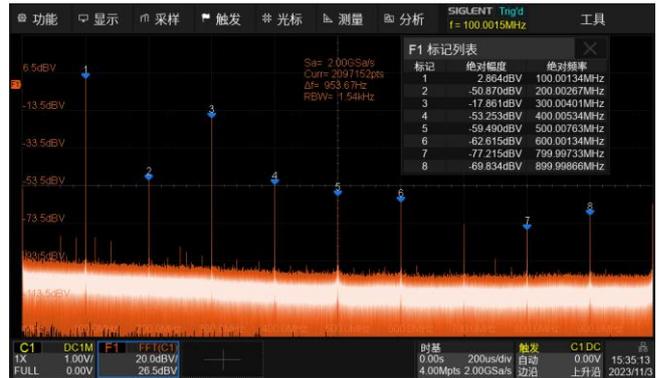


4independentMathWaveform, support20A variety of commonly used mathematical operations, supporting custom operation expressions in the formula editor, used to implement complex nested operations

Rich measurement functions

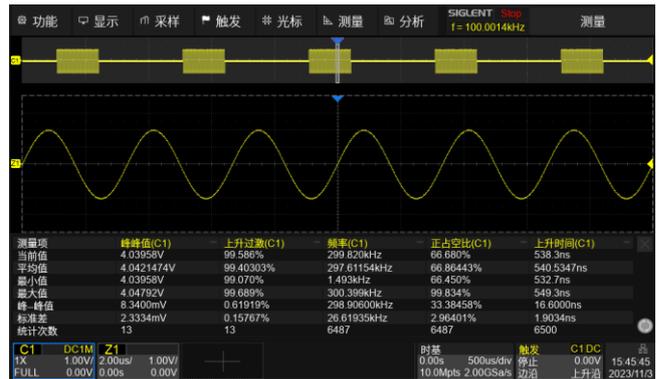


Measurement types include horizontal type, vertical type, inter-channel delay type and mixed measurement type, totaling more than50parameters. Measurement sources include analog channels, digital channels, mathematical operations, reference waveforms, historical frames, etc.



Hardware acceleratedFFTfunction, the maximum number of operation points is2Mpoint, while providing superior spectrum resolution, it can still maintain a high spectrum refresh rate. Supports a variety of window functions, supports normal, average, maximum hold and other modes, and supports automatic marking of peak points

Statistical functions for measured parameters



The parameter statistics function can display five measured values of any parameter: current value, average value, minimum value, maximum value, and standard deviation. Histogram statistics can visually display the probability distribution of parameters; trend charts and trajectory charts can reflect the changes in parameters over time. In addition, for measurements in the horizontal direction (such as period, pulse width, etc.), the traditional method of obtaining only one measurement value per frame is abandoned. The measurement values of all specified horizontal items in a frame are calculated and included in statistics. Greatly improved testing efficiency

History mode (History)



Maximum recordable 80000 Frame waveform; automatic real-time recording, you can play back historical waveforms at any time to observe abnormal events, and quickly locate the source of the problem through the cursor or measurement parameters

Segmented collection (Sequence)



Segmented acquisition divides the waveform storage space into multiple segments. Each segment of space stores a trigger frame. The maximum can be collected 80000 trigger event, in Sequence cycle to minimize the time between triggering events (as small as 2μs) to improve the probability of capturing abnormal events. Sequence All waveform segments collected in mode can be mapped to the screen at once, or can be History Perform single frame playback

search(Search) and navigation (Navigate)



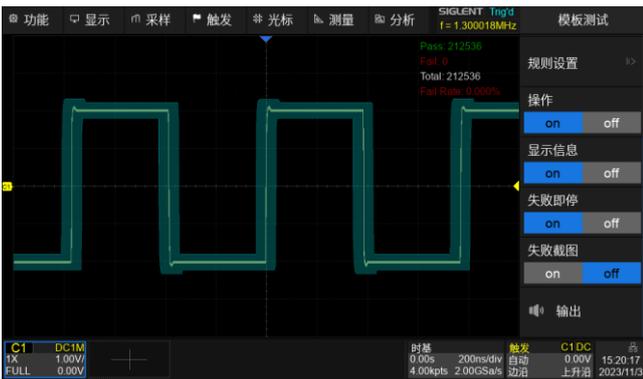
By specifying conditions, a frame of waveform is automatically searched and events that meet the conditions are identified. Combined with the navigation function, you can quickly locate the event of interest, and then use the oscilloscope's analysis function to conduct a detailed analysis of the event, eliminating the time and inconvenience of manual search. Navigation can navigate search events, time and historical frames.

Serial bus decoding function

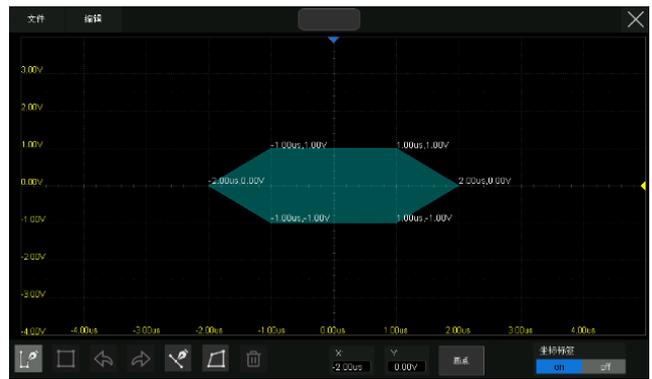


Through the event list display decoding, the bus protocol information can be quickly and intuitively displayed in table form. support I2C, SPI, UART, CAN, LIN Multiple protocols

High-speed mask testing implemented in hardware



Hardware-based template testing function, up to 1 second execution 80000 This test is suitable for long-term unattended monitoring of abnormal signals.



embeddedMask EditorTools (optional) for creating and editing user-defined templates

Bode plot



Use the Bode plot to test the frequency response or loop stability of the system, replacing expensive network analyzers in certain areas. Available with optional waveform generator or SDGSeries Arbitrary Waveform Generator

Power analysis (optional)



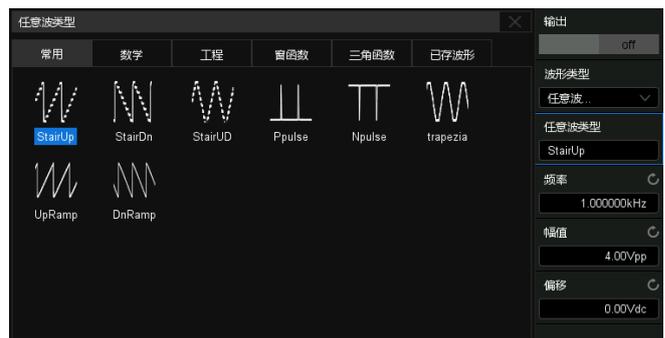
The power analysis option can help users quickly measure and analyze multiple items in the field of power electronics, such as power quality, harmonics, surge current, switching loss, output ripple, transient response, power supply rejection ratio, power efficiency, etc.

16digital channels (optional)



use 16 Logic Analyzer Probe SLA1016, Can achieve 16 digital channel acquisition function. Digital channels are combined with analog channels to achieve mixed signal acquisition and analysis functions

25MHz USB Arbitrary waveform generator (optional)



pass USB Host Access 25MHz USB Arbitrary waveform generator module, integrating sine wave, square wave, triangle wave, pulse wave, noise, DC and 45A built-in arbitrary waveform, users can also pass EasyWave The upper computer software edits arbitrary waveforms.

Specifications

Unless otherwise stated, all specifications are guaranteed to be met under the following conditions:

- The product is within the calibration validity period
- at ambient temperature 18°C~28°C range, and the instrument works continuously 30 more than minutes

Acquisition (analog channel)			
Maximum real-time sampling rate	Single channel mode: 2GSa/s Dual channel mode: 1GSa/s Four channel mode: 500MSa/s		
Storage depth	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> 70M and 100M model: Single channel mode: 50 Mpts/ch Dual channel mode: 25 Mpts/ch Four channel mode: 10 Mpts/ch </td> <td style="width: 50%;"> 200M model: Single channel mode: 100 Mpts/ch Dual channel mode: 50 Mpts/ch Four channel mode: 25 Mpts/ch </td> </tr> </table>	70M and 100M model: Single channel mode: 50 Mpts/ch Dual channel mode: 25 Mpts/ch Four channel mode: 10 Mpts/ch	200M model: Single channel mode: 100 Mpts/ch Dual channel mode: 50 Mpts/ch Four channel mode: 25 Mpts/ch
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Waveform capture rate	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> 70M and 100M model: Normal mode: highest 80,000 wfms/s Sequence Mode: highest 500,000 wfms/s </td> <td style="width: 50%;"> 200M model: Normal mode: highest 120,000 wfms/s Sequence Mode: highest 500,000 wfms/s </td> </tr> </table>	70M and 100M model: Normal mode: highest 80,000 wfms/s Sequence Mode: highest 500,000 wfms/s	200M model: Normal mode: highest 120,000 wfms/s Sequence Mode: highest 500,000 wfms/s
70M and 100M model: Normal mode: highest 80,000 wfms/s Sequence Mode: highest 500,000 wfms/s	200M model: Normal mode: highest 120,000 wfms/s Sequence Mode: highest 500,000 wfms/s		
Waveform intensity level	256 class		
Peak detection	Minimum detectable pulse width 2ns		
Sequencemodel	maximum 80000 Frame, minimum interval between two triggers = 2μs		
Historymodel	maximum 80000 frame		
interpolation method	sinx/x, x		

Vertical (analog channel)	
Number of channels	4 (4 channel series) 2 (2 channel series)
bandwidth (-3dB) @ 50Ω ⁺¹	SDS804X HD, SDS802X HD: 70 MHz SDS814X HD, SDS812X HD: 100 MHz SDS824X HD, SDS822X HD: 200 MHz
Bandwidth Flatness @ 50Ω	DC ~ 10% (Rated bandwidth): ±1dB 10% ~ 50% (Rated bandwidth): ±2dB 50% ~ 100% (Rated bandwidth): +2dB/-3dB
bandwidth limit	20MHz: 20MHz ± 40%
Rise Time @ 50Ω (Typical value)	SDS804X HD, SDS802X HD: Typical value 5.0ns SDS814X HD, SDS812X HD: Typical value 3.5ns SDS824X HD, SDS822X HD: Typical value 1.8ns
vertical resolution	12-bit
Significant digits ENOB ⁺² (Typical value)	8.4-bit

Noise floor* ₃ (rms,@50Ω, typical value,1 mV/div)	70 μV(full bandwidth)	
vertical scale range	8grid	
Vertical gear (Probe ratio1X)	1 MΩ:0.5 mV/div – 10 V/div	
DC gain accuracy (Typical value)	0.5 mV/div ~ 4.95 mV/div:±1.5%; 5 mV/div ~ 10 V/div:±0.5%;	
DC offset accuracy	±(0.5%DC bias setting +0.5%full scale +1 mV)	
offset range (Probe ratio1X)	1 MΩ:	0.5 mV/div ~ 5 mV/div:±1.6V; 5.1 mV/div ~ 10 mV/div:±4V; 10.2 mV/div ~ 20 mV/div:±8V; 20.5 mV/div ~ 100 mV/div:±8V; 102 mV/div ~ 200 mV/div:±80V; 205 mV/ div ~ 1 V/div:±80V; 1.02 V/div ~ 10 V/div:±400V;
ACCoupling cutoff frequency (-3dB)	2 Hz (Typical value)	
overshoot (150psFast edge, @50Ω, typical value)	10%	
Input coupling	DC,AC,GND	
input resistance	1 MΩ:(1 MΩ ±2%) (17 pF ±2 pF)	
Maximum input voltage	1 MΩ≤400 Vpk (DC + AC),DC~10 kHz	
SFDR (spurious-free dynamic range)	≥35dBc	
Channel isolation	DC~Max BW:>40dB	
Probe attenuation coefficient	1X,10X,100X,customize	

* 1:SDS800X HDNo built-in50Ω,@ in the table50Ωrefers to external50Ω

* 2:24.99MHz,-0.25dBFSenter,20mV/divstall,50Ωinput resistance

*3: Take the standard deviation of the vertical measurement (Stdev)value

level	
Horizontal gear	70M and 100M model: 2 ns/div – 1000 s/div 200M model: 1 ns/div – 1000 s/div
Horizontal scale range	10 grid
display mode	YT, XY, Roll
Roll model	≥ 50 ms/div
channel offset (CH1~CH4)	< 100 ps
Time base accuracy	± 25 ppm

trigger	
trigger mode	Automatic, normal, single
Trigger level range	Channel trigger: ± 4.5 Grid (position from zero level)
Trigger holdoff range	time: 8 ns ~ 30 s (8 ns step)
Coupling mode	AC coupling AC DC coupled DC low frequency suppression LFRJ high frequency suppression HFRJ Noise suppression Noise RJ
Trigger level accuracy (Typical value)	CH1~CH4: ± 0.2 div
Trigger sensitivity	CH1~CH4: DC~Max BW 0.6 div
trigger jitter	CH1~CH4: < 100 ps
Trigger displacement	Pre-trigger: 0 ~ 100% Storage depth delay trigger: 0 ~ 10000 div
edge triggered	
source	CH1~CH4/ AC Line/D0~D15
Trigger edge	rising edge, falling edge, alternating
slope trigger	
source	CH1~CH4
Trigger edge	rising edge, falling edge
limitation factor	Less than, greater than, within range, outside range
time setting	2 ns ~ 20 seconds, resolution 1 ns
Pulse width trigger	
source	CH1~CH4/D0~D15
polarity	Positive pulse width, negative pulse width
limitation factor	Less than, greater than, within range, outside range
time setting	2 ns ~ 20 seconds, resolution 1 ns

video trigger	
source	CH1~CH4
standard	NTSC,PAL,720p/50,720p/60,1080p/50,1080p/60,1080i/50,1080i/60,customize
Synchronize	Arbitrary choice
Triggering conditions	OK, field
window trigger	
source	CH1~CH4
window type	Absolutely, relatively
interval trigger	
source	CH1~CH4/D0~D15
Trigger edge	rising edge, falling edge
limitation factor	Less than, greater than, within range, outside range
time setting	2ns~20 seconds, resolution1ns
Timeout trigger	
source	CH1~CH4/D0~D15
timeout type	edge, state
Triggering conditions	rising edge, falling edge
time setting	2ns~20 seconds, resolution1ns
 runt trigger	
source	CH1~CH4
polarity	Positive pulse width, negative pulse width
limitation factor	Less than, greater than, within range, outside range
time setting	2ns~20 seconds, resolution1ns
pattern trigger	
source	CH1~CH4/D0~D15
Pattern settings	No attention, low, high
Logic	And, or, and not, or not
limitation factor	Less than, greater than, within range, outside range
time setting	2ns~20 seconds, resolution1ns
premise edge trigger	
type	Level, level and time-limited, edge, edge and time-limited
Prerequisite signal source	CH1~CH4
Edge trigger source	CH1~CH4
No.Nedge triggered	
source	CH1~CH4
slope	rising edge, falling edge
free time	8ns~20 seconds, resolution1ns
number of edges	1~65535

delayed trigger	
sourceA	CH1~CH4
sourceB	CH1~CH4
slope	rising edge, falling edge
limitation factor	Less than, greater than, within range, outside range
time setting	2ns~20 seconds, resolution 1ns
serial bus trigger	
source	CH1~CH4/D0~D15
Bus type	Standard configuration: I ² C, SPI, UART, CAN, LIN
I ² C trigger	Trigger conditions: start, stop, restart, no response, address + data, EEPROM, Data length
SPI trigger	Trigger condition: data
UART trigger	Trigger conditions: start, stop, data, verification error
CAN trigger	Trigger conditions: start, remote frame, identifier, identifier+data, error
LIN trigger	Trigger conditions: interval, identifier, identifier+data, data error

Serial bus decoding	
Number of decodes	2 road
threshold level	- 4.5~4.5div
list row	1~70K
I ² C decoding	
source	CH1~CH4/D0~D15
Signal	SCL, SDA
Address type	7-bit, 10-bit
SPI decoding	
source	CH1~CH4/D0~D15
Signal	CLK, MISO, MOSI, CS
clock edge	rising edge, falling edge
Chip Select	Active high, active low, clock timeout
bit order	Least Significant Bit (LSB), the most significant bit (MSB)
UART decoding	
source	CH1~CH4/D0~D15
Signal	RX, Tx
data width	5 bits, 6 bits, 7 bits, 8 bits
parity check	None, odd digits, even digits, 1check, 0check
Stop bit	1 bit, 1.5 bits, 2 bits
idle level	high level, low level
bit order	Least Significant Bit (LSB), the most significant bit (MSB)

CANdecoding	
source	CH1~CH4/D0~D15
LINdecoding	
LINProtocol version	Ver 1.3,Ver 2.0
source	CH1~CH4/D0~D15
baud rate	600bps,1200bps,2400bps,4800bps,9600bps,19200bps,customize

Measurement	
Automatic measurement	
source	CH1~CH4,D0~D15,Z1~Z4,F1~F4,Ref,History
Measurement mode	Basic measurement, advanced measurement
Measuring range	screen, gate
Vertical measurement parameters	Maximum value, minimum value, peak-to-peak value, amplitude, top value, bottom value, average value, period average, standard deviation, period standard deviation, root mean square, period root mean square, median, period median, Excessive decline, excitation before decline, Excessive increase, excitation before rise,Level@Trigger
Horizontal measurement parameters	Period, frequency, maximum value time, minimum value time, positive pulse width, negative pulse width,10-90%Rise Time, 90-10% Fall time, rise time, fall time, positive pulse train width, negative pulse train width, positive duty cycle, negative duty cycle, delay,Time@Middle, adjacent cycle jitter
Mixed measurement parameters	Positive area, negative area, effective area, absolute area, AC positive area, AC negative area, AC effective area, AC absolute area, number of cycles, number of rising edges, number of falling edges, total number of edges, number of positive pulses, negative pulses Number, rising edge slope, falling edge slope
Channel delay parameters	phase,FRFR,FRFF,FFFR,FFFF,FRLR,FRLF,FFLR,FFLF, time lag,Tsu@R, Tsu@F,Th@R,Th@F
measurement statistics	Current value, average value, minimum value, maximum value, standard deviation, statistical times, histogram, trend graph, trajectory graph
Cursor measurement	
source	CH1~CH4,D0~D15,F1~F4,Ref
Cursor type	Manual cursor measurement time (X1,X2), time difference ΔT useHzThe format displays the reciprocal time difference (1/ ΔT) Manual cursor voltage measurement (Y1,Y2), voltage difference ΔV Automatically track cursor Measurement cursor

Operation	
aisle	F1~F4
source	CH1~CH4,Z1~Z4,F1~F4
operator	Add, subtract, multiply, divide,FFT,Filter, derivative, integral (supports integral threshold), square root, average,ERES, absolute value, sign, identity, opposite, logarithm, exponential, interpolation, max hold, min hold, formula editor
FFT	Points:1K-2M,variable Window type: rectangular window, Blackman window, Hanning window, Hamming window, flat-top window Display: full screen, half screen, spectrum only Mode: Normal, Maximum Hold, Average Tools: Peak Search, Marking

data analysis	
search	
source	CH1~CH4
model	Edge, slope, pulse width, interval, runt
set up	Copy from trigger, copy to trigger
navigation	
type	Search events, times, historical frames
template test	
source	CH1~CH4,Z1~Z4
template	Automatically created based on waveforms, user-defined (viaMask Editorcreate)
Mask test rate	Highest80000Frames/second (dot display),20000Frames/second (line display)
Bode plot	
source	CH1~CH4
signal source	USBarbitrary waveform generator,SDGSeries function/arbitrary waveform generator (connection method:USB,LAN)
Scan type	constant amplitude, variable amplitude
frequency	Scan mode: linear, logarithmic Scan range:10 Hz ~ 120 MHz
Measurement items	Upper limit cutoff frequency, lower limit cutoff frequency, bandwidth, gain margin, phase margin
Power analysis (optional)	
Analysis item	Power quality, current harmonics, inrush current, switching losses, slew rate, modulation analysis, output ripple, turn on/off, transient response, power supply rejection ratio, power efficiency
counter	
source	CH1~CH4
frequency meter	7Bit
counter	Edge counting, supports gate control and triggering

Digital channel (option)	
Sampling Rate	1GSa/s
Storage depth	10 Mpts/ch
Minimum identifiable pulse width	3.3ns
threshold level range	- 8V~8V
logic level type	TTL,CMOS,LVCMOS3.3,LVCMOS2.5,Custom
Channel-to-channel deviation	Between digital channels: ± 1 sampling interval Between digital channel and analog channel (when digital channel triggers): $\pm (1 \text{ Sampling interval} + 1 \text{ ns})$ Between digital channel and analog channel (when analog channel triggers): $\pm 4 \text{ ns}$

USBArbitrary waveform generator (optional)	
Number of channels	1 individual
Maximum output frequency	25MHz
Sampling Rate	125MSa/s
frequency resolution	1 μ Hz
Frequency accuracy	± 50 ppm
vertical resolution	14-bit
Output amplitude range	- 1.5 V~+1.5V(50 Ω load) - 3 V~+3 V(high resistance load)
Output waveform type	Sine wave, square wave, pulse wave, triangle wave, noise, DC and 45 built-in arbitrary wave
Output impedance	50 $\Omega \pm 2\%$
Protect	Overvoltage protection, current limiting protection
sine wave	
frequency	1 μ Hz~25MHz
vertical accuracy (10 kHz)	$\pm (1\% \text{Set value} + 3\text{mVpp})$
Amplitude flatness	± 0.3 dB, relative to 10kHz, 5 Vpp
SFDR (spurious-free dynamic range)	DC~1MHz:-60 dBc 1 MHz ~ 5 MHz:-55 dBc 5 MHz ~ 25 MHz:-50dBc
HD (harmonic distortion)	DC~5MHz:-50 dBc 5 MHz ~ 25 MHz:-45dBc
Square wave/pulse wave	
frequency	1 μ Hz~10MHz
duty cycle	1%~99%
Rise/fall time <	< 24ns(10%~90%)
overshoot	< 3%(Typical value, 1 kHz, 1 Vpp)
pulse width	> 50 ns
Jitter (cycle to cycle)	< 500 ps + 10 ppm
triangle wave	
Frequency Range	1 μ Hz~300kHz
linearity	< output peak 0.1%(Typical value, 1 kHz, 1 Vpp, 50% symmetry)
symmetry	0%~100%
DC	
Voltage offset	$\pm 1.5\text{V}$ (50 Ω load) $\pm 3\text{V}$ (high resistance load)
Offset accuracy	$\pm (\text{set offset value} * 1\% + 3\text{mV})$
noise	
bandwidth(-3dB)	> 25 MHz

arbitrary wave	
frequency	1μHz~5MHz
Arbitrary wave length	16kpts
Sampling Rate	125MSa/s
Import method	Imported from the host computer,Udisk import, channel waveforms are directly imported

interface	
front panel	USB 2.0 Host, SBus:SiglentLogic analyzer interface probe calibration signal:1 kHz,3 Vsquare wave
rear panel	USB 2.0 Host; USB 2.0 Device; LAN:10M/100MEthernet interface (RJ45terminal); Auxiliary output: includedTRIG OUT(3.3V LVCMOS),PASS/FAIL OUT(3.3 V TTL)

show	
Display	7inch color capacitive touch screen
resolution	1024×600
Contrast (Typical)	500:1
Backlight intensity (typ)	500 nits

display setting	
Display range	8x10grid
Waveform display mode	point, vector
Persistence settings	closure,1Second,5Second,10Second,30seconds, infinite
Screen display mode	Normal, color temperature
Display language	Simplified Chinese, Traditional Chinese, English, French, Japanese, German, Spanish, Russian, Italian, Portuguese
Built-in help system	Simplified Chinese, English

environment	
ambient temperature	Work:0°C~ +50°C Non-working:-30°C~ +70°C
Humidity range	Work:5%~90%RH,30°C,50°C, the upper limit is derated to50%RH, non-working:5%~95%RH
Altitude	Work: ≤3,000m,25°C non- operating: ≤15,000m
electromagnetic compatibility	conform toEMCinstruction(2014/30/EU), consistent with or better thanIEC 61326-1:2012/EN61326-1:2013(base

	this requirement)		
	conducted disturbance	CISPR 11/EN 55011	CLASS A group 1, 150kHz-30MHz
	Radiation harassment	CISPR 11/EN 55011	CLASS A group 1, 30MHz-1GHz
	electrostatic discharge (ESD)	IEC 61000-4-2/EN 61000-4-2	4.0kV(touch),8.0kV(Air)
	RF electromagnetic field immunity	IEC 61000-4-3/EN 61000-4-3	10V/m(80 MHz to 1 GHz); 3V/m(1.4GHz to 2GHz); 1 V/m(2.0GHz to 2.7GHz)
	electrical fast transient burst (EFT)	IEC 61000-4-4/EN 61000-4-4	2 kV(ACinput port)
	surge	IEC 61000-4-5/EN 61000-4-5	1 kV(live line to neutral line) 2 kV(Fire/neutral wire to ground)
	Radio frequency continuous conduction Immunity	IEC 61000-4-6/EN 61000-4-6	3 V,0.15-80MHz
	voltage sag vs. short interruption	IEC 61000-4-11/EN6 1000-4-11	Voltage sag: 0% UT during 1 cycle; 40% UT during 10/12 cycles; 70% UT during 25/30 cycles Short interruption: 0% UT during 250/300 cycles
safety regulations	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.		
RoHS	conform toEU 2015/863		

power supply	
Enter specifications	100~240 Vrms,50/60 Hz
power	80Wmaximum value,40WTypical values, standby4WTypical value

Mechanical structure	
size	Width × Height × Thickness =312 mm×151 mm×132.6 mm(Includes knobs and supporting feet)
weight	net weight2.6kg, gross weight3.8kg

Ordering Information

Product number	Product Description
SDS824X HD	4aisle,200MHzbandwidth,2GSa/sSampling Rate
SDS814X HD	4aisle,100MHzbandwidth,2GSa/sSampling Rate
SDS804X HD	4aisle,70MHzbandwidth,2GSa/sSampling Rate
SDS822X HD	2aisle,200MHzbandwidth,2GSa/sSampling Rate
SDS812X HD	2aisle,100MHzbandwidth,2GSa/sSampling Rate
SDS802X HD	2aisle,70MHzbandwidth,2GSa/sSampling Rate

Standard accessories	quantity
USBdata cable	1root
quick guide	1Book
Passive probe	1set/channel
Calibration certificate	1share
power cable	1root

Optional accessories	Specifications and models
Arbitrary waveform generator option (software)	SDS800XHD-FG
USBIsolating Arbitrary Waveform Generator Hardware	SAG1021I
16digital channel option (software)	SDS800XHD-16LA
16Logic Analyzer Hardware	SLA1016
Power Analysis Option (Software)	SDS800XHD-PA
Phase calibration board	DF2001A

Optional accessories

Optional accessories	picture	model	Product specification description
demo board		STB-3	The output signals include square wave, sine wave, AM signal, fast edge, pulse, PWM, I2C, CAN, LIN. Wait for typical signals
USB isolation arbitrary waveform generator		SAG1021I	25 MHz USB isolated arbitrary waveform generator module integrating sine, square, triangle, pulse, noise, DC and 45 A built-in arbitrary waveform, users can also pass EasyWavePC software for editing arbitrary waveforms
16 path logic Analyzer hardware		SLA1016	logic analyzer suite, via a dedicated SBUS interface connected to SDS800X HD, supply 16 digital channel.
Phase calibration board		DF2001A	Power analysis accessories for calibrating current and voltage probes phase.



About Dingyang

SIGLENT is an industry leader in the field of general electronic test and measurement instruments. At the same time, it is also the first A-share listed company in the general electronic test and measurement instrument industry.

In 2002, the founder of Dingyang Technology began to focus on the research and development of oscilloscopes, and in 2005, he successfully developed the first digital oscilloscope. After years of development, Dingyang's products have expanded to digital oscilloscopes, handheld oscilloscopes, function/arbitrary waveform generators, spectrum analyzers, vector network analyzers, RF/microwave signal sources, desktop multimeters, DC power supplies, electronic loads and other basic products. Test and measurement instrument products are one of the few manufacturers in the world that can simultaneously develop, produce and sell the four main products of general electronic test and measurement instruments: digital oscilloscopes, signal generators, spectrum analyzers and vector network analyzers. It is a national key "small Giant" enterprise. At the same time, it is also one of the very few major domestic competitors that has these four main products at the same time, and all four main products have entered the high-end field. The company is headquartered in Shenzhen, and has established subsidiaries in Cleveland, the United States, and Augsburg, Germany, as well as a branch in Chengdu. Its products are exported to more than 80 countries and regions around the world. SIGLENT has become a world-renowned test and measurement instrument brand.

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