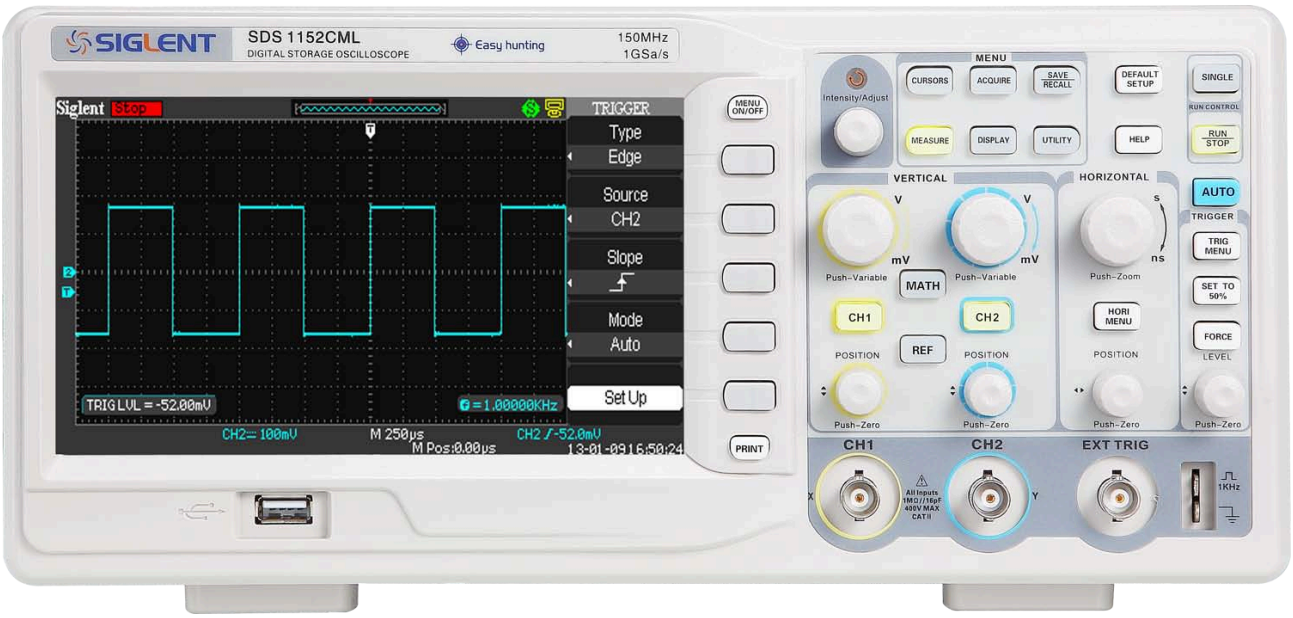
DataSheet

SDS1000CML Series Digital Oscilloscope



SIGLENT TECHNOLOGIES Co.,LTD
Add: 3/F, Building No.4, Antongda Industrial Zone, 3rd Liuxian Road, Bao'an District, Shenzhen, 518101, China
Tel: +86-755-3661 5186 Fax: +86-755-3359 1582 E-mail: sales@siglent.com Website: www.siglent.com

CHARACTERISTIC:

- The highest Single real-time sampling rate can be up to1GSa/s; Equivalent sampling rate is up to 50GSa/s.
- Memory Depth: 2Mpts
- 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.

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Specifications

All specification applies to 10X probe and All the SDS1000CML 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	1MΩ ±2% || 16Pf±3Pf
Maximum Input voltage	400V （DC+AC PK-PK，1MΩ input impedance，X10），CAT I
Ch to Ch Isolation (Both channels in same V/div setting)	>100:1 at 70MHz (SDS1152CML) >100:1 at 50MHz:(SDS1102CML) >100:1 at 35MHz:(SDS1072CML)
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: ±1.6V 206mV - 10V: ±40V
Vertical Resolution	8 bit
Channels	2
Analog Bandwidth	150MHz(SDS1152CML) 100MHz(SDS1102CML) 70MHz(SDS1072CML）

Single-shot Bandwidth	150MHz(SDS1152CML) 100MHz(SDS1102CML) 70MHz(SDS1072CML）
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	<2.3ns (SDS1152CML) <3.5ns(SDS1102CML) <5.0ns (SDS1072CML）
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: SDS1152CML SDS1102CML <2ns: SDS1072CML (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 ± 40% (Note: BW limited below 20MHz when using probe in x1)

Horizontal System

Real Time Sampling Rate	Single Channel:1GSa/s, Double Channel: 500MSa/s(When timebase faster than 50ns/div)
Equivalent Sampling Rate	50GSa/s
Measure Display Modes	MAIN, WINDOW, WINDOW ZOOM, ROLL, X-Y
Timebase Accuracy	±100ppm measured over 1ms interval
Horizontal Scan Range	5ns/DIV – 50s/DIV（SDS1072CML）; 2.5ns/DIV – 50s/DIV（SDS1102CML/1152CML）
	Scan: 100ms/DIV ～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: ±6divisions from center of screen
	EXT: ±1.2V
	EXT/5: ±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 ≥20ns	Internal： ±(0.2 div×V/div)(within±4 divisions from center of screen) EXT： ±(6% of setting + 40 mV) EXT/5： ±(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
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, 10 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, RPREShoot, FPREShoot, 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	24 bit
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:

SDS1000CML series Digital Oscilloscope

TYPE:

SDS1072CML 70MHz

SDS1102CML 100MHz

SDS1152CML 150MHZ

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