

HDS200 Series Oscilloscope Technical Specifications

Unless otherwise stated, all technical specifications are applicable to the probe with the attenuation switch set to 10X and this series of oscilloscopes. The oscilloscope must first meet the following two conditions to meet these specifications and standards:

- The instrument must be operated continuously for more than 30 minutes at the specified operating temperature.
- If the operating temperature variation range reaches or exceeds 5°C, the system function menu must be opened to execute the "automatic correction" program.

All specifications are guaranteed except those marked "typical".

Oscilloscope

Characteristics		Description	
Bandwidth		HDS25(S)	25 MHz
		HDS242(S)	40 MHz
		HDS272(S)	70 MHz
		HDS2102(S)	100 MHz
		HDS2202(S)	200 MHz
Channel		2	
Sampling	Sampling method	Sampling, peak detection	
	Real-time sampling rate	HDS25(S) HDS242(S) HDS272(S)	125 MSa/s (Dual channel) 250 MSa/s (Single channel)
		HDS2102(S)	250 MSa/s (Dual channel) 500 MSa/s (Single channel)
		HDS2202(S)	1 GSa/s
Waveform refresh rate	10,000 wfms/s		
Input	Input coupling	DC, AC, ground	
	Input impedance (DC coupling)	1 MΩ±2%, in parallel with 16 pF±10 pF	
	Probe attenuation	1X 、 10X、 100X、 1000X 、 10000X	
	Maximum input voltage	400 V (DC + AC ,PK - PK)	
	Bandwidth limit	20 MHz(except HDS25(S)) ,Full bandwidth	
Horizontal	Sampling rate range	0.25 Sa/s~250 MSa/s	

Characteristics		Description	
	Waveform interpolation	(Sinx)/x	
	Sweep speed range (S/div)	HDS25(S) HDS242(S) HDS272(S)	5ns/div - 1000s/div, Stepping in the 1-2-5 way
		HDS2102(S) HDS2202(S)	2ns/div - 1000s/div, Stepping in the 1-2-5 way
	Time base accuracy	±100 ppm	
	Record length	8K or 4K optional	
	Vertical	Sensitivity (Volt/div) range	10 mV/div ~ 10 V/div
Displacement range		HDS25(S) HDS242(S) HDS272(S) HDS2102(S)	±6 div
		HDS2202(S)	±2 V (10 mV/div – 200 mV/div); ±100 V (500 mV/div – 10V/div);
Analog bandwidth		HDS25(S)	25MHz
		HDS242(S)	40 MHz
		HDS272(S)	70 MHz
		HDS2102(S)	100 MHz
		HDS2202(S)	200 MHz
Single bandwidth		Full bandwidth	
Low frequency response (AC coupling, -3dB)		≥10 Hz	
Rise time (typical on BNC)		HDS25(S)	≤ 14 ns
	HDS242(S)	≤ 8 ns	
	HDS272(S)	≤ 5 ns	
	HDS2102(S)	≤ 3.5 ns	
	HDS2202(S)	≤ 1.75 ns	
DC gain accuracy	3%		
Measurement	Cursor	ΔV, ΔT	

Characteristics		Description	
	Automatic	HDS25(S) HDS242(S) HDS272(S) HDS2102(S)	Period, Frequency, Mean, PK-PK, Max, Min, Amplitude, RMS
		HDS2202(S)	Period, Frequency, Mean, PK-PK, Max, Min, Amplitude, RMS, Rise Time, Fall Time, +PulseWidth, -PulseWidth
Triggering	Source	CH1, CH2	
	Type	Edge	
	Coupling	DC, AC	
	Trigger type	Auto, normal, single	
	Trigger electrical level range	±4 div from the center of the screen	
	Trigger electrical level accuracy	±0.3 div	
	Trigger displacement	According to Record length and time base	
Edge trigger	Slope	Rising edge, falling edge	

The output of the probe compensator:

Characteristics	Description
Output voltage (typical)	3.3Vpp, High-Z
Frequency (typical)	Square wave 1 kHz (±1%)

Multimeter

Characteristics	Description
Digital display	20,000 readings
Measurement type	Voltage, current, resistance, capacitance, on/off, diode
Maximum Input voltage	AC : 750V DC : 1000V
Maximum Input current	AC : 10A DC : 10A

Basic function	Range	Minimum resolution	Accuracy
DC voltage	200.00mV	0.01mV	±(0.3%+10dig)

Basic function	Range	Minimum resolution	Accuracy
	2.0000V	0.1mV	±(0.3%+5dig)
	20.000V	1mV	
	200.00V	0.01V	
	1000.0V	0.1V	
AC voltage ^[1]	200.00mV	0.01mV	±(0.8%+10dig)
	2.0000V	0.1mV	
	20.000V	1mV	
	200.00V	0.01V	
	750.0V	0.1V	±(1%+10dig)
	Frequency range: 40Hz-1000Hz		
DC current	200.00mA	0.01mA	±(0.8%+10dig)
	10.000A	1mA	±(2.5%+10dig)
	Overload protection: mA function: self-healing fuse 400 mA/250 V; Ampere function: 10A/600 V, D5.2*20, fast-acting fuse		
AC current ^[1]	200.00mA	0.01mA	±(1%+10dig)
	10.000A	1mA	±(2.8%+10dig)
	Frequency range: 40Hz-1000Hz Overload protection: mA function: self-healing fuse 400 mA/250 V; Ampere function: 10A/600 V, D5.2*20, fast-acting fuse		
Resistance	200.00Ω	0.01Ω	±(0.8%+10dig)
	2.0000kΩ	0.1Ω	±(0.8%+5dig)
	20.000kΩ	1Ω	±(0.8%+3dig)
	200.00kΩ	10Ω	
	2.0000MΩ	0.1kΩ	
	20.000MΩ	1kΩ	±(1%+3dig)
	100.00MΩ	0.01MΩ	±(5%+10dig)
Capacitance ^[1]	20.000nF	1pF	±(3.0%+10dig)
	200.00nF	10pF	
	2.0000μF	0.1nF	
	20.000μF	1nF	
	200.00μF	10nF	
	2.0000mF	0.1uF	
Others	On/Off test	√ (<50Ω)	

Basic function	Range	Minimum resolution	Accuracy
	Diode test	$\sqrt{(<0-2V)}$	
	Auto range	$\sqrt{}$	
	TRMS	$\sqrt{}$	

[1] : When measuring AC voltage/current or capacitance, accuracy guarantee range is 5% to 100% of the range.

Arbitrary Waveform Generator (Optional)

Characteristics	Description		
Waveform Frequency	Sine	HDS242(S)	0.1Hz~25MHz
		HDS272(S)	
		HDS2102(S)	
		HDS2202(S)	
		HDS25(S)	0.1Hz~10MHz
	Square	0.1Hz~5MHz	
	Ramp	0.1Hz~1MHz	
Pulse	0.1Hz~5MHz		
EXP	0.1Hz~5MHz		
Sampling	125MSa/s		
Amplitude(50Ω)	0.01Vpp ~ 2.5Vpp		
DC offset(High Z)	$\pm(2.5V - \text{Amplitude } V_{pp}/2)$		
Frequency Resolution	0.01%		
Channel	1		
Waveform Depth	8k		
Vertical Resolution	14 bit		
Output Impedance	50 Ω		

General Technical Specifications

Display:

Characteristics	Description
Display type	3.5-inch color LCD display
Display resolution	320 horizontal × 240 vertical pixels
Display color	65536 colors
Display Contrast	Adjustable

Power supply:

Characteristics	Description	
Power supply	100 - 240 VACRMS, 50/60 Hz, CAT II DC INPUT: 5VDC, 2A	
Power consumption	HDS25(S) HDS242(S) HDS272(S) HDS2102(S)	< 5 W
	HDS2202(S)	≤ 6 W
Battery	HDS25(S) HDS242(S) HDS272(S)	2200mAh*2 (3.7V, 18650)
	HDS2102(S) HDS2202(S)	2600mAh*2 (3.7V, 18650)

Surroundings:

Characteristics	Description
Temperature	Working temperature: 0°C - 40°C Storage temperature: -20°C - +60°C
Relative humidity	≤90%
Height	Operating: 3,000 meters Non-operating: 15,000 meters
Cooling method	Natural cooling

Mechanical specifications:

Characteristics	Description
Dimensions	198 mm (length) × 96mm (height) × 38 mm (width)
Weight	About 0.6 kg (main unit, without battery)

Calibration interval: The recommended calibration interval is one year.



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