

# SDS7000A Series Digital Storage Oscilloscope



Data Sheet

EN03A

12-bit

HARDWARE



SIGLENT TECHNOLOGIES CO., LTD.

SDS7804AP  
SDS7604AP  
SDS7804A H12  
SDS7604A H12  
SDS7404A H12  
SDS7304A H12

## Product Overview

SIGLENT's SDS7000A series Digital Storage Oscilloscopes are available in bandwidths of 8 GHz, 6 GHz, 4 GHz and 3 GHz, have 12-bit ADCs with sample rate up to 20 GSa/s, maximum record length of 2 Gpts/ch, and display up to 4 analog channels + 16 digital channels for high performance mixed signal analysis.

The SDS7000A series employs Siglent's SPO technology with a maximum waveform capture rate of up to 1,000,000 wfm/s, 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. Tools such as History waveform recording, Search and Navigate functions, Signal Scan, Mask Test, Bode Plot, Power Analysis, Eye/Jitter Analysis and Compliance Test allow for extended waveform records to be captured, stored, and analyzed. An impressive array of measurement and math capabilities, options for a 50 MHz arbitrary waveform generator, as well as serial decoding are also features of the SDS7000A.

The large 15.6" HD display capacitive touch screen supports multi-touch gestures, with the addition of user-friendly UI design, can greatly improve the operational efficiency. It also supports mouse control, and remote web control over LAN



## Key Features

- ✚ 4 analog channels, up to 8 GHz bandwidth with up to 20 GSa/s sample rate
- ✚ 12-bit ADC
- ✚ Low background noise: 300  $\mu$ Vrms @ 8 GHz bandwidth, 220  $\mu$ Vrms @ 4 GHz bandwidth
- ✚ SPO technology
  - Waveform capture rates up to 1,000,000 wfm/s
  - Supports 256-level intensity grading and color temperature display modes
  - Up to 2 Gpts/ch waveform length (optional, AP models)
  - Digital trigger system
- ✚ Intelligent trigger: Edge, Slope, Pulse, Window, Runt, Interval, Dropout, Pattern, Qualified, Nth edge, Setup/hold, Delay and Video (HDTV supported). Zone Trigger simplifies advanced triggering
- ✚ Serial bus triggering and decoder, supports protocols I2C, SPI, UART, CAN, LIN, CAN FD, CAN XL, FlexRay, I2S, MIL-STD-1553B, SENT, Manchester, ARINC429 and USB 2.0
- ✚ Segmented acquisition (Sequence) mode, dividing the maximum record length into multiple segments (up to 124,000), 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 124,000 frames
- ✚ Automatic measurements on 60+ parameters, supports statistics with histogram, track, trend, Gating measurement, and measurements on Math, History and Memory traces
- ✚ 4 Math traces (32 Mpts FFT, Filter, addition, subtraction, multiplication, division, integration, differential, square root, etc.), supports formula editor
- ✚ Abundant data analysis functions such as Search, Navigate, SignalScan, Digital Voltmeter, Counter, Waveform Histogram, Bode plot, Power Analysis, Eye/Jitter Analysis and Compliance Test
- ✚ Spectrum Analyzer mode (A models only)
- ✚ High Speed hardware-based Average, ERES; High Speed hardware-based Mask Test function, with Mask Editor tool for creating user-defined masks
- ✚ 16 digital channels
- ✚ Built-in 50 MHz waveform generator
- ✚ Large 15.6" HD TFT-LCD display with 1920 \* 1080 resolution; Capacitive touch screen supports multi-touch gestures
- ✚ Interfaces include: 4x USB Host 3.1 Gen 1, 2x USB 3.0 Host, USB 2.0 Device, 2x 1000M LAN, DVI-D, DP 1.2, HDMI 1.4, Audio, External Trigger In, Aux Out (Pass/Fail, Trigger Out), 10 MHz In, 10 MHz Out
- ✚ Built-in web server supports remote control over the LAN port using a web browser. Supports SCPI remote control commands. Supports external mouse and keyboard

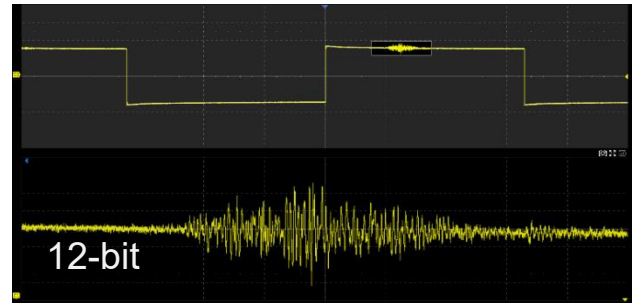
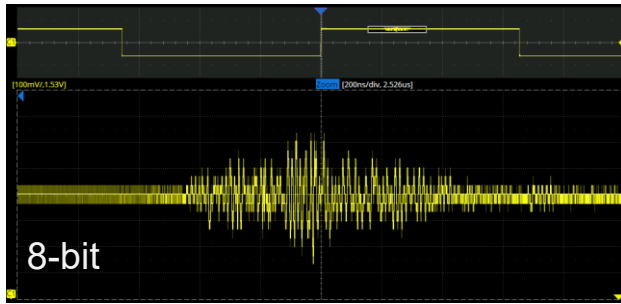
## Models and Key Specifications

| Bandwidth<br>Sample rate                              | 8 GHz        | 6 GHz        | 4 GHz        | 3 GHz        |
|-------------------------------------------------------|--------------|--------------|--------------|--------------|
| 20 GSa/s (dual-channel)<br>10 GSa/s (3 or 4 channels) | SDS7804A H12 | SDS7604A H12 | SDS7404A H12 | SDS7304A H12 |
| 20 GSa/s @ all channels                               | SDS7804AP    | SDS7604AP    |              |              |

| Model                         | A models                                                                                                                                                                                                                                                                                                                                                                                             | AP models                                                                                                                                                                  |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analog channels               | 4 + EXT                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                            |
| Bandwidth                     | 8 GHz, 6 GHz, 4 GHz, 3 GHz<br>8 GHz / 6GHz models limited to 4 GHz in 3 or 4 channels modes                                                                                                                                                                                                                                                                                                          | 8 GHz, 6 GHz @ all channels                                                                                                                                                |
| Sample rate (Max.)            | 20 GSa/s (2 channels)<br>10 GSa/s (3 or 4 channels)                                                                                                                                                                                                                                                                                                                                                  | 20 GSa/s @ all channels                                                                                                                                                    |
| Vertical Resolution           | 12-bit<br>Up to 16-bit in ERES mode                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                            |
| Memory depth (Max.)           | Standard: 500 Mpts/ch<br>Optional: 1 Gpts/ch in dual-channel mode                                                                                                                                                                                                                                                                                                                                    | Standard:<br>1 Gpts/ch (1 or 2 channels)<br>500 Mpts/ch (3 or 4 channels)<br>Optional:<br>2 Gpts/ch (1 channel)<br>1 Gpts/ch (2 channels)<br>500 Mpts/ch (3 or 4 channels) |
| Waveform capture rate (Max.)  | 1,000,000 wfm/s                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                            |
| Trigger type                  | Edge, Slope, Pulse width, Window, Runt, Interval, Dropout, Pattern, Video, Qualified, Nth edge, Setup/hold, Delay, Serial                                                                                                                                                                                                                                                                            |                                                                                                                                                                            |
| Serial trigger and decode     | Standard: I <sup>2</sup> C, SPI, UART, CAN, LIN<br>Optional: CAN FD, CAN XL(decode only), FlexRay, I <sup>2</sup> S, MIL-STD-1553B, SENT, Manchester (decode only), ARINC429, USB 2.0 (decode only)                                                                                                                                                                                                  |                                                                                                                                                                            |
| Measurement                   | 60+ parameters, statistics, histogram, trend, and track supported                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                            |
| Math                          | 4 traces<br>32 Mpts FFT, +, -, x, ÷, ∫dt, d/dt, √, Identity, Negation, Absolute, Sign, e <sup>x</sup> , 10 <sup>x</sup> , ln, lg, Interpolation, MaxHold, MinHold, ERES, Average, Filter. Supports formula editor                                                                                                                                                                                    |                                                                                                                                                                            |
| Data analysis                 | Search, Navigate, History, Mask Test, Digital Voltmeter, Counter, Waveform Histogram, Bode plot, Power Analysis, Eye/Jitter Analysis, SignalScan, Compliance Test (USB 2.0, 100Base-TX, 1000Base-T, 2.5G/5G/10GBase-T, 100Base-T1, 1000Base-T1, MIPI-DPHY), Spectrum Analyzer mode (RTSA/DDC/Signal analysis, for A models only)                                                                     |                                                                                                                                                                            |
| Digital channel               | 16-channel; maximum sample rate up to 1 GSa/s; record length up to 50 Mpts                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                            |
| Waveform generator (optional) | Built-in, frequency up to 50 MHz, 125 MSa/s sample rate, 16 kpts waveform memory                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                            |
| Processor System              | Intel Core i3-8100 or better, 32 GB memory, 250 GB storage, Linux operating system                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                            |
| I/O                           | I/O: 4x USB Host 3.1 Gen 1, 2x USB 3.0 Host, USB 2.0 Device (USBTMC), 2x 1000M LAN (VXI-11+SCPI, Telnet (5024)+SCPI, Socket (5025)+SCPI, LXI, WebServer)<br>Display: 1x DVI-D: up to 1920x1200 @ 60Hz; 1x DP 1.2: up to 4096x2304 @ 60Hz; 1x HDMI 1.4: up to 4096x2160 @ 60Hz<br>Audio: Mic input, Audio Output<br>Others: External Trigger In, Aux Out (TRIG OUT, PASS/FAIL), 10 MHz In, 10 MHz Out |                                                                                                                                                                            |
| Probe (Standard)              | 500 MHz, 1 probe supplied for each channel                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                            |
| Display                       | 15.6" HD TFT-LCD with capacitive touch screen (1920*1080)                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                            |

## Functions & Characteristics

### 12-bit High Resolution



12-bit resolution shows you more details and less noise on the waveform.

### Upgraded processor system



Processor fully upgraded from the embedded ARM processor to the X86 processor, has greatly improved the system response speed and the speed of measurement, calculation, and analysis, presenting more possibilities for the expansion of software analysis functions in the future.

### Excellent User Interface and User Experience



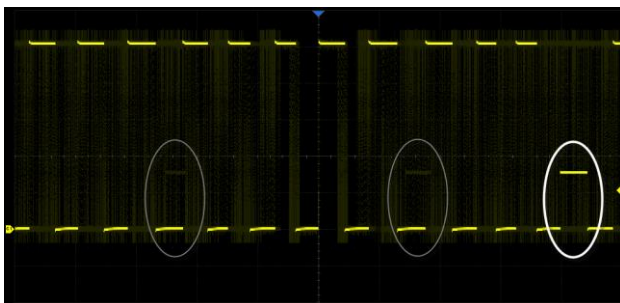
15.6" HD display with 1920\*1080 resolution

Capacitive touch screen, supporting multi-touch gestures, can move or scale the waveform traces quickly by finger-touch movements, which greatly improves the operational efficiency

Built-in WebServer supports remote control on a web page over LAN

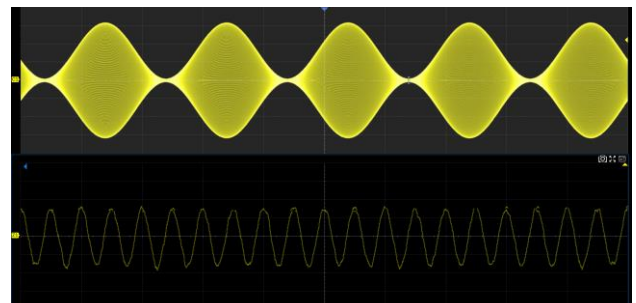
Supports external mouse and keyboard

### High Waveform Update Rate



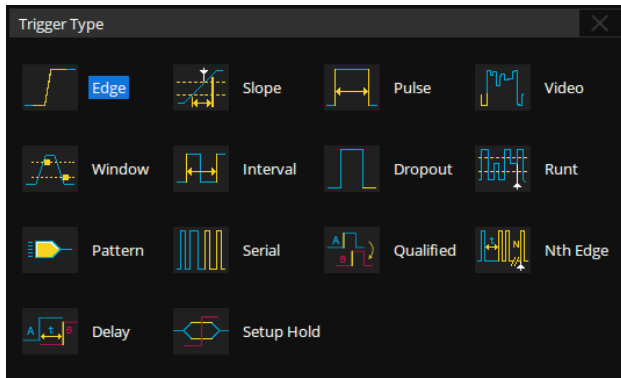
With a waveform update rate of up to 1,000,000 wfm/s, the oscilloscope can easily capture unusual or low-probability events. In Sequence mode, the waveform capture rate can reach 1,100,000 wfm/s

### Deep Record Length



Using hardware-based Zoom technique and record length of up to 2 Gpts, users can select a slower timebase without compromising the sample rate, and then quickly zoom in to focus on the area of interest

## Multiple Trigger Functions



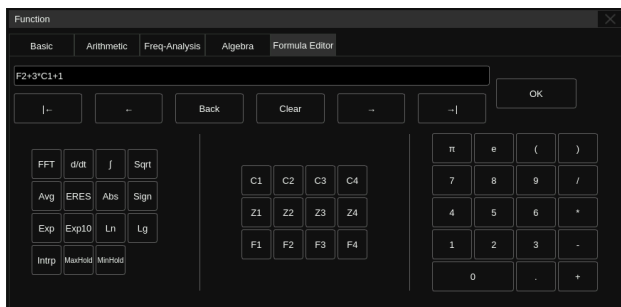
Edge, Slope, Pulse, Video, Windows, Runt, Interval, Dropout, Pattern, Qualified, Nth edge, Setup/hold, Delay and serial trigger

## Zone Trigger



Zone Trigger is available for advanced triggering. Combine spatial triggering with common trigger modes to isolate signals of interest

## Advanced Math Function



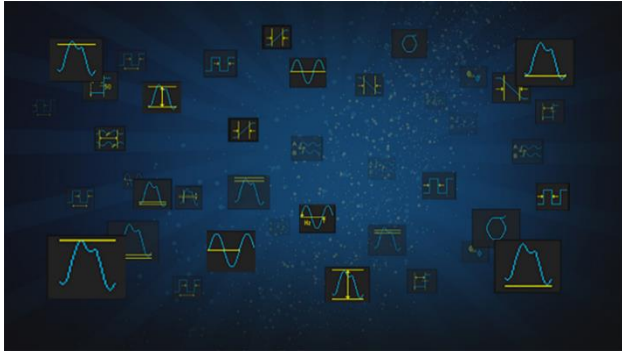
In addition to the traditional (+, -, X, /) operations, FFT, Filter, integration, differential, square root, and more are supported. Formula Editor is available for more complex operations. 4 math traces are available.

## Deep Memory FFT



FFT supports up to 32 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. Auto peak detection and markers are supported.

## Measurements of a Variety of Parameters



Parameter measurements include 4 categories: horizontal, vertical, miscellaneous, and CH delay providing a total of 60+ different types of measurements. Measurements can be performed within a specified gate period. Measurements on Math, Reference, and History frames are supported

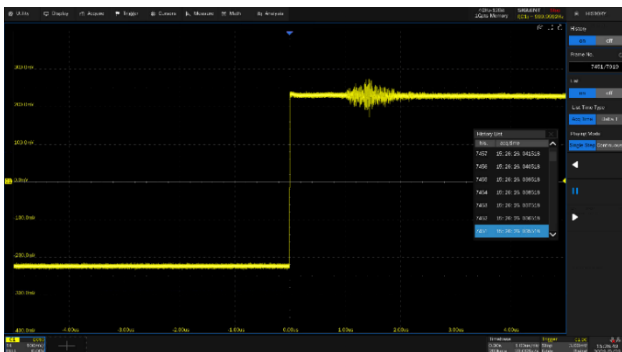
## Parameter Statistics Function



Statistics show the current value, maximum value, minimum value, standard deviation, and mean value of up to 12 parameters simultaneously. A histogram is available to show the probability distribution of a parameter. Trend and Track are available to show the parameter value vs. time.

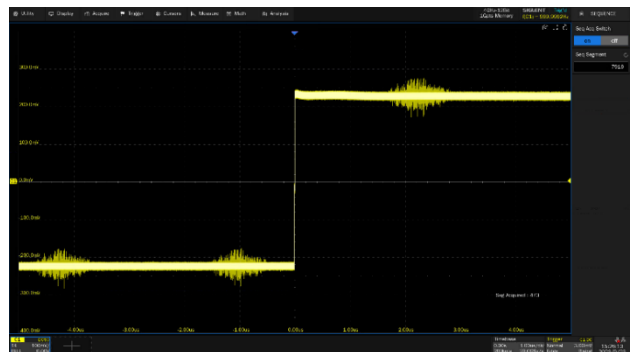
For horizontal parameters such as period, all results are extracted from a frame, instead of just calculating the first one. This accelerates statistics on horizontal measurements and enables distribution observation in a frame using Histogram and Track

## History Mode



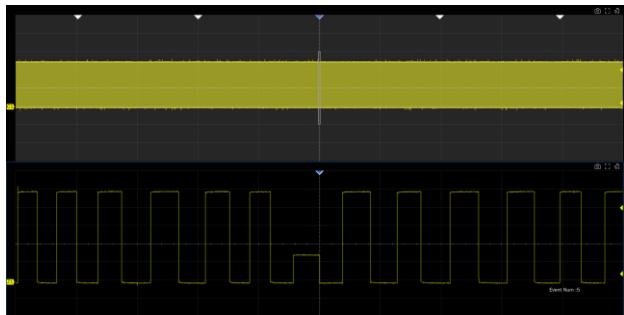
History function can record up to 124,000 frames of waveforms. The recording is executed automatically so that the customer can playback the history waveforms at any time to observe unusual events and quickly locate the area of interest using the cursors or measurements. The failed frames of the Mask Test can be stored as history

## Sequence Mode



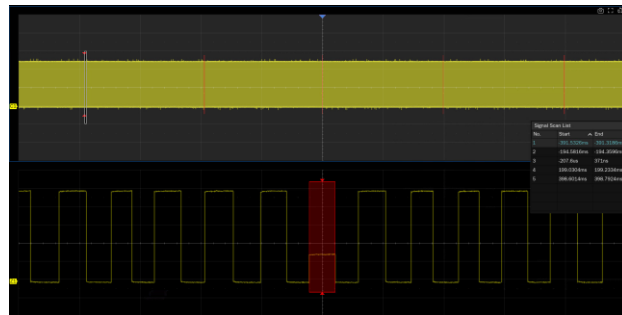
Segmented memory collection will store the waveform into multiple memory segments (up to 124,000) and each segment will store a triggered waveform as well the dead time information. The interval between segments can be as small as 0.9  $\mu$ s. All of the segments can be played back using the History function

## Search and Navigate



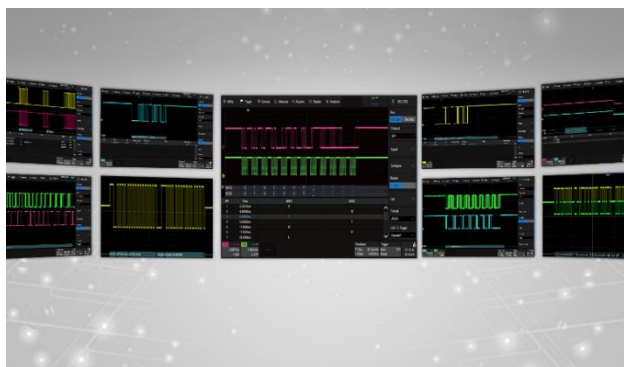
The oscilloscope can search events specified by the user in a frame based on hardware. Events flagged by the Search can be recalled automatically using Navigate. It can also navigate by time (delay position) and history frames

## SignalScan



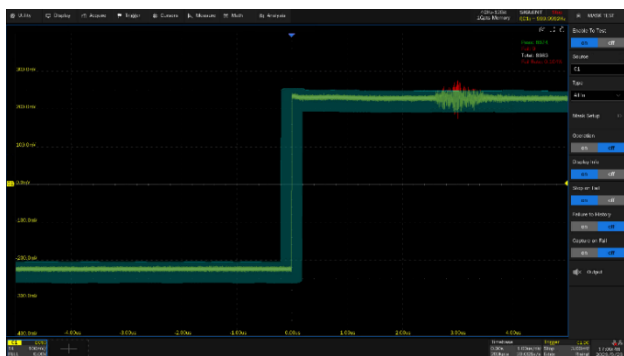
SignalScan automatically searches events by software according to the search conditions set by users, and marks them. Different from hardware search, in SignalScan the supported search conditions are richer, while the scan speed is relatively slower

## Serial Bus Decode

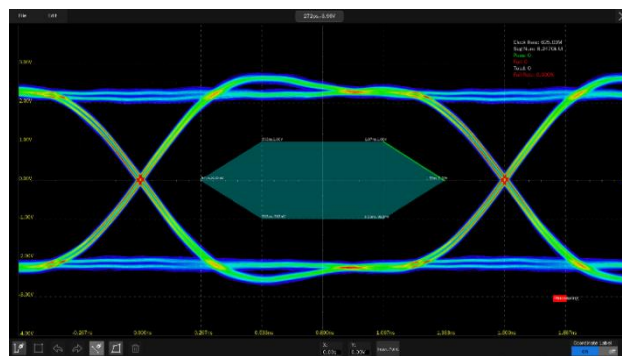


Display the decoded characters through the events list. Bus protocol information can be quickly and intuitively displayed in tabular form. I2C, SPI, UART, CAN, LIN, CAN FD, CAN XL, FlexRay, I2S, MIL-STD-1553B, SENT, Manchester, ARINC429 and USB 2.0 are supported

## Hardware-based High Speed Mask Test Function

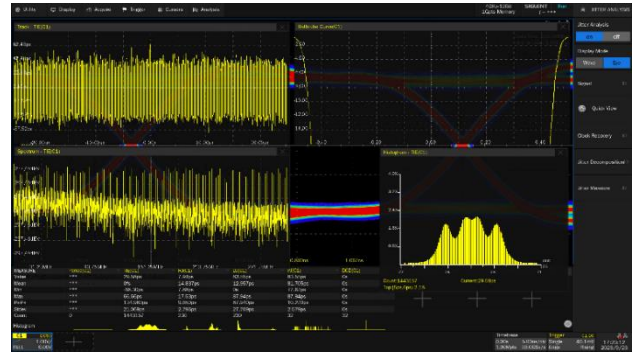
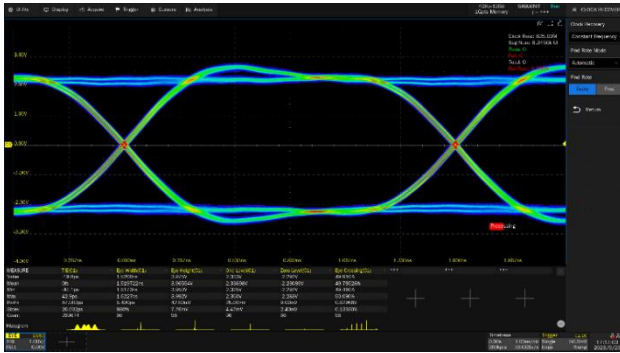


The oscilloscope utilizes a hardware-based Mask Test function, performing up to 80,000 Pass / Fail decisions each second. It is easy to generate user-defined test templates to provide trace mask comparisons, making it suitable for long-term signal monitoring or automated production line testing



Built-in Mask Editor application helps to create custom masks

## Eye/Jitter Analysis



Supports eye diagram and jitter analysis/measurement. It can automatically extract the embedded reference clock from serial data and create the eye diagram. Measurement on multiple eye/jitter parameters is provided. Mask test on eye diagrams is supported

## Compliance Test (Optional)

USB 2.0, 100Base-TX, 1000Base-T, 2.5G/5G/10GBase-T, 100Base-T1, 1000Base-T1, MIPI-DPHY protocol conformance testing are available. When the user sets up the environment according to the prompts, by using the related test fixture, the oscilloscope and related instruments can be automatically set up and related measurement, calculation, decoding and other functions will be used for testing, helping the user to complete each test project quickly and efficiently, and reports are generated automatically.



## Bode Plot



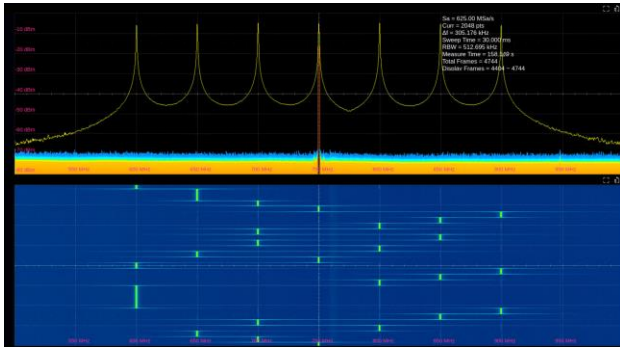
The oscilloscope can control the Built-in waveform generator, SIGLENT isolated USB AWG module or a stand-alone SIGLENT SDG generator, to scan the amplitude and phase-frequency response of the DUT, and display the data as a Bode Plot. This makes it possible to replace expensive network analyzers in some applications

## Power Analysis (Optional)



The Power Analysis option provides a full suite of power measurements and analysis, which greatly improve the measurement efficiency in switching power supplies and power devices design

## Spectrum Analyzer mode (Optional, for A models only)



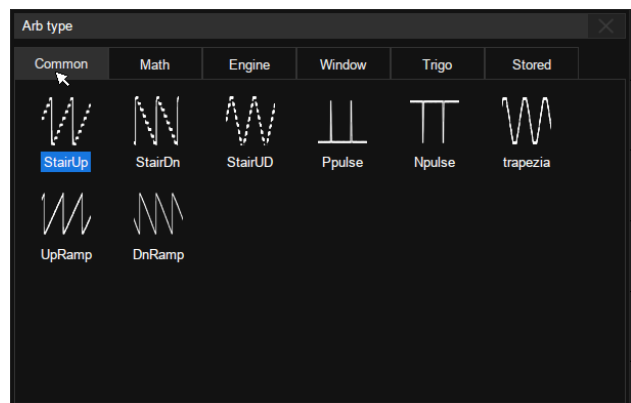
In the Spectrum Analyzer mode, it supports the functions of a Real-Time Spectrum Analyzer (RTSA) and Digital Down Conversion (DDC). The built-in signal analysis software SigVSA enables direct signal analysis of the output data of the DDC. The supported signal types range from simple Binary Phase Shift Keying (BPSK) to complex broadband signals, such as 4G LTE, 5G NR, IEEE802.11b/a/g/n/ac/ax/be and 4096QAM, and it also has rich measurement functions.

## Digital Channels / MSO



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

## Built-in 50 MHz Function/Arbitrary Waveform Generator (Optional)



The oscilloscope can control the built-in waveform generator to output waveform with up to 50 MHz frequency and  $\pm 3$  V amplitude. Six basic waveforms plus multiple types of arbitrary waveforms are built-in

## 5 GHz Active Differential Probe



The SAP5000D differential probe is provided with 5GHz bandwidth, 80 ps rise time, 400 fF differential input capacitance, and 10:1 attenuation ratio

## Complete Connectivity



2x USB 3.0 Host, 4x USB Host 3.1 Gen 1,  
USB 2.0 Device (USBTMC), 2x 1000M LAN (VXI-11+SCPI,  
Telnet (5024)+SCPI, Socket (5025) +SCPI, LXI, WebServer),  
1x DVI-D: up to 1920x1200 @ 60Hz,  
1x DP 1.2: up to 4096x2304 @ 60Hz,  
1x HDMI 1.4: up to 4096x2160 @ 60Hz  
Mic input, Audio Output  
External Trigger In, Aux Out (TRIG OUT, PASS/FAIL),  
10 MHz In, 10 MHz Out

## 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 (analog)                  | A models                                                             | AP models                                                                                                                                                                  |
|-----------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sample rate                       | 20 GSa/s (2 channels) <sup>*1</sup><br>10 GSa/s (3 or 4 channels)    | 20 GSa/s @ all channels                                                                                                                                                    |
| Memory depth <sup>*2*3</sup>      | Standard: 500 Mpts/ch<br>Optional: 1 Gpts/ch in dual-channel mode    | Standard:<br>1 Gpts/ch (1 or 2 channels)<br>500 Mpts/ch (3 or 4 channels)<br>Optional:<br>2 Gpts/ch (1 channel)<br>1 Gpts/ch (2 channels)<br>500 Mpts/ch (3 or 4 channels) |
| Real time signal processing depth | Measure, math, decode, analysis: 100 Mpts/ch max.                    |                                                                                                                                                                            |
| Waveform update rate              | 1,000,000 wfm/s, 1,100,000 wfm/s in sequence mode                    |                                                                                                                                                                            |
| Intensity grading                 | 256-level                                                            |                                                                                                                                                                            |
| Peak detect                       | 100 ps                                                               |                                                                                                                                                                            |
| Average                           | 4, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, 8192                 |                                                                                                                                                                            |
| ERES                              | Enhanced bit: 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4 bit                     |                                                                                                                                                                            |
| Sequence                          | Up to 124,000 segments, interval between triggers = 0.9 $\mu$ s min. |                                                                                                                                                                            |
| History                           | Up to 124,000 frames                                                 |                                                                                                                                                                            |
| Interpolation                     | sinx/x, x                                                            |                                                                                                                                                                            |

\* 1: 2 channels: C1/C2 are not both active, and C3/C4 are not both active

\* 2: In Average and Hi-Res modes, the memory depth is 25 Mpts/ch

\* 3: When digital channels are active, the memory depth is 50 Mpts/ch

| Vertical (analog)                                              | SDS7804AP<br>SDS7804A H12                                                                                                                                                                                             | SDS7604AP<br>SDS7604A H12                | SDS7404A H12               | SDS7304A H12               |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------|----------------------------|
| Channel                                                        | 4 + EXT                                                                                                                                                                                                               |                                          |                            |                            |
| Bandwidth<br>(-3dB) @ 50 $\Omega$                              | 8 GHz <sup>*1*2</sup>                                                                                                                                                                                                 | 6 GHz <sup>*1*2</sup>                    | 4 GHz                      | 3 GHz                      |
| Rise time@50 $\Omega$                                          | 58 ps typical<br>< 65 ps <sup>*1 *2</sup>                                                                                                                                                                             | 68 ps typical<br>< 75 ps <sup>*1*2</sup> | 116 ps typical<br>< 125 ps | 130 ps typical<br>< 150 ps |
| Bandwidth<br>(-3dB) @ 1 M $\Omega$ , with probe                | 500 MHz                                                                                                                                                                                                               |                                          |                            |                            |
| Bandwidth<br>(-3dB) @ 1 M $\Omega$ , with external 50 $\Omega$ | 300 MHz                                                                                                                                                                                                               |                                          |                            |                            |
| Resolution                                                     | 12-bit                                                                                                                                                                                                                |                                          |                            |                            |
| Bandwidth in ERES mode<br>(typical)                            | Enhanced bits:<br>0.5: 0.25*Sample rate, up to the analog bandwidth<br>1: 0.115*Sample rate, up to 2.3 GHz, limited by the analog bandwidth<br>1.5: 0.055*Sample rate, up to 1.1 GHz, limited by the analog bandwidth |                                          |                            |                            |

|                                            |                                                                                                                                                                                                                                                                                                                                                                             |         |                                                                                       |         |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------|---------|
|                                            | 2: 0.028*Sample rate, up to 560 MHz<br>2.5: 0.014*Sample rate, up to 280 MHz<br>3: 0.007*Sample rate, up to 140 MHz<br>3.5: 0.0035*Sample rate, up to 70 MHz<br>4: 0.0017*Sample rate, up to 34 MHz                                                                                                                                                                         |         |                                                                                       |         |
| Noise floor (rms,50Ω,typical)              |                                                                                                                                                                                                                                                                                                                                                                             |         |                                                                                       |         |
| ≤ 5 mV/div                                 | 300 μV                                                                                                                                                                                                                                                                                                                                                                      | 260 μV  | 220 μV                                                                                | 200 μV  |
| 10 mV/div                                  | 340 μV                                                                                                                                                                                                                                                                                                                                                                      | 300 μV  | 237 μV                                                                                | 214 μV  |
| 20 mV/div                                  | 490 μV                                                                                                                                                                                                                                                                                                                                                                      | 430 μV  | 280 μV                                                                                | 255 μV  |
| 50 mV/div                                  | 1.0 mV                                                                                                                                                                                                                                                                                                                                                                      | 900 μV  | 635 μV                                                                                | 564 μV  |
| 100 mV/div                                 | 2.0 mV                                                                                                                                                                                                                                                                                                                                                                      | 1.7 mV  | 1.01 mV                                                                               | 935 μV  |
| 200 mV/div                                 | 5.5 mV                                                                                                                                                                                                                                                                                                                                                                      | 4.2 mV  | 3.06 mV                                                                               | 2.68 mV |
| 500 mV/div                                 | 11 mV                                                                                                                                                                                                                                                                                                                                                                       | 8.9 mV  | 6.84 mV                                                                               | 5.89 mV |
| 1 V/div                                    | 20 mV                                                                                                                                                                                                                                                                                                                                                                       | 16 mV   | 10.65 mV                                                                              | 9.58 mV |
| ENOB <sup>*3</sup> (typical)               | 6.9-bit                                                                                                                                                                                                                                                                                                                                                                     | 7.1-bit | 7.3-bit                                                                               | 7.5-bit |
| Range                                      | 8 divisions                                                                                                                                                                                                                                                                                                                                                                 |         |                                                                                       |         |
| Vertical scale (probe 1X)                  | 1 MΩ: 1 mV/div – 10 V/div<br>50 Ω: 1 mV/div – 1 V/div                                                                                                                                                                                                                                                                                                                       |         |                                                                                       |         |
| DC gain accuracy                           | 1 mV/div ~ 4.95 mV/div: ±2.0% FS<br>5 mV/div ~ 10 V/div: ±1.5% FS max. ±0.5% FS typical                                                                                                                                                                                                                                                                                     |         | 1 mV/div ~ 4.95 mV/div: ±1.5% FS<br>5 mV/div ~ 10 V/div: ±1% FS max. ±0.5% FS typical |         |
| Offset accuracy                            | ± (1% of the offset setting + 0.5% of full scale + 0.02% of max offset + 1mV)                                                                                                                                                                                                                                                                                               |         |                                                                                       |         |
| Offset range (probe 1X)                    | 1MΩ:<br>1 mV/div ~ 5 mV/div: ±1.6 V; 5.1 mV/div ~ 10 mV/div: ±4 V; 10.2 mV/div ~ 20 mV/div:±8 V;<br>20.5 mV/div ~ 100 mV/div: ±16 V; 102 mV/div ~ 200 mV/div: ±80 V;<br>205 mV/div ~ 1 V/div: ±160 V; 1.02 V/div ~ 10 V/div: ±400 V<br><br>50Ω:<br>1 mV/div ~ 5 mV/div: ±1.6 V; 5.1 mV/div ~ 10 mV/div: ±4 V; 10.2 mV/div ~ 20 mV/div:±8 V;<br>20.5 mV/div ~ 1 V/div: ±10 V |         |                                                                                       |         |
| Bandwidth limit                            | 25 MHz±20%, 200 MHz±20%, Custom                                                                                                                                                                                                                                                                                                                                             |         |                                                                                       |         |
| Low frequency response (AC coupling -3 dB) | 6 Hz (typical)                                                                                                                                                                                                                                                                                                                                                              |         |                                                                                       |         |
| Coupling                                   | DC, AC, GND                                                                                                                                                                                                                                                                                                                                                                 |         |                                                                                       |         |
| Impedance                                  | (1 MΩ ± 2%)    (15 pF ± 3 pF)<br>50 Ω: 50 Ω ± 2%                                                                                                                                                                                                                                                                                                                            |         |                                                                                       |         |
| Max. Input voltage                         | 1 MΩ ≤ 400 Vpk(DC + AC), DC ~ 10 kHz<br>50 Ω ≤ 5 Vrms, ± 10V Peak                                                                                                                                                                                                                                                                                                           |         |                                                                                       |         |
| SFDR                                       | ≥ 45dBc                                                                                                                                                                                                                                                                                                                                                                     |         |                                                                                       |         |
| CH to CH Isolation (@50Ω)                  | 60 dB up to 500 MHz<br>40 dB up to 6 GHz                                                                                                                                                                                                                                                                                                                                    |         |                                                                                       |         |
| Probe Attenuation                          | 1X, 10X, 100X, custom                                                                                                                                                                                                                                                                                                                                                       |         |                                                                                       |         |

\* 1: Enhanced Bandwidth = ON, and Type = Best Flatness

\* 2: For A models: in 3 or 4 channels mode the bandwidth is limited to 4 GHz and the rise time is correspondingly limited because the sample rate is limited to 10 GSa/s. For AP models no such limitation

\* 3: 50 Ω, 50 mV/div, 20 GSa/s, -1dBFS/47.999 MHz input

| Horizontal         | SDS7804AP<br>SDS7804A H12                                                                                                                                                                     | SDS7604AP<br>SDS7604A H12 | SDS7404A H12 | SDS7304A H12 |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------|--------------|
| Time scale         | 0.05 ns/div – 1000 s/div                                                                                                                                                                      |                           |              |              |
| Range              | 10 divisions                                                                                                                                                                                  |                           |              |              |
| Display mode       | Y-T, X-Y, Roll                                                                                                                                                                                |                           |              |              |
| Roll mode          | ≥ 50 ms/div                                                                                                                                                                                   |                           |              |              |
| Skew (C1~C4)       | ± 50 ps                                                                                                                                                                                       |                           | ± 100 ps     |              |
| Time base Accuracy | Standard (TCXO): ±2 ppm initial (0~50°C); ±0.5 ppm 1st year aging; ±3 ppm 20-year aging<br>Optional (OCXO): ±100 ppb initial (25°C); ±1 ppb over temperature (0~50°C); ±50 ppb 1st year aging |                           |              |              |

| Trigger                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                 |                |               |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------|---------------|
| Mode                              | Auto, Normal, Single                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                 |                |               |
| Level                             | Internal: ±4.5 div from the center of the screen<br>EXT: ± 0.61 V<br>EXT/5: ± 3.05 V                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                 |                |               |
| Ext Trigger Channel input voltage | 1 MΩ ≤ 42 Vpk<br>50 Ω ≤ 5 Vrms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                 |                |               |
| Hold off range                    | By time: 4 ns ~ 30 s (4 ns step)<br>By event: 1 ~ 108                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |                |               |
| Coupling                          | C1 ~ C4<br>DC: Passes all components of the signal<br>AC: Blocks DC components and attenuates signals below 15 Hz<br>LFRJ: Attenuates the frequency components below 2.4 MHz<br>HFRJ: Attenuates the frequency components above 1.3 MHz<br>Noise RJ: Increases the trigger hysteresis<br><br>EXT<br>DC: Passes all components of the signal<br>AC: Blocks DC components and attenuates signals below 10 Hz<br>LFRJ: Attenuates the frequency components below 500 kHz<br>HFRJ: Attenuates the frequency components above 1.8 MHz |                                                                 |                |               |
| Accuracy (typical)                | C1 ~ C4: ±0.2 div<br>EXT: ±0.3 div                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 |                |               |
| Sensitivity                       | C1 ~ C4 (50Ω):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                 | Noise RJ = OFF | Noise RJ = ON |
|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | > 10 mV/div                                                     | 0.8 div        | 1.0 div       |
|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ≤ 10 mV/div                                                     | 2.4 div        | 2.6 div       |
|                                   | C1 ~ C4 (1MΩ):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | > 5 mV/div                                                      | 0.5 div        | 0.7 div       |
|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ≤ 5 mV/div                                                      | 1.5 div        | 1.7 div       |
|                                   | EXT:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 200 mVpp, DC ~ 10 MHz<br>300 mVpp, 10 MHz ~ bandwidth (300 MHz) |                |               |
| EXT/5:                            | 1 Vpp, DC ~ 10 MHz<br>1.5 Vpp, 10 MHz ~ bandwidth (300 MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                 |                |               |
| Jitter                            | C1 ~ C4:<br>< 9 ps RMS (typical) for ≥ 300 MHz sine and ≥ 6 divisions peak to peak amplitude for vertical gain settings from 2.5 mV/div to 10 V/div<br>< 5 ps RMS (typical) for ≥ 500 MHz sine and ≥ 6 divisions peak to peak amplitude for vertical gain settings from 2.5 mV/div to 10 V/div<br>EXT: < 50 ps rms                                                                                                                                                                                                               |                                                                 |                |               |

|                            |                                                                             |
|----------------------------|-----------------------------------------------------------------------------|
| Displacement               | Pre-Trigger: 0 ~ 100% memory<br>Delay-Trigger: 0 ~ 10,000 div               |
| Zone                       | Up to 2 zones<br>Source: C1 ~ C4<br>Property: Intersect, Not Intersect      |
| <b>Edge Trigger</b>        |                                                                             |
| Source                     | C1 ~ C4/ EXT/ (EXT/5)/ AC Line/ D0~D15                                      |
| Slope                      | Rising, Falling, Rising & Falling                                           |
| <b>Slope Trigger</b>       |                                                                             |
| Source                     | C1~C4                                                                       |
| Slope                      | Rising, Falling                                                             |
| Limit range                | <, >, in range, out of range                                                |
| Time range                 | 2 ns ~ 20 s, Resolution = 0.2 ns                                            |
| <b>Pulse Width Trigger</b> |                                                                             |
| Source                     | C1~C4/D0~D15                                                                |
| Polarity                   | +wid, -wid                                                                  |
| Limit range                | <, >, in range, out of range                                                |
| Time range                 | 2 ns ~ 20 s, Resolution = 0.2 ns                                            |
| <b>Video Trigger</b>       |                                                                             |
| Source                     | C1 ~ C4                                                                     |
| Standard                   | NTSC, PAL, 720p/50, 720p/60, 1080p/50, 1080p/60, 1080i/50, 1080i/60, Custom |
| Synchronization            | Any, Select                                                                 |
| Trigger Condition          | Line, Field                                                                 |
| <b>Window Trigger</b>      |                                                                             |
| Source                     | C1 ~ C4                                                                     |
| Window type                | Absolute, Relative                                                          |
| <b>Interval Trigger</b>    |                                                                             |
| Source                     | C1 ~ C4 / D0 ~ D15                                                          |
| Slope                      | Rising, Falling                                                             |
| Limit range                | <, >, in range, out of range                                                |
| Time range                 | 2 ns ~ 20 s, Resolution = 0.2 ns                                            |
| <b>Dropout Trigger</b>     |                                                                             |
| Source                     | C1 ~ C4 / D0 ~ D15                                                          |
| Timeout type               | Edge, State                                                                 |
| Slope                      | Rising, Falling                                                             |
| Time range                 | 2 ns ~ 20 s, Resolution = 0.2 ns                                            |
| <b>Runt Trigger</b>        |                                                                             |
| Source                     | C1 ~ C4                                                                     |
| Polarity                   | Positive, Negative                                                          |
| Limit range                | <, >, in range, out of range                                                |
| Time range                 | 2 ns ~ 20 s, Resolution = 0.2 ns                                            |
| <b>Pattern Trigger</b>     |                                                                             |
| Source                     | C1 ~ C4 / D0 ~ D15                                                          |
| Pattern Setting            | Don't Care, Low, High                                                       |
| Logic                      | AND, OR, NAND, NOR                                                          |

|                             |                                                                                                     |
|-----------------------------|-----------------------------------------------------------------------------------------------------|
| Limit range                 | <, >, in range, out of range                                                                        |
| Time range                  | 2 ns ~ 20 s, Resolution = 0.2 ns                                                                    |
| <b>Qualified Trigger</b>    |                                                                                                     |
| Type                        | State, State with Delay, Edge, Edge with Delay                                                      |
| Qualified Source            | C1 ~ C4 / D0 ~ D15                                                                                  |
| Edge Trigger Source         | C1 ~ C4 / D0 ~ D15                                                                                  |
| <b>Nth Edge Trigger</b>     |                                                                                                     |
| Source                      | C1 ~ C4 / D0 ~ D15                                                                                  |
| Slope                       | Rising, Falling                                                                                     |
| Idle time                   | 8 ns ~ 20 s, Resolution = 0.2 ns                                                                    |
| Edge Number                 | 1 ~ 65535                                                                                           |
| <b>Delay Trigger</b>        |                                                                                                     |
| Source A                    | C1 ~ C4 / D0 ~ D15                                                                                  |
| Source B                    | C1 ~ C4 / D0 ~ D15                                                                                  |
| Slope                       | Rising, Falling                                                                                     |
| Limit range                 | <, >, in range, out of range                                                                        |
| Time range                  | 2 ns ~ 20 s, Resolution = 0.2 ns                                                                    |
| <b>Serial Trigger</b>       |                                                                                                     |
| Source                      | C1 ~ C4 / D0 ~ D15                                                                                  |
| Protocol                    | Standard: I2C, SPI, UART, CAN, LIN<br>Optional: CAN FD, FlexRay, I2S, MIL-STD-1553B, SENT, ARINC429 |
| I <sup>2</sup> C            | Type: Start, Stop, Restart, No Ack, EEPROM, Address & Data, Data Length                             |
| SPI                         | Type: Data                                                                                          |
| UART                        | Type: Start, Stop, Data, Parity Error                                                               |
| CAN                         | Type: All, Remote, ID, ID+Data, Error                                                               |
| LIN                         | Type: Break, Frame ID, ID+Data, Error                                                               |
| CAN FD (Optional)           | Type: Start, Remote, ID, ID+Data, Error                                                             |
| FlexRay (Optional)          | Type: TSS, Frame, Symbol, Errors                                                                    |
| I <sup>2</sup> S (Optional) | Type: Data, Mute, Clip, Glitch, Rising Edge, Falling Edge                                           |
| MIL-STD-1553B (Optional)    | Type: Transfer, Word, Error, Timing                                                                 |
| SENT (Optional)             | Type: Start, Slow channel, Fast channel, Error                                                      |
| ARINC429 (Optional)         | Type: Word Start, Word End, Label, Label+Data, Error, Any Bit, Any Bit of 0, Any Bit of 1           |

|                       |                    |
|-----------------------|--------------------|
| <b>Serial Decoder</b> |                    |
| Decoders              | 2                  |
| Threshold             | -4.1 ~ 4.1 div     |
| List                  | 1 ~ 7 lines        |
| Decoder type          | Full duplex        |
| <b>I<sup>2</sup>C</b> |                    |
| Source                | C1 ~ C4 / D0 ~ D15 |
| Signal                | SCL, SDA           |
| Address               | 7-bit, 10-bit      |
| <b>SPI</b>            |                    |

|                                  |                                                                                                |
|----------------------------------|------------------------------------------------------------------------------------------------|
| Source                           | C1 ~ C4 / D0 ~ D15                                                                             |
| Signal                           | CLK, MISO, MOSI, CS                                                                            |
| Edge Select                      | Rising, Falling                                                                                |
| Chip select                      | Active high, Active low, Clock timeout                                                         |
| Bit Order                        | LSB, MSB                                                                                       |
| <b>UART</b>                      |                                                                                                |
| Source                           | C1 ~ C4 / D0 ~ D15                                                                             |
| Signal                           | RX, TX                                                                                         |
| Data Width                       | 5-bit, 6-bit, 7-bit, 8-bit                                                                     |
| Parity Check                     | None, Odd, Even, Mark, Space                                                                   |
| Stop Bit                         | 1-bit, 1.5-bit, 2-bit                                                                          |
| Idle Level                       | Low, High                                                                                      |
| Bit Order                        | LSB, MSB                                                                                       |
| <b>CAN</b>                       |                                                                                                |
| Source                           | C1 ~ C4 / D0 ~ D15                                                                             |
| <b>LIN</b>                       |                                                                                                |
| LIN Version                      | Ver 1.3, Ver 2.0                                                                               |
| Source                           | C1 ~ C4 / D0 ~ D15                                                                             |
| Baud Rate                        | 600 bps, 1200 bps, 2400 bps, 4800 bps, 9600 bps, 19200 bps, Custom                             |
| <b>CAN FD (Optional)</b>         |                                                                                                |
| Source                           | C1 ~ C4 / D0 ~ D15                                                                             |
| Nominal Baud Rate                | 10 kbps, 25 kbps, 50 kbps, 100 kbps, 250 kbps, 1 Mbps, 2 Mbps, 5 Mbps, 8 Mbps, 10 Mbps, Custom |
| Data Baud Rate                   | 500 kbps, 1 Mbps, 2 Mbps, 5 Mbps, 8 Mbps, 10 Mbps, Custom                                      |
| <b>CAN XL (Optional)</b>         |                                                                                                |
| Source                           | C1 ~ C4 / D0 ~ D15                                                                             |
| Type                             | SIC Mode/Fast Mode                                                                             |
| Nominal Baud                     | 10 kbps, 25 kbps, 50 kbps, 100 kbps, 250 kbps, 1 Mbps, 2 Mbps, 5 Mbps, 8 Mbps, 10 Mbps, Custom |
| FD Baud                          | 500 kbps, 1 Mbps, 2 Mbps, 5 Mbps, 8 Mbps, 10 Mbps, Custom                                      |
| XL Baud                          | 500 kbps, 1 Mbps, 2 Mbps, 5 Mbps, 8 Mbps, 10 Mbps, 12 Mbps, 15 Mbps, 20 Mbps, Custom           |
| <b>FlexRay (Optional)</b>        |                                                                                                |
| Source                           | C1 ~ C4 / D0 ~ D15                                                                             |
| Baud Rate                        | 2.5 Mbps, 5 Mbps, 10 Mbps, Custom                                                              |
| <b>I<sup>2</sup>S (Optional)</b> |                                                                                                |
| Source                           | C1 ~ C4 / D0 ~ D15                                                                             |
| Signal                           | BCLK, WS, DATA                                                                                 |
| Audio Variant                    | Audio-I2S, Audio-LJ, Audio-RJ                                                                  |
| Start Bits                       | 0 ~ 31                                                                                         |
| Data Bits                        | 1 ~ 32                                                                                         |
| <b>MIL-STD-1553B (Optional)</b>  |                                                                                                |
| Source                           | C1 ~ C4                                                                                        |
| <b>SENT (Optional)</b>           |                                                                                                |
| Source                           | C1 ~ C4 / D0 ~ D15                                                                             |

| Manchester (Optional) |                  |
|-----------------------|------------------|
| Source                | C1 ~ C4          |
| Baud Rate             | 500 bps ~ 5 Mbps |

| Measurement                   |                                                                                                                                                                                                             |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Automatic Measurement         |                                                                                                                                                                                                             |
| Source                        | C1 ~ C4, D0 ~ D15, Z1 ~ Z4, F1 ~ F4, M1 ~ M4, History                                                                                                                                                       |
| Mode                          | Simple, Advanced                                                                                                                                                                                            |
| Range                         | Screen<br>Gated: inside screen, definable with separate Gate cursors                                                                                                                                        |
| Custom Threshold              | Upper, Middle, Lower                                                                                                                                                                                        |
| No. of Measurements           | Display 12 measurements at the same time (Display mode = M2)                                                                                                                                                |
| Vertical Parameters           | Max, Min, Pk-Pk, Top, Base, Amplitude, Mean, Cycle Mean, Stdev, Cycle Stdev, RMS, Cycle RMS, Median, Cycle Median, FOV, FPPE, ROV, RPRE, Level@Trigger, UpperLower                                          |
| Horizontal Parameters         | Period, Frequency, Time@max, Time@min, +Width, -Width, 10-90%Rise time, 90-10%Fall time, Rise time, Fall time, +Burst Width, -Burst Width, +Duty Cycle, -Duty Cycle, Delay, Time@Middle, Cycle-Cycle jitter |
| Miscellaneous Parameters      | +Area@DC, -Area@DC, Area@DC, Absolute Area@DC, +Area@AC, -Area@AC, Area@AC, Absolute Area@AC, Cycles, Rising Edges, Falling Edges, Edges, Positive pulses, Negative pulses, Positive Slope, Negative Slope  |
| Delay Parameters              | Phase, FRFR, FRFF, FFFR, FFFF, FRLR, FRLF, FFLR, FFLF, Skew, tsu@R, tsu@F, th@R, th@F, $\Delta$ time1~4                                                                                                     |
| Statistics                    | Current, Mean, Min, Max, Sdev, Count; Histogram, Trend, Track                                                                                                                                               |
| Statistics Count              | Unlimited, 1~1024                                                                                                                                                                                           |
| Statistics Count in one frame | Up to 100,000                                                                                                                                                                                               |
| Cursors                       |                                                                                                                                                                                                             |
| Source                        | C1 ~ C4, Z1 ~ Z4, D0 ~ D15, F1 ~ F4, M1 ~ M4, Histogram                                                                                                                                                     |
| Type                          | Manual : Time MX1-MX8; Vertical MY1-MY8<br>Track: TX1-TX8<br>Measure: MEA1-MEA4, indicate the measurement on specific parameter<br>XY: XY_X1, XY_X2, XY_Y1, XY_Y2                                           |

| Math      |                                                                                                                                                                                                                                                                                              |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trace     | F1, F2, F3, F4                                                                                                                                                                                                                                                                               |
| Source    | C1 ~ C4, F1 ~ F4, M1 ~ M4                                                                                                                                                                                                                                                                    |
| Operation | FFT(Magnitude, Phase), +, -, x, ÷, $\int$ dt, d/dt, $\sqrt{\quad}$ , Identity, Negation,  x , Sign, ex, 10x, ln, lg, Interpolation, Tan, Atan, Max hold, Min hold, Delay, Envelope, ERES, Average, Filter, Formula Editor                                                                    |
| FFT       | Length: 32 Mpts, 16 Mpts, 8 Mpts, 4 Mpts, 2 Mpts, 1 Mpts, 512 kpts, 256 kpts, 128 kpts, 64 kpts, 32 kpts, 16 kpts, 8 kpts, 4 kpts, 2 kpts<br>Window: Rectangular, Blackman, Hanning, Hamming, Flattop, Blackman-Harris, Gaussian<br>Mode: Normal, Max hold, Average<br>Tools: Peaks, Markers |

| Analysis                   |                                                                                                                                                                     |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Search                     |                                                                                                                                                                     |
| Source                     | C1 ~ C4, History                                                                                                                                                    |
| Mode                       | Edge, Slope, Pulse, Interval, Runt                                                                                                                                  |
| Copy setting               | Copy from trigger, Copy to trigger                                                                                                                                  |
| SignalScan                 |                                                                                                                                                                     |
| Source                     | C1 ~ C4, F1 ~ F4, M1 ~ M4, D0 ~ D15                                                                                                                                 |
| Mode                       | Edge, Non-monotonic, Runt, Measure, Serial pattern, Bus pattern, Protocol Decode                                                                                    |
| Navigate                   |                                                                                                                                                                     |
| Type                       | Search event, Time, History frame                                                                                                                                   |
| Mask Test                  |                                                                                                                                                                     |
| Source                     | C1 ~ C4, Z1 ~ Z4                                                                                                                                                    |
| Mask creating              | Auto (Create mask), Customized (Mask Editor)                                                                                                                        |
| Mask test speed            | Up to 80,000 frames/s                                                                                                                                               |
| DVM                        |                                                                                                                                                                     |
| Source                     | C1 ~ C4                                                                                                                                                             |
| Mode                       | DC mean, DC RMS, AC RMS, Peak-peak, Amplitude                                                                                                                       |
| Plot                       | Bar, Histogram, Trend                                                                                                                                               |
| Gate                       | 20 ms                                                                                                                                                               |
| Bode Plot                  |                                                                                                                                                                     |
| Source                     | C1 ~ C4                                                                                                                                                             |
| Supported signal sources   | Built-in waveform generator,<br>SAG1021I (Connection: USB),<br>SDG series waveform generators (Connection: USB, LAN)                                                |
| Sweep type                 | Simple, Vari-level                                                                                                                                                  |
| Frequency                  | Mode: Linear, Logarithmic<br>Range: 10 Hz ~ 120 MHz                                                                                                                 |
| Measure                    | Upper cutoff frequency, Lower cutoff frequency, Bandwidth, Gain margin, Phase margin                                                                                |
| Power Analysis (optional)  |                                                                                                                                                                     |
| Measure                    | Power quality, Current Harmonics, Inrush current, Switching loss, Slew rate, Modulation, Output ripple, Turn on/turn off, Transient response, PSRR, Efficiency, SOA |
| Histogram                  |                                                                                                                                                                     |
| Source                     | C1 ~ C4                                                                                                                                                             |
| Type                       | Horizontal, Vertical, Both                                                                                                                                          |
| Counter                    |                                                                                                                                                                     |
| Source                     | C1 ~ C4                                                                                                                                                             |
| Frequency resolution       | 7 digits                                                                                                                                                            |
| Totalizer                  | Counter on edges, supports Gate and Trigger                                                                                                                         |
| Eye Diagram (optional)     |                                                                                                                                                                     |
| Source                     | C1 ~ C4                                                                                                                                                             |
| Clock recovery             | Constant frequency, PLL(first-order, second-order)                                                                                                                  |
| Measure                    | Eye height, "1" level, "0" level, Eye amplitude, Eye width, Eye crossing, Average power, Q factor, TIE                                                              |
| Mask Test                  | Supported                                                                                                                                                           |
| Jitter Analysis (optional) |                                                                                                                                                                     |

|                                                             |                                                                                                                                                                                                    |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source                                                      | C1 ~ C4                                                                                                                                                                                            |
| Clock recovery                                              | Constant frequency, PLL(first-order, second-order)                                                                                                                                                 |
| Measure                                                     | Period, Frequency, +Width, -Width, +Duty cycle, -Duty cycle, Cycle-cycle jitter, Cycle-cycle +width, Cycle-cycle -Width, Cycle-cycle +Duty cycle, Cycle-cycle -Duty cycle, Bit Rate, Unit interval |
| Jitter decomposition                                        | TIE, RJ, DJ, DCD, DDJ, PJ, TJ@BER<br>Statistics: Histogram, Track, Spectrum                                                                                                                        |
| <b>Spectrum Analyzer mode (optional, for A models only)</b> |                                                                                                                                                                                                    |
| Source                                                      | C1 ~ C4                                                                                                                                                                                            |
| Bandwidth                                                   | 125 MHz, 250 MHz, 500 MHz, 1 GHz                                                                                                                                                                   |
| FFT length                                                  | RTSA = ON: 2 k<br>RTSA = OFF: 2 k, 4 k, 8 k, 16 k, 32 k, 64 k, 128 k, 256 k, 512 k, 1 M, 2 M, 4 M, 8 M                                                                                             |
| FFT windows                                                 | Rectangular, Blackman, Hanning, Hamming, Flattop, Blackman-Harris, Gaussian                                                                                                                        |
| RTSA                                                        | Sweep time: 30 ms ~ 50 s<br>View: Density, Spectrogram, 3D, 3D+Spectrogram, Density+Spectrogram<br>POI: 1.76 $\mu$ s @ 500 MHz bandwidth                                                           |
| Trace Type                                                  | RTSA = ON: Clear Write, Max Hold, Min Hold, Average, Blank<br>RTSA = OFF: Clear Write, Max Hold, Min Hold, Average, View, Blank                                                                    |
| Detect Type                                                 | Pos Peak, Neg Peak, Average, Sample                                                                                                                                                                |
| Trigger                                                     | RTSA = ON: Free Run, Frequency Mask Trigger<br>RTSA = OFF: Free Run, IF Magnitude                                                                                                                  |
| DDC data                                                    | Format: I/Q<br>Length = 2 k - 8 M<br>Can be saved or directly called and analyzed by SigVSA software on the device                                                                                 |
| Signal analysis                                             | Built-in SigVSA software. See SigVSA's data sheet for details                                                                                                                                      |

| Compliance Test (Optional) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Specification              | USB 2.0 Electrical Compliance Test Specification, Version 1.07                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Items                      | EL_1, EL_2, EL_3, EL_4, EL_5, EL_6, EL_7, EL_9, EL_16, EL_17, EL_18, EL_21, EL_22, EL_23, EL_25, EL_27, EL_28, EL_29, EL_31, EL_33, EL_34, EL_35, EL_38, EL_39, EL_40, EL_41, EL_42, EL_43, EL_44, EL_45, EL_46, EL_47, EL_48, EL_55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Specification              | 100Base-TX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Items                      | AOI Template, Peak Voltage (POS, NEG, Signal Amplitude Symmetry), Overshoot (POS, NEG), Rise/Fall Times (POS Rise Time, Pos Fall Time, POS Rise/Fall Symmetry, NEG Rise Time, NEG Fall Time, NEG Rise/Fall Symmetry, Overall Rise/Fall Symmetry), Duty Cycle Distortion, Peak to Peak Transmit Jitter, Return Loss (Transmitter Return Loss, Receiver Return Loss)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Specification              | 1000Base-T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Items                      | No Disturber Peak Output Voltage (Point A, Point B, Difference A and B, Point C, Point D), No Disturber Droop(Point G, Point J), No Disturber Templates(Point A, Point B, Point C, Point D, Point F, Point H), No Disturber Transmitter Distortion(no TX_TCLK, with TX_TCLK), With Disturber Peak Output Voltage (Point A, Point B, Difference A and B, Point C, Point D), With Disturber Droop (Point G, Point J), With Disturber Templates (Point A, Point B, Point C, Point D, Point F, Point H), With Disturber Transmitter Distortion (no TX_TCLK, with TX_TCLK), No TX_TCLK Master Jitter (Filtered, Unfiltered), No TX_TCLK Slave Jitter (Filtered, Unfiltered), Master JTXOUT, With TX_TCLK Master Jitter (Filtered, Unfiltered), Slave JTXOUT, With TX_TCLK Slave Jitter (Filtered, Unfiltered), Return Loss, Common-mode Output Voltage |

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Specification | 2.5G/5G/10GBase-T (IEEE 802.3-2018)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Items         | Maximum Output Droop (Maximum Output Droop Positive, Maximum Output Droop Negative), Transmitter Timing Jitter-Master, Transmit Clock Frequency, Transmitter Linearity (Tone1, Tone2, Tone3, Tone4, Tone5), Transmitter NonLinear Distortion (Tone1, Tone2, Tone3, Tone4, Tone5, Only 2.5GBase-T), Power Tests (PSD, Power Level), MDI Return Loss, Transmitter Timing Jitter-Slave                                                                                                                                                                                                                                                 |
| Specification | 100Base-T1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Items         | Transmitter Output Droop (Transmitter Output Droop(POS)/Transmitter Output Droop (NEG)), Master Transmitter Clock Frequency And Timing Jitter (Master Transmitter Clock Frequency/Master Transmitter Timing Jitter), TX_TCLK Frequency And Timing Jitter (TX_TCLK Frequency/TX_TCLK Timing Jitter), Transmitter Distortion, MDI Return Loss, MDI Mode Conversion Loss, Transmitter Power Spectral Density And Peak Differential Output (Transmitter Power Spectral Density/Transmitter Peak Differential Output), MDI Common Mode Emission                                                                                          |
| Specification | 1000Base-T1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Items         | TX_TCLK125 Tests (TX_TCLK125 Frequency/Master TX_TCLK125 RMS Jitter/ Master TX_TCLK125 Peak-to-Peak Jitter/Slave TX_TCLK125 RMS Jitter/ Slave TX_TCLK125 Peak-to-Peak Jitter), Transmit Clock Frequency And MDI Jitter (Transmit Clock Frequency(Master) /MDI Output RMS Jitter(Master)/MDI Output Peak-to-Peak Jitter(Master)), Transmitter Distortion, MDI Return Loss, MDI Mode Conversion Loss, Transmitter Power Spectral Density And Peak Differential Output(Transmitter Power Spectral Density/Transmitter Peak Differential Output), Transmitter Output Droop(Transmitter Output Droop(POS)/Transmitter Output Droop(NEG)) |
| Specification | MIPI-DPHY (CTS Version 1.0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Items         | GROUP 1: Data Lane LP-TX Signaling Requirements<br>GROUP 2: Clock Lane LP-TX Signaling Requirements<br>GROUP 3: Data Lane HS-TX Signaling Requirements<br>GROUP 4: Clock Lane HS-TX Signaling Requirements<br>GROUP 5: HS-TX Clock-To-Data Lane Timing Requirements<br>GROUP 6: Eye Test                                                                                                                                                                                                                                                                                                                                            |

| Digital Channels            |                                                                                                              |
|-----------------------------|--------------------------------------------------------------------------------------------------------------|
| Max. Sampling Rate          | 1 GSa/s                                                                                                      |
| Memory Depth                | 50 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: $\pm 1$ sampling interval<br>Digital to Analog: $\pm (1 \text{ sampling interval} + 1 \text{ ns})$ |

| Waveform Generator (Optional) |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Channels                      | 1                                                                              |
| Max. Output Frequency         | 50 MHz                                                                         |
| Sampling Rate                 | 125 MSa/s                                                                      |
| Frequency Resolution          | 1 $\mu$ Hz                                                                     |
| Frequency Accuracy            | $\pm 50$ ppm                                                                   |
| Vertical Resolution           | 14 bit                                                                         |
| Amplitude Range               | -1.5 V ~ +1.5 V (into 50 $\Omega$ )<br>-3 V ~ +3 V (into High-Z)               |
| Waveforms                     | Sine, Square, Ramp, Pulse, DC, Noise, 45 Arbitrary                             |
| Output Impedance              | 50 $\Omega \pm 2\%$                                                            |
| Protection                    | Over voltage protection, Current limit                                         |
| <b>Sine</b>                   |                                                                                |
| Frequency                     | 1 $\mu$ Hz ~ 50 MHz                                                            |
| Offset accuracy (10 kHz)      | $\pm(1\% \times \text{offset setting value} + 3 \text{ mVpp})$                 |
| Amplitude flatness            | $\pm 0.3$ dB, compare to 10 kHz, 2.5 Vpp into 50 $\Omega$                      |
| SFDR                          | DC ~ 1 MHz      -60 dBc<br>1 MHz ~ 5 MHz   -55 dBc<br>5 MHz ~ 25 MHz   -50 dBc |
| Harmonic distortion           | DC ~ 5 MHz      -50 dBc<br>5 MHz ~ 25 MHz   -45 dBc                            |
| <b>Square/Pulse</b>           |                                                                                |
| Frequency                     | 1 $\mu$ 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                                                              |
| <b>Ramp</b>                   |                                                                                |
| Frequency                     | 1 $\mu$ Hz ~ 300 kHz                                                           |
| Linearity                     | < 0.1% of Pk-Pk (typical, 1 kHz, 1 Vpp, 50% symmetry)                          |
| Channels                      | 0% ~ 100%                                                                      |
| <b>DC</b>                     |                                                                                |
| Offset range                  | $\pm 1.5$ V (into 50 $\Omega$ )<br>$\pm 3$ V (into Hi-Z)                       |
| Accuracy                      | $\pm( \text{setting value}  \times 1\% + 3 \text{ mV})$                        |
| <b>Noise</b>                  |                                                                                |
| Bandwidth (-3 dB)             | > 25 MHz                                                                       |
| <b>Arb</b>                    |                                                                                |
| Frequency                     | 1 $\mu$ Hz ~ 5 MHz                                                             |
| Waveform memory               | 16 kpts                                                                        |
| Sample rate                   | 125 MSa/s                                                                      |
| Wave import                   | From EasyWaveX, from U-disk, directly from waveform data of analog channels    |

| Processor system |                              |
|------------------|------------------------------|
| CPU              | Intel Core i3-8100 or better |
| Memory           | 32 GB DDR4                   |
| Storage          | 250 GB SSD or better         |
| Operating system | Linux                        |

| I/O   |                                                                                                                                                                                                                                                    |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Front | 2x USB 3.0 Host,<br>Calibration signal for passive probe: 1 kHz, 3 V Square                                                                                                                                                                        |
| Side  | 4x USB Host 3.1 Gen 1, 2x 1000M LAN (VXI-11+SCPI, Telnet (5024) +SCPI, Socket (5025) +SCPI, LXI, WebServer)<br>1x DVI-D: up to 1920x1200 @ 60Hz, 1x DP 1.2: up to 4096x2304 @ 60Hz, 1x HDMI 1.4: up to 4096x2160 @ 60Hz<br>Mic input, Audio Output |
| Rear  | USB 2.0 Device (USBTMC)<br>External trigger in, EXT: $\leq 1.5$ Vrms, EXT/5: $\leq 7.5$ Vrms,<br>Aux out: TRIG OUT(3.3 V LVCMOS), PASS/FAIL OUT(3.3 V TTL),<br>10 MHz In, 10 MHz Out<br>AWG                                                        |

| Display      |                                              |
|--------------|----------------------------------------------|
| Display Type | 15.6 HD TFT LCD with capacitive touch screen |
| Resolution   | 1920×1080                                    |

| Display Setting      |                                                                                                                   |
|----------------------|-------------------------------------------------------------------------------------------------------------------|
| Range                | 8 x 10 grid                                                                                                       |
| Multiple-window      | 1x1, 2x1, 4x1, 1x2, 2x2, 4x2, 3x3                                                                                 |
| Display Type         | Dot, Vector                                                                                                       |
| Persistence Time     | OFF, 0.1 s, 0.2 s, 0.5 s, 1 s, 5 s, 10 s, 30 s, infinite                                                          |
| Color Display        | Normal, Color; Supports customer trace color                                                                      |
| Language             | Simplified Chinese, Traditional Chinese, English, French, Japanese, German, Spanish, Russian, Italian, Portuguese |
| Built-in Help System | Simplified Chinese, English                                                                                       |

| Environmental                 |                                                                                                                                    |                              |                                                                                                                                                           |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature                   | Operating: 0 °C ~ 50 °C<br>Non-operating: -30 °C ~ 60 °C                                                                           |                              |                                                                                                                                                           |
| Humidity                      | Operating: 5% ~ 90%RH, 30°C, degraded to 50%RH at 40 °C<br>Non-operating: 5% ~ 95%                                                 |                              |                                                                                                                                                           |
| Altitude                      | Operating: ≤ 3,048 m, 25 °C<br>Non-operating: ≤12,192 m                                                                            |                              |                                                                                                                                                           |
| 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<br>150 kHz-30 MHz                                                                                                                         |
|                               | Radiated disturbance                                                                                                               | CISPR 11/EN 55011            | CLASS A group 1<br>30 MHz-1 GHz                                                                                                                           |
|                               | 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);<br>3 V/m (1.4 GHz to 2 GHz);<br>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)<br>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:<br>0% UT during 1 cycle;<br>40% UT during 10/12 cycles;<br>70% UT during 25/30 cycles<br>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.<br>UL 61010-2-030:2018; CAN/CSA-C22.2 No. 61010-2-030:2018. |                              |                                                                                                                                                           |
| RoHS                          | EU 2015/863                                                                                                                        |                              |                                                                                                                                                           |

| Power Supply              |                                                                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Input Voltage & Frequency | 100 ~ 240 Vrms 50/60Hz                                                                                                                |
| Power consumption         | A models: 400 W max., 210 W typical, 4 W typical in standby mode<br>AP models: 440 W max., 250 W typical, 4 W typical in standby mode |

| Mechanical |                                                                                                       |
|------------|-------------------------------------------------------------------------------------------------------|
| Dimensions | Width × Height × Depth<br>Without feet: 444.5mm × 334mm × 176.4mm<br>With feet: 444.5mm×367mm×176.4mm |
| Weight     | Net Weight 10.6 kg,<br>Gross Weight 17.0 kg                                                           |

## Ordering Information

| Model        | Description                                                                                                  |
|--------------|--------------------------------------------------------------------------------------------------------------|
| SDS7804AP    | 8 GHz, 20 GSa/s @ all channels, 4-CH, 12-bit, standard 1 Gpts/ch memory depth, 15.6" capacitive touch screen |
| SDS7604AP    | 6 GHz, 20 GSa/s @ all channels, 4-CH, 12-bit, standard 1 Gpts/ch memory depth, 15.6" capacitive touch screen |
| SDS7804A H12 | 8 GHz, 20 GSa/s, 4-CH, 12-bit, standard 500 Mpts/ch memory depth, 15.6" capacitive touch screen              |
| SDS7604A H12 | 6 GHz, 20 GSa/s, 4-CH, 12-bit, standard 500 Mpts/ch memory depth, 15.6" capacitive touch screen              |
| SDS7404A H12 | 4 GHz, 20 GSa/s, 4-CH, 12-bit, standard 500 Mpts/ch memory depth, 15.6" capacitive touch screen              |
| SDS7304A H12 | 3 GHz, 20 GSa/s, 4-CH, 12-bit, standard 500 Mpts/ch memory depth, 15.6" capacitive touch screen              |

| Standard Accessories       | Quantity  |
|----------------------------|-----------|
| USB cable                  | 1         |
| Quick start                | 1         |
| Passive probe (SP3150A)    | 1/channel |
| Certificate of calibration | 1         |
| Wireless mouse             | 1         |
| Power cord                 | 1         |
| Protective Cover           | 1         |

| Optional Accessories | Description                                                                                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SPL2016              | 16-channel logic probe: input impedance 100 k $\Omega$    18 pF, input range $\pm 20$ V, min. input swing 800 mVpp, max. data rate 300 Mbps (with leadset), 100 Mbps (without leadset) |
| DF2001A              | Power Analysis deskew fixture                                                                                                                                                          |
| FX-USB2              | USB 2.0 test fixture                                                                                                                                                                   |
| FX-ETH               | 100M/1000M Ethernet test fixture                                                                                                                                                       |
| FX-MGETH             | 2.5G/5G/10G Ethernet test fixture                                                                                                                                                      |
| FX-AMETH             | Automotive Ethernet test fixture                                                                                                                                                       |
| STB3                 | STB3 demo signal source                                                                                                                                                                |
| USB-GPIB             | USB-GPIB adapter                                                                                                                                                                       |
| SP6150A              | High-speed passive probe: 1.5 GHz, 10X, input impedance 1.8 pF    500 $\Omega$                                                                                                         |
| SAP5000D             | High-speed differential probe: 5 GHz, 10X, differential input impedance 400 fF    20 k $\Omega$ , input range $\pm 2.5$ V, offset range $\pm 12$ V, SAPBus interface                   |
| SAP2500D             | High-speed differential probe: 2.5 GHz, 10X, differential input impedance 1 pF    200 k $\Omega$ , input range $\pm 4$ V, offset range $\pm 8$ V, SAPBus interface                     |
| SAP2500              | High-speed active probe: 2.5 GHz, 10X, input impedance 1.1 pF    1 M $\Omega$ , input range $\pm 8$ V, offset range $\pm 12$ V, SAPBus interface                                       |
| SAP1000              | High-speed active probe: 1 GHz, 10X, input impedance 1.2 pF    1 M $\Omega$ , input range $\pm 8$ V, offset range $\pm 12$ V, SAPBus interface                                         |

|              |                                                                                                                                                                                        |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HPB4010      | High voltage passive probe: DC-40MHz, 1000X, input impedance 3.0 pF    100 M $\Omega$ , Max. input differential voltage DC: 0~10 kVDC, AC: $\leq$ 7 kVrms (Sinewave), 20 kVp-p (Pulse) |
| DPB1300      | High voltage differential probe: 50 MHz, 50X/500X, Max. Differential Test Voltage (DC + Peak AC) $\pm$ 1300 V, CATIII 600 V/CATII 1000 V, DC 12 V Power supply                         |
| DPB5150      | High voltage differential probe: 70 MHz, 50X/500X, Max. Differential Test Voltage (DC + Peak AC) $\pm$ 1500 V, CATIII 600 V/CATII 1000 V, USB 5 V Power supply                         |
| DPB5150A     | High voltage differential probe: 100 MHz, 50X/500X, Max. Differential Test Voltage (DC + Peak AC) $\pm$ 1500 V, CATIII 600 V/CATII 1000 V, USB 5 V Power supply                        |
| DPB5700      | High voltage differential probe: 70 MHz, 100X/1000X, Max. Differential Test Voltage (DC + Peak AC) $\pm$ 7000 V, CATIII 1000V, USB 5 V Power supply                                    |
| DPB5700A     | High voltage differential probe: 100 MHz, 100X/1000X, Max. Differential Test Voltage (DC + Peak AC) $\pm$ 7000 V, CATIII 1000V, USB 5 V Power supply                                   |
| SCP5030      | Current probe: DC-50 MHz, 1 V/A and 0.1 V/A, Max. current 30 Arms/50 Apk, 300V, SAPBus interface                                                                                       |
| SCP5030A     | Current probe: DC-100 MHz, 1 V/A and 0.1 V/A, Max. current 30 Arms/50 Apk, 300V, SAPBus interface                                                                                      |
| SCP5150      | Current probe: DC-12 MHz, 0.1 V/A and 0.01 V/A, Max. current 150 Arms/300 Apk, CAT III 300 V/CAT II 600 V, SAPBus interface                                                            |
| SCP5500      | Current probe: DC-2 MHz, 0.1 V/A and 0.01 V/A, Max. current 500 Arms/750 Apk, CAT III 300 V/CAT II 600 V, SAPBus interface                                                             |
| CPL5100      | Current probe: DC-600 kHz, 0.1 V/A and 0.01 V/A, current range 50 mA~100 A pk, DC 12 V Power supply                                                                                    |
| CP4020       | Current probe: DC-200 kHz, 50 mV/A and 5 mV/A, Max. current 20 Arms/60 Ap-p, CAT III 600 V/CAT II 600 V, DC 9 V Power supply                                                           |
| CP4050       | Current probe: DC-1 MHz, 500 mV/A and 50 mV/A, Max. current 50 Arms/140 Ap-p, CAT III 300 V/CAT II 600 V, DC 9 V Power supply                                                          |
| CP4070       | Current probe: DC-300 kHz, 50 mV/A and 5 mV/A, Max. current 70 Arms/200 Ap-p, CAT III 600 V/CAT II 600 V, DC 9 V Power supply                                                          |
| CP4070A      | Current probe: DC-300 kHz, 100 mV/A and 10 mV/A, Max. current 70 Arms/200 Ap-p, CAT III 600 V/CAT II 600 V, DC 9 V Power supply                                                        |
| CP6030       | Current probe: DC-50 MHz, 1 V/A and 0.1 V/A, Max. current 30 Arms/50 Apk, 300V, DC 12 V Power supply                                                                                   |
| CP6030A      | Current probe: DC-100 MHz, 1 V/A and 0.1 V/A, Max. current 30 Arms/50 Apk, 300V, DC 12 V Power supply                                                                                  |
| CP6150       | Current probe: DC-12 MHz, 0.1 V/A and 0.01 V/A, Max. current 150 Arms/300 Apk, CAT III 300 V/CAT II 600 V, DC 12 V Power supply                                                        |
| CP6500       | Current probe: DC-5 MHz, 0.1 V/A and 0.01 V/A, Max. current 500 Arms/750 Apk, CAT III 300 V/CAT II 600 V, DC 12 V Power supply                                                         |
| SAP4000P     | Power rail probe: DC - 4 GHz, 1.1X, input impedance 50 k $\Omega$ @low frequency, 50 $\Omega$ @high frequency, input range $\pm$ 600 mV, offset range $\pm$ 24 V, SAPBus interface     |
| CASE-S2      | Transit case                                                                                                                                                                           |
| SDS7000A-RMK | Rack Mount Kit                                                                                                                                                                         |

| Options                     | Description                                              |
|-----------------------------|----------------------------------------------------------|
| SDS7000A-FG                 | Waveform generator (software)                            |
| SDS7000A-PA                 | Power Analysis (software)                                |
| SDS7000A-EJ                 | Eye Diagram/Jitter Analysis (software)                   |
| SDS7000A-I2S                | I2S trigger & decode (software)                          |
| SDS7000A-1553B              | MIL-STD-1553B trigger & decode (software)                |
| SDS7000A-FlexRay            | FlexRay trigger & decode (software)                      |
| SDS7000A-CANFD              | CAN FD trigger & decode (software)                       |
| SDS7000A-CANXL              | CAN XL decode (software)                                 |
| SDS7000A-SENT               | SENT trigger & decode (software)                         |
| SDS7000A-Manch              | Manchester decode (software)                             |
| SDS7000A-USB2               | USB 2.0 decode (software)                                |
| SDS7000A-ARINC              | ARINC429 trigger & decode (software)                     |
| SDS7000A-CT-USB2            | USB 2.0 compliance test (software)                       |
| SDS7000A-CT-100BASE-T       | 100Base-TX compliance test (software)                    |
| SDS7000A-CT-1000BASE-T      | 1000Base-T compliance test (software)                    |
| SDS7000A-CT-2.5/5/10GBASE-T | 2.5G/5G/10G Base-T compliance test (software)            |
| SDS7000A-CT-100BASE-T1      | 100Base-T1 compliance test (software)                    |
| SDS7000A-CT-1000BASE-T1     | 1000Base-T1 compliance test (software)                   |
| SDS7000A-CT-DP              | MIPI-DPHY compliance test (software)                     |
| SDS7000A-CT-DDR             | DDR2/DDR3 compliance test (software)                     |
| SDS7000A-RFA                | RTSA / DDC / Signal Analysis (software), A models        |
| SDS7000A-1GPTS              | 1Gpts memory depth (software), A models                  |
| SDS7000AP-2GPTS             | 2Gpts memory depth (software), AP models                 |
| SDS7000A-BW3T4              | 3 GHz to 4 GHz bandwidth upgrade (software), A models    |
| SDS7000A-BW6T8              | 6 GHz to 8 GHz bandwidth upgrade (software), A models    |
| SDS7000AP-BW6T8             | 6 GHz to 8 GHz bandwidth upgrade (software), AP models   |
| 10M_OCXO_L                  | OCXO timebase (Assembled and calibrated in factory only) |

Note: SDS7000 family oscilloscopes include 3 distinct hardware platforms: 3-4 GHz SDS7000A, 6-8 GHz SDS7000A, and SDS7000AP. It is not possible to upgrade between platforms. Bandwidth upgrades are available within the same platform only.



## 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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