



## 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		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	HDS242(S)	125 MSa/s (Dual channel)	
		HDS272(S)	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 ,Full bandwidth		
Horizontal	Sampling rate range	0.25 Sa/s~250 MSa/s		
	Waveform interpolation	(Sinx)/x		
	Sweep speed range (S/div)	HDS242(S)	5ns/div - 1000s/div,Stepping in the 1-2-5 way	
		HDS272(S)	5ns/div - 1000s/div,Stepping in the 1-2-5 way	
		HDS2102(S)	2ns/div - 1000s/div,Stepping in the 1-2-5 way	
		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		

Characteristics		Description	
	Displacement range	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	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)	HDS242(S)	≤ 8 ns
		HDS272(S)	≤ 5 ns
HDS2102(S)		≤ 3.5 ns	
HDS2202(S)		≤ 1.75 ns	
DC gain accuracy	3%		
<b>Measurement</b>	Cursor	ΔV, ΔT	
	Automatic	HDS242(S) HDS272(S) HDS2102(S)	Period, Frequency, Mean, PK-PK, Max, Min, Amplitude
		HDS2202(S)	Period, Frequency, Mean, PK-PK, Max, Min, Amplitude, RMS, Rise Time, Fall Time, +PulseWidth, -PulseWidth
<b>Triggering</b>	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 triggering	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
<b>DC voltage</b>	200.00mV	0.01mV	$\pm(0.3\%+10\text{dig})$
	2.0000V	0.1mV	$\pm(0.3\%+5\text{dig})$
	20.000V	1mV	
	200.00V	0.01V	
	1000.0V	0.1V	
<b>AC voltage<sup>[1]</sup></b>	200.00mV	0.01mV	$\pm(0.8\%+10\text{dig})$
	2.0000V	0.1mV	
	20.000V	1mV	
	200.00V	0.01V	
	750.0V	0.1V	$\pm(1\%+10\text{dig})$
	Frequency range: 40Hz-1000Hz		
<b>DC current</b>	200.00mA	0.01mA	$\pm(0.8\%+10\text{dig})$
	10.000A	1mA	$\pm(2.5\%+10\text{dig})$
	Overload protection: mA function: self-healing fuse 400 mA/250 V; Ampere function: 10A/600 V, D5.2*20, fast-acting fuse		
<b>AC current<sup>[1]</sup></b>	200.00mA	0.01mA	$\pm(1\%+10\text{dig})$
	10.000A	1mA	$\pm(2.8\%+10\text{dig})$
	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		
<b>Resistance</b>	200.00 $\Omega$	0.01 $\Omega$	$\pm(0.8\%+10\text{dig})$
	2.0000k $\Omega$	0.1 $\Omega$	$\pm(0.8\%+5\text{dig})$
	20.000k $\Omega$	1 $\Omega$	$\pm(0.8\%+3\text{dig})$
	200.00k $\Omega$	10 $\Omega$	
	2.0000M $\Omega$	0.1k $\Omega$	$\pm(1\%+3\text{dig})$
	20.000M $\Omega$	1k $\Omega$	
	100.00M $\Omega$	0.01M $\Omega$	
<b>Capacitance<sup>[1]</sup></b>	20.000nF	1pF	$\pm(3.0\%+10\text{dig})$
	200.00nF	10pF	
	2.0000 $\mu$ F	0.1nF	
	20.000 $\mu$ F	1nF	
	200.00 $\mu$ F	10nF	

Basic function	Range	Minimum resolution	Accuracy
	2.0000mF	0.1uF	
Others	On/Off test	√ (<50Ω)	
	Diode test	√ (<0-2V)	
	Auto range	√	
	TRMS	√	

[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	0.1Hz~25MHz
	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)	±(2.5V – Amplitude Vpp/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	HDS242(S) HDS272(S) HDS2102(S)	< 5 W
	HDS2202(S)	≤ 6 W
Battery	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.