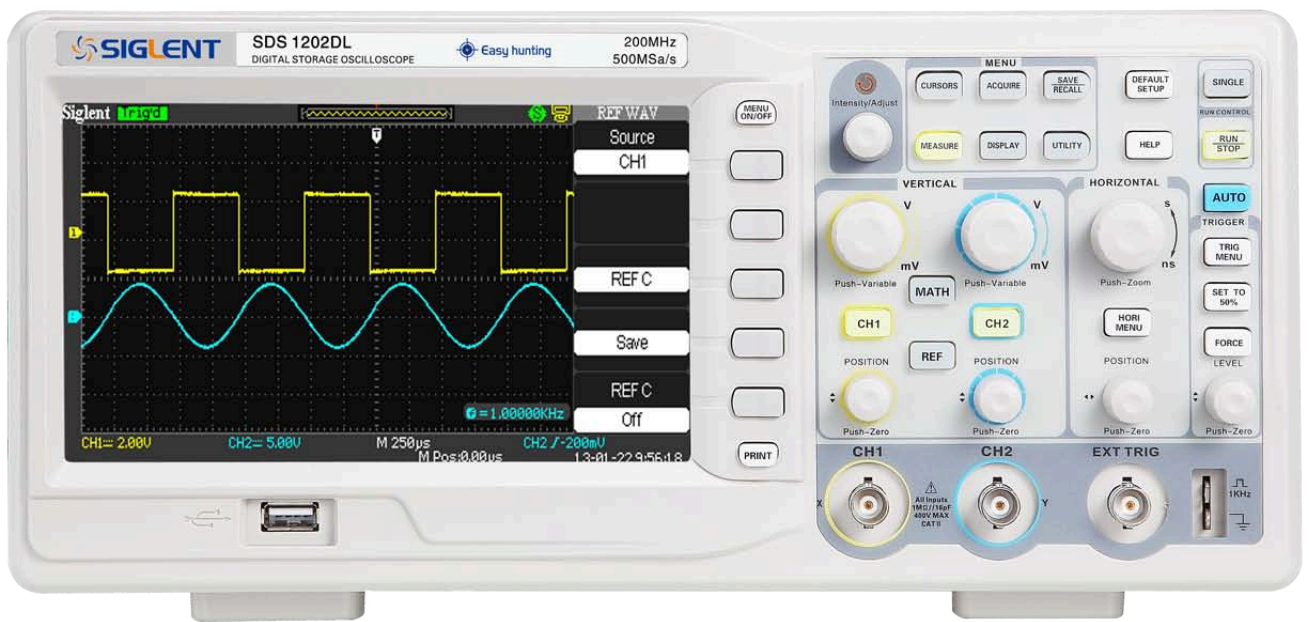


DataSheet

SDS1000DL Series Digital Oscilloscope



CHARACTERISTIC:

- The highest Single real-time sampling rate can be up to 500MHzsa/s; Equivalent sampling rate is up to 50GSa/s.
- Memory Depth: 32Kpts
- Trigger types: Edge, Pulse Width, Video, Slope, Alternative
- Unique Digital Filter function and Waveform recorder function
- Support Pass/Fail function.
- Thirty two parameters Auto measure function.
- Save/recall types: Setups, Waveforms, CSV file, Picture.
- Support Multilingual On-line help system
- Waveform Intensity and Grid Brightness can be adjusted.
- Support twelve types Language
- Standard Configuration Port:
 - USB Host: Support USB flash driver save/recall function and update firmware;
 - USB Device: Support PictBridge compatible printer and support PC remote control;
 - RS232;
 - Pass/Fail Output.

Specifications

All specification applies to 10X probe and All the SDS1000DL Series Digital Storage Oscilloscopes.

To verify that the oscilloscope meets specifications, the oscilloscope must first meet the following conditions:

- The oscilloscope must have been operating continuously for thirty minutes within the specified operating temperature.
- You must perform the Do Self Cal operation, accessible through the Utility menu, if the operating temperature changes by more than 5° C.
- The oscilloscope must be within the factory calibration interval

All specifications are guaranteed unless noted “typical.”

| Inputs | |
|--|--|
| Input Coupling | AC, DC, GND |
| Input Impedance | $1M\ \Omega \pm 2\% \parallel 16Pf \pm 3Pf$, |
| Maximum Input voltage | 400V (DC+AC PK-PK, $1M\ \Omega$ input impedance, X10) , CAT I |
| Ch to Ch Isolation (Both channels in same V/div setting) | >100:1 at 100MHz: (SDS1202DL) >100:1 at 50MHz:(SDS1102DL) >100:1 at 25MHz (SDS1052DL) >100:1 at 10MHz (SDS1022DL) |
| Probe Attenuator | 1X,10X |
| Probe Attenuator Factors Set | 1X,5X,10X,50X,100X, 500X,1000X |

| Vertical System | |
|------------------------------|---|
| Vertical Sensitivity | 2mV/div -10V/div(1-2-5 order) |
| Channel Voltage Offset Range | 2mV –200mV: $\pm 1.6V$ 206mV - 10V: $\pm 40V$ |
| Vertical Resolution | 8 bit |
| Channels | 2 |
| Analog | 200MHz(SDS1202DL) |

| | |
|--|---|
| Bandwidth | 100MHz(SDS1102DL) 50MHz(SDS1052DL) 25MHz(SDS1022DL) |
| Single-shot Bandwidth | 200MHz(SDS1202DL) 100MHz(SDS1102DL) 50MHz(SDS1052DL) 25MHz(SDS1022DL) |
| BW Flatness at BNC input | DC -10% of rated BW: +/- 1dB 10% - 50% of rated BW: +/- 2dB 50% - 100% of rated BW: + 2dB/-3dB |
| Lower frequency limit (AC -3dB) | ≤10Hz(at input BNC) |
| Noise: Pk-Pk for 3K record | ≤0.6 Div for average of 10 Pk-Pk readings, Fixed gain settings ≤0.7 Div for average of 10 Pk-Pk readings, Variable gain settings |
| SFDR including harmonics (measured with FFT) | ≥35dB |
| DC Gain Accuracy | < ± 3.0%: 5mv/div to 10V/div in Fixed Gain Ranges < ± 4.0%: 2mv/div Variable Gain Ranges |
| DC Measurement Accuracy: All Gain settings ≤ 100mv/div | ± [3%* (reading + offset) +1% *of offset +0.2div+2mv] |
| DC Measurement Accuracy: All Gain settings > 100mv/div | ± [3%* (reading + offset) +1%* of offset +0.2div+100mv] |
| Rise time | <1.8ns (SDS1202DL) <3.5ns(SDS1102DL) <7.0ns (SDS1052DL) <14ns (SDS1022DL) |
| Overshoot, Typical (using 500ps pulse) | <10% with probe or BNC input w/ 50 Ohm feed thru |
| Ch to Ch Skew (both channels in same V/div setting) | <1ns: SDS1202DL SDS1102DL <4ns: SDS1052DL <10ns: SDS1022DL (Equivalent to 2 minor divisions in smallest t/div) |
| Math operation | +, -, *, /, FFT |

| | |
|-------------------|---|
| FFT | Window mode: Hanning, Hamming, Blackman, Rectangular |
| | Sampling points: 1024 |
| Bandwidth limited | 20MHz \pm 40% (Note: BW limited below 20MHz when using probe in x1) |

| Horizontal System | |
|--------------------------|--|
| Real Time Sampling Rate | Single Channel:500MSa/s,Double Channel: 250MSa/s(When timebase faster than 250ns/div) |
| Equivalent Sampling Rate | 50GSa/s (SDS1022DL:10GSa/s) |
| Measure Display Modes | MAIN, WINDOW, WINDOW ZOOM, ROLL, X-Y |
| Timebase Accuracy | \pm 100ppm measured over 1ms interval |
| Horizontal Scan Range | 1/2.5/5/25nS/DIV - 50S/DIV (According to the Bandwidth) |
| | Scan: 100mS/DIV \sim 50S/DIV (1-2.5-5 sequence) |

| Trigger System | |
|---|--|
| Trigger Types | Edge, Pulse Width, Video, Slope, Alternative |
| Trigger Source | CH1,CH2,EXT,EXT/5,AC Line |
| Trigger Modes | Auto, Normal, Single |
| Trigger Coupling | AC, DC, LF rej, HF rej |
| Trigger Level Range | CH1,CH2: \pm 6divisions from center of screen |
| | EXT: \pm 1.2V |
| | EXT/5: \pm 6V |
| Trigger Displacement | Pre-trigger: (Memory depth/ (2*sampling)) , Delay Trigger: 271.04DIV |
| Trigger Level Accuracy (typical) applicable for the signal of rising and falling time \geq 20ns | Internal: \pm (0.2 div \times V/div)(within \pm 4 divisions from center of screen) EXT: \pm (6% of setting + 40 mV) EXT/5: \pm (6% of setting + 200 mV) |
| Trigger Sensitivity | For fixed gain ranges 1 Divisions: DC-10MHz 1.5 Divisions: 10MHz - Max BW |
| | EXT: 200mVpp DC-10MHz, 300mVpp 10MHz - Max BW |
| | EXT/5: 1Vpp DC-10MHz, 1.5Vpp 10MHz - Max BW |
| Pulse Width Trigger | Trigger Modes: (>,<, =)positive Pulse Width, (>, <, =)Negative Pulse Width |
| | Pulse Width Range: 20ns – 10s |

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| Video Trigger | Support signal Formats: PAL/SECAM, NTSC |
| | Trigger condition : odd field, even field, all lines, line Num |
| Slope Trigger | (>,<, =) Positive slope, (>,<, =) Negative slope |
| | Time: 20ns-10s |
| Alternative Trigger | CH1 trigger type: Edge, Pulse, Video, Slope |
| | CH2 trigger type: Edge, Pulse, Video, Slope |

| | |
|-----------------------------|---|
| X-Y Mode | |
| X-pole Input / Y-Pole Input | Channel 1 (CH1) / Channel 2 (CH2) |
| Sample Frequency | XY mode has a breakthrough that trad oscilloscopes restrict sampling rate at 1MSa/s. Support 25Ksa/s~250Msa/s adjusted. |

| | |
|------------------------------------|--|
| Hard Ware Frequency Counter | |
| Reading resolution | 1Hz |
| Accuracy | ±0.01% |
| Range | DC Couple, 10Hz to MAX Bandwidth |
| Signal Types | Satisfying all Trigger signals(Except Pulse width trigger and Video Trigger) |

| | |
|-------------------------------|--|
| Control Panel Function | |
| Auto Set | Auto adjusting the Vertical, Horizontal system and Trigger Position |
| Save/Recall | Support 2 Group referenced Waveforms, 20 Group setups, 20 Group captured Waveforms internal Storage/Recall function and USB flash driver storage function. |

| | |
|-------------------------|--|
| Measure System | |
| Auto Measure (32 Types) | Vpp, Vmax, Vmin, Vamp, Vtop, Vbase, Vavg, Mean,Crms, Vrms, ROVShoot, FOVShoot, RPRESshoot, FPRESshoot, Rise time, Fall time, Freq, Period,+ Wid, -Wid, +Dut, -Dut, BWid, Phase, FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF |
| Cursor Measure | Manual mode, Track mode and Auto mode |

Generic Specification

| Display System | |
|-------------------------------------|--|
| Display Mode | Color TFT 7.0in.(177.8mm)diagonal Liquid Crystal Display |
| Resolution | 480 horizontal by 234 vertical pixels |
| Display Color | 24bit |
| Display Contrast (Typical state) | 150:1 |
| Backlight Intensity (Typical state) | 300nit |
| Wave display range | 8 x 18 div |
| Wave Display Mode | Dots, Vector |
| Persist | Off, 1 sec, 2 sec, 5 sec, Infinite |
| Menu Display | 2 sec, 5 sec, 10 sec, 20 sec, Infinite |
| Screen-Saver | Off, 1min,2min,5min,10min,15min,30min,1hour,2hour,5hour |
| Skin | Classical, Modern, Tradition, Succinct |
| waveform interpolation | Sin(x)/x, Linear |
| Color model | Normal , Invert |
| Language | Simplified Chinese, Traditional Chinese, English, Arabic, French, German, Russian, Portuguese Spanish, Japanese, Korean, Italian |

| Environments | |
|---------------------|--|
| Temperature | Operating:10℃ to +40℃ Not operating: -20℃ to +60℃ |
| Cooling | The fan forces it cold. |
| Humidity | Operating: 85%RH, 40℃, 24 hours Not operating: 85%RH, 65℃, 24 hours |
| Height | Operating: 3000m Not operating: 15,266m |

| Power Supply | |
|---------------------|-------------------------------------|
| Input Voltage | 100-240 VAC, CAT II, Auto selection |
| Frequency Scope | 45Hz to 440Hz |
| Power | 50VA Max |

| Mechanical | | |
|-------------------|--------|---------|
| Dimension | length | 323.1mm |
| | Width | 135.6mm |
| | Height | 157mm |
| weight | 2.5kg | |

Type Selections:

NAME:

SDS1000DL series Digital Oscilloscope

TYPE:

SDS1022DL 25MHz

SDS1052DL 50MHz

SDS1102DL 100MHz

SDS1202DL 200MHZ

Standard Accessories:

- 1:1/10:1 probe (2 PCS)
- Power Cable that fits the standard of destination country
- Qualified Certification.
- Guaranty Card
- CD (including EasyScope computer software system)
- User Manual
- USB Cable