

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)	
		HDS2102(S)	2ns/div - 1000s/div,Stepping in the 1-2-5 way
		HDS2202(S)	
Vertical	Time base accuracy	±100 ppm	
	Record length	8K or 4K optional	
	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%		
Measurement	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
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 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 ($\pm 1\%$)

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	$\pm(0.3\%+10\text{dig})$
	2.0000V	0.1mV	$\pm(0.3\%+5\text{dig})$
	20.000V	1mV	
	200.00V	0.01V	
	1000.0V	0.1V	
AC voltage ^[1]	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		
DC current	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		
AC current ^[1]	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		
Resistance	200.00 Ω	0.01 Ω	$\pm(0.8\%+10\text{dig})$
	2.0000k Ω	0.1 Ω	$\pm(0.8\%+5\text{dig})$
	20.000k Ω	1 Ω	$\pm(0.8\%+3\text{dig})$
	200.00k Ω	10 Ω	
	2.0000M Ω	0.1k Ω	
	20.000M Ω	1k Ω	$\pm(1\%+3\text{dig})$
	100.00M Ω	0.01M Ω	$\pm(5\%+10\text{dig})$
Capacitance ^[1]	20.000nF	1pF	$\pm(3.0\%+10\text{dig})$
	200.00nF	10pF	
	2.0000 μ F	0.1nF	
	20.000 μ F	1nF	
	200.00 μ F	10nF	

Basic function	Range	Minimum resolution	Accuracy
	2.0000mF	0.1uF	
Others	On/Off test	$\sqrt{(<50\Omega)}$	
	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	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)	$\pm(2.5V - \text{Amplitude } V_{pp}/2)$	
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	HDS242(S)	<5 W
	HDS272(S)	
	HDS2102(S)	
	HDS2202(S)	≤ 6 W
Battery	HDS242(S)	2200mAh*2 (3.7V, 18650)
	HDS272(S)	
	HDS2102(S)	2600mAh*2 (3.7V, 18650)
	HDS2202(S)	

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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※: The illustrations, interface, icons and characters in the user manual may be slightly different from the actual product. Please refer to the actual product.

HDS20 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℃, 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		25 MHz
Vertical resolution		8 bits
Channel		2
Sampling	Sampling method	Sampling, peak detection
	Real-time sampling rate	125 MSa/s (Dual channel) 250 MSa/s (Single channel)
	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	Full bandwidth
Horizontal	Sampling rate range	0.25 Sa/s~250 MSa/s
	Waveform interpolation	Sinx/x
	Sweep speed range (s/div)	5ns/div - 1000s/div, step by the 1-2-5 way
	Time base accuracy	±100 ppm
	Record length	8K or 4K optional

Characteristics		Description
Vertical	Sensitivity (Volt/div) range	10 mV/div~10 V/div
	Displacement range	±6 div
	Analog bandwidth	25MHz
	Single bandwidth	Full bandwidth
	Low frequency response (AC coupling, -3dB)	≥10 Hz
	Rise time (typical on BNC)	≤ 14 ns
	DC gain accuracy	3%
Measurement	Cursor	ΔV, ΔT
	Automatic	Period, Frequency, Mean, PK-PK, Max, Min, Amplitude
Triggering	Source	CH1, CH2
	Trigger	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, continuity test, 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)
	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 : self-healing fuse 400 mA/250 V A : 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 : self-healing fuse 400 mA/250 V A : 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	

Basic function	Range	Minimum resolution	Accuracy
	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	Continuity 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 ~ 10MHz
	Square	0.1Hz ~ 2MHz
	Ramp	0.1Hz ~ 1MHz
	Pulse	0.1Hz ~ 5MHz
	EXP	0.1Hz ~ 5MHz
Sampling	125 MSa/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 bits	
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	<5 W
Battery	2200mAh*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	Approx. 0.6 kg (instrument, without battery)

Calibration interval: The recommended calibration interval is one year.



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