

HDS100 Series Oscilloscope Meter Specification

Standard conditions: The environment temperature is 18℃ to 28℃, the relative humidity is less than 80%.

Note:

When measuring AC voltage, accuracy guarantee range is 10% to 100% of the range.

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

HDS120 Series Multimeter Specification

Function		Measurement Range	Resolution/ Frequency Range	Accuracy ± (% of reading + LSB)	
DC Voltage (V)	mV	20.000mV	0.001mV	±(0.1%+20dig)	
		200.00mV	0.01mV	±(0.1%+6dig)	
	V	2.0000V	0.1mV	±(0.1%+5dig)	
		20.000V	1mV		
		200.00V	10mV		
		1000.0V	0.1V	±(0.15%+5dig)	
AC Voltage (V)	mV	20.000mV	0.001 mV	VRMS Freq range: 40Hz-1000Hz	±(0.6%+10dig)
		200.00mV	0.01mV		
	V	2.0000V	0.1mV		
		20.000V	1mV		
		200.00V	10mV		
		750.0V	0.1V		±(0.8%+10dig)
DC Current (A)	μA	200.00μA	0.01μA	±(0.6%+10dig)	
		2000.0μA	0.1μA	±(0.5%+10dig)	
	mA	20.000mA	1μA	±(0.6%+10dig)	
		200.00mA	10μA	±(0.5%+10dig)	
	A	2.0000A	100μA	±(1.0%+10dig)	
		10.000A ^[1]	1mA	±(2.0%+10dig)	
AC Current (A)	μA	200.00μA	0.01μA	VRMS Freq range: 40Hz-1000Hz	±(0.8%+10dig)
		2000.0μA	0.1μA		
	mA	20.000mA	1μA		
		200.00mA	10μA		
	A	2.0000A	100μA		±(1.5%+10dig)
		10.000A ^[1]	1mA		±(2.5%+10dig)

Resistance(Ω)	200.00 Ω	0.01 Ω	$\pm(0.8\%+10\text{dig})$
	2.0000k Ω	0.1 Ω	$\pm(0.3\%+5\text{dig})$
	20.000k Ω	1 Ω	$\pm(0.3\%+5\text{dig})$
	200.00k Ω	10 Ω	
	2.0000M Ω	100 Ω	
	20.000M Ω	1k Ω	$\pm(0.5\%+5\text{dig})$
	100.00M Ω	10k Ω	$\pm(5.0\%+10\text{dig})$
Capacitance(F)	2.000nF	1pF	$\pm(5.0\%+10\text{dig})$
	20.00nF	10pF	$\pm(3.0\%+10\text{dig})$
	200.0nF	100pF	
	2.000 μ F	1nF	
	20.00 μ F	10nF	
	200.0 μ F	100nF	
	2.000mF	1 μ F	
	20.00mF ^[2]	10 μ F	
Frequency^[3] (Hz)	200.00Hz	0.01Hz	$\pm(0.1\%+5\text{dig})$
	2.0000kHz	0.1Hz	
	20.000kHz	1Hz	
	200.00kHz	10Hz	
	2.0000MHz	0.1kHz	
	20.000MHz	1kHz	
Duty Cycle^[4] (%)	0.1% -99.9% (Typical: V _{rms} =1 V, f=100Hz)	0.1%	$\pm(1.2\%+3\text{dig})$
	0.1%-99.9%($\geq$ 1 kHz)		$\pm(2.5\%+10\text{dig})$
Diode	3.0000V	0.0001V	$\pm(1.0\%+10\text{dig})$
Continuity	1000.0 Ω	0.1 Ω	
Maximum Reading	20000		

[1] When measuring current, for 10A the measuring duration should not be over 2 minutes within 10 minutes, and in this 10 minutes, no other current should flow through except within the measuring duration.

[2] When measuring capacitance, for the 20.00mF range, the measuring duration should be over 30 seconds.

[3] When measuring frequency, the typical waveform is Square or Sine. The signal meets the following conditions:

Frequency	Amplitude(rms)
1 Hz – 20 MHz	$\geq 1\text{ V}$

[4] When measuring duty cycle, the typical waveform is Square.

Note: when measuring resistance and capacitance, the influence of the resistance reactance of the pen itself on the measured value should be considered.

HDS160 Series Multimeter Specification

Function	Measurement Range	Resolution/ Frequency Range	Accuracy ± (% of reading + LSB)	
DC Voltage (V)	60.000 mV	0.001 mV	±(0.10%+10dig)	
	600.00 mV	0.01 mV	±(0.05%+5dig)	
	6.0000 V	0.0001 V		
	60.000 V	0.001 V		
	600.00 V	0.01 V	±(0.10%+5dig)	
	1000.0 V ^[3]	0.1 V	±(0.10%+10dig)	
AC Voltage (V) ^[1]	60.000 mV	0.001 mV	Freq. : 20 Hz – 45 Hz	±(1.0%+30dig)
	600.00 mV	0.01 mV		
	6.0000 V	0.0001 V		
	60.000 V	0.001 V		
	600.00 V	0.01 V		
	750.0 V	0.1 V		
	60.000 mV	0.001 mV	Freq. : 45 Hz – 65 Hz	±(0.5%+30dig)
	600.00 mV	0.01 mV		
	6.0000 V	0.0001 V		
	60.000 V	0.001 V		
	600.00 V	0.01 V		
	750.0 V	0.1 V		
	60.000 mV	0.001 mV	Freq. : 65 Hz – 1 kHz	±(0.7%+30dig)
	600.00 mV	0.01 mV		
	6.0000 V	0.0001 V		
	60.000 V	0.001 V		
	600.00 V	0.01 V		
	750.0 V	0.1 V		
DC Current (A)	600.00 uA	0.01 uA	±(0.15%+20dig)	
	6000.0 uA	0.1 uA	±(0.15%+10dig)	
	60.000 mA	0.001 mA	±(0.15%+20dig)	
	600.00 mA	0.01 mA	±(0.15%+10dig)	
	6.0000 A	0.0001 A	±(0.50%+10dig)	
	10.000 A	0.001 A		

AC Current (A) ^[1]	600.00 uA	0.01 uA	Freq. : 20 Hz– 1 kHz	±(0.5%+20dig)
	6000.0 uA	0.1 uA		
	60.000 mA	0.001 mA		
	600.00 mA	0.01 mA		±(1.5%+20dig)
	6.0000 A	0.0001 A		
	10.000 A	0.001 A		
Resistance (Ω) ^[2]	600.00 Ω	0.01 Ω	±(0.15%+10dig)	
	6.0000 kΩ	0.0001 kΩ	±(0.15%+5dig)	
	60.000 kΩ	0.001 kΩ		
	600.00 kΩ	0.01 kΩ		
	6.0000 MΩ	0.0001 MΩ	±(0.30%+5dig)	
	60.000 MΩ	0.001 MΩ	±(1.00%+10dig)	
Diode	3.0000 V	0.0001 V	±(1.0%+10dig)	
Continuity	1000.0 Ω	0.1 Ω	Threshold can be adjusted, step by 1.0Ω	
Frequency	60.000 Hz	0.001 Hz	±(0.2%+10dig)	
	600.00Hz	0.01 Hz		
	6.0000 kHz	0.0001 kHz		
	60.000 kHz	0.001 kHz		
	600.00 kHz	0.01 kHz		
	6.0000 MHz	0.0001 MHz		
	60.000 MHz	0.001 MHz		
Capacitance ^[3]	6.0000 nF	0.0001 nF	±(4.0%+50dig)	
	60.000 nF	0.001 nF	±(2.5%+20dig)	
	600.00 nF	0.01 nF	±(2.0%+20dig)	
	6.0000 uF	0.0001 uF		
	60.000 uF	0.001 uF		
	600.00 uF	0.01 uF		
	6000.0 uF	0.1 uF	±(4.0%+20dig)	
	60.000 mF	0.001 mF	±(5.0%+20dig)	
Cycle duty	0.1% ~ 99.9%, Vrms=1V	0.10%	1 kHz	±(1.2%+3dig)
			>1 kHz	±(2.5%+3dig)
Maximum Reading	60000			

[1] When measuring current, for 10A the measuring duration should not be over 2 minutes within 10 minutes, and in this 10 minutes, no other current should flow through except within the measuring duration.

[2] When measuring capacitance, for the 20.00mF range, the measuring duration should be over 30 seconds.

[3] When measuring frequency, the typical waveform is Square or Sine. The signal meets the following conditions:

Frequency	Amplitude(rms)
1 Hz – 20 MHz	$\geq 1\text{ V}$

[4] When measuring duty cycle, the typical waveform is Square.

Note: when measuring resistance and capacitance, the influence of the resistance reactance of the pen itself on the measured value should be considered.

Oscilloscope Specification

Characteristics	Instruction
Analog bandwidth	1MHz (only ACV scale)
Maximum sample	5.0MSa/s
Channel	1
Input impedance	approximately 10M Ω
Time base range	2.5us~10s/grid
Time base accuracy	$\pm(0.01\% + 0.1\text{div})$
Voltage vertical sensitivity range	30mV~500V/grid
Current vertical sensitivity range	100 μA ~5A/grid
Vertical amplitude accuracy	$\pm(5\% + 0.2\text{div})$
Maximum voltage limit	1000V DC+AC Peak value
Maximum current limit	15A DC+AC Peak value
Trigger mode	Auto/Normal/Single
Autoset	Time base/Vertical amplitude/Trigger value
Trigger edge	Rise edge/Fall edge
Measurement function	Vmax,Vmin,Vp-p,Vavg,Vrms,Hz

Note: The signal is within 5dB attenuation with an analog bandwidth of up to 1MHz.

General Specification

Characteristics	Instruction
Sleep Mode	$\sqrt{\quad}$
Low battery indication	$\sqrt{\quad}$
Backlight	$\sqrt{\quad}$

Input Protection	√
Input Impedance	≥ 10 MΩ
Battery	Single 18650 3.7V
Display	2.8 inch IPS:320*240 resolution
Weight (without package)	Approx. 0.33kg(without battery)
Dimension	188mm(Length)* 93mm(Width)*41.5mm(Depth)
Working temperature	0℃ to 40℃
Storage temperature	−10℃ to 60℃
Relative Humidity	≤ 80%
Altitude	Operating: 3,000 meters Non-operating: 15,000 meters

Interval Period of Adjustment:

One year is recommended for the calibration interval period.



V1.0.1