

DS1000D/E Series Oscilloscope Specifications

All specifications apply to DS1000E, DS1000D Series Oscilloscopes and a probe with the Attenuation switch set to 10X unless noted otherwise. To meet these specifications, two conditions must first be met:

- The instrument must have been operating continuously for thirty minutes within the specified operating temperature.
- Do perform the Self Cal operation, accessible through the Utility menu, if the operating temperature changes by more than 5°C.
- All specifications are guaranteed unless noted "typical".

Specifications

Acquisition			
Sampling Modes	Real-Time	Equivalent	
Sampling Rate	1GSa/s, 200MSa/s ^[1]	DS1102X	DS1052X
	105d/5, 200M5d/5°	25GSa/s	10GSa/s
Averages	N time acquisitions, all channels simultaneously, N is		
	selectable from 2, 4, 8, 16, 32, 64, 128 and 256.		

Inputs	
Input Coupling	DC, AC, GND
Input Impedance	1MΩ±2%, in parallel with 15pF±3pF
Probe Attenuation Factors	1X, 5X, 10X, 50X, 100X, 500X,1000X
Maximum Input Valtage	400V (DC+AC Peak, 1M Ω input impedance)
Maximum Input Voltage	40V (DC+AC Peak) [1]
Time delay between channel	500ps
(typical)	

Horizontal				
Sample Rate	Real-Time: 13.65Sa/s-1GSa/s			
Range	Equivalent: 13.65S	a/s-25GSa/s		
Waveform interpolation	Sin(x)/x			
	Channel Mode	Sample rate	Record	Record
			Length	Length
			(normal)	(long record)
Docard Langth	Single channel	1GSa/s	16Kpts	N.A.
Record Length	Single channel	500MSa/s	16 Kpts	1Mpts
		Or lower		
	Double channel	500MSa/s	8 Kpts	512Kpts
		Or lower		
Scan speed Range	2ns/div~50s/div, DS1102X			
(Sec/div)	5ns/div~50s/div, DS1052X			
	1-2-5 Sequence			
Sample Rate and Delay Time	±50ppm (over any 1ms time interval)			

Accuracy	
Delta Time	Single-shot: $\pm(1 \text{ sample interval} + 50 \text{ppm} \times \text{reading} + 0.6$
Measurement	ns)
Accuracy	>16 averages: \pm (1sample interval + 50ppm × reading + 0.4
(Full Bandwidth)	ns)

Vertical		
A/D converter	8-bit resolution, each channel samples simultaneously ^[2]	
Volts/div Range	2mV/div~10V/div at input BNC	
Maximum Input	Analog channel maximum input voltage	
	CAT I 300Vrms, 1000Vpk; instantaneous voltage 1000Vpk	
	CAT II 100Vrms, 1000Vpk	
	RP2200 10:1: CAT II 300Vrms	
	RP3200 10:1: CAT II 300Vrms	
	RP3300 10:1: CAT II 300Vrms	
Offset Range	±40V(200mV-10V), ±2V(2mV-100mV)	
Analog Bandwidth	100MHz (DS1102D,DS1102E)	
	50MHz (DS1052D, DS1052E)	
Single-shot	80MHz (DS1102D, DS1102E)	
Bandwidth	50MHz (DS1052D, DS1052E)	
Selectable Analog		
Bandwidth Limit	20MHz	
(typical)		
Lower Frequency	≤5Hz (at input BNC)	
Limit (AC –3dB)	(de input bive)	
Rise Time at BNC,	<3.5ns, <7ns,	
typical	On (100M, 50M) respectively	
DC Gain Accuracy	2mV/div-5mV/div:	
	±4% (Sample or Average acquisition mode)	
	10mV/div-10V/div:	
	±3% (Sample or Average acquisition mode)	
DC Measurement	Average of ≥16 Waveforms with vertical position at zero:	
Accuracy, Average	±(DC Gain Accuracy×reading+0.1div+1mV)	
Acquisition Mode	Average of ≥16 Waveforms with vertical position not at zero:	
	±[DC Gain Accuracy×(reading+vertical position)+(1% of	
	vertical position) + 0.2div]	
	Add 2mV for settings from 2mV/div to 200 mV/div	

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	Add 50mV for settings from >200mV/div to 10V/div
Delta Volts	Delta Volts between any two averages of 16 waveforms
Measurement	acquired under same setup and ambient
Accuracy (Average	conditions: ±(DC Gain Accuracy×reading + 0.05 div)
Acquisition Mode)	

Trigger				
Trigger Sensitivity	0.1div~1.0	0.1div~1.0div (adjustable)		
Trigger Level Range	Internal	±5 divisions from center of screen		
	EXT	±1.2V		
Trigger Leve	l Internal	\pm (0.3div × V/div)(\pm 4 divisions from center of		
Accuracy (typical)	screen)		
applicable for the	EXT	±(6% of setting + 200 mV)		
signal of rising and	d			
falling time ≥20ns				
		ode: pre-trigger (262144/ sampling rate),		
Trigger Offset	delayed tri			
		mode: pre-trigger 6div, delayed trigger 6div		
Trigger Holdoff range	100ns~1.5	ōs		
Set Level to 50%	Input sian	Input signal frequency ≥50Hz		
(Typical)	Input sign	Triput signal frequency 230ff2		
Edge Trigger	Edge Trigger			
	Rising, Falling, Rising + Falling			
slope				
Pulse Trigger				
	(>, <, =) Positive pulse, $(>, <, =)$ negative pulse			
Pulse Width range 2	0ns ~10s			
Video Trigger	Video Trigger			
	Support standard NTSC, PAL and SECAM broadcast systems.			
line frequency L	frequency Line number range: 1~525 (NTSC) and 1~625 (PAL/SECAM)			
Slope Trigger				
Trigger condition ((>, <, =) Positive slope, $(>, <, =)$ negative slope			
Time setting 2	20ns~10s			
Alternate Trigger				
Trigger on CH1 E	Edge, Pulse, Video, Slope			
	gger on CH2 Edge, Pulse, Video, Slope			
Pattern Trigger ^[1]				

Trigger mode	D0~D15 select H, L, X, ♣, ₹
Duration Trigger	[1]
Trigger Type	D0~D15 select H, L, X
Qualifier	>, <, =
Time setup	20ns~10s

Measuremen	ts	
	Manual	Voltage difference between cursors (ΔV)
Cursor		Time difference between cursors (ΔT)
		Reciprocal of ΔT in Hertz (1/ ΔT)
	Track	Voltage value for Y-axis waveform
		Time value for X-axis waveform
	Auto	Cursors are visible for Automatic Measurement
Auto Measure	Vpp, Vamp, Vmax, Vmin, Vtop, Vbase, Vavg, Vrms, Overshoot,	
	Preshoot, Freq, Period, Rise Time, Fall Time, +Width, -Width,	
	+Duty, -Duty, Delay1→2₹, Delay1→2₹	

- [1] For DS1000D Series;
- [2] When sampling is 1GSa/s, only single channel can be used.

General Specifications

Display	
Display Type	5.7 in. (145 mm) diagonal TFT Liquid Crystal Display
Display Resolution	320 horizontal ×RGB×234 vertical pixels
Display Color	64K color
Display Contrast (typical)	150:1
Backlight	300 nit
Brightness(typical)	

Probe Compensator Output		
Output Voltage(typical)	Amplitude ~3Vp-p	
Frequency(typical) 1kHz		

Power	
Supply Voltage	100 ~ 240 VAC _{RMS} , 45~440Hz, CAT II
Power Consumption	Less than 50W
Fuse	2A, T rating, 250 V

Environmental		
Ambient Temperature	Operating 10°C ~ 40°C	
	Non-operating -20°C ~ +60°C	
Cooling Method	Fan force air flow	
Humidity	+35°C or below: ≤90% relative humidity	
	+35°C~ +40°C: ≤60% relative humidity	
Altitude	Operating 3,000 m or below	
	Non-operating 15,000 m or below	

Mechanical		
Size	Width	303mm
	Height	154mm
	Depth	133 mm
Heavy	Without package	2.4 kg
	Packaged	3.8 kg

IP Degree

IP2X

Calibration Interval

The recommended calibration interval is one year

