

ARCTIC
HAYES

DIGITAL CLAMP METER

WITH TEMPERATURE FUNCTION

User Manual



AH206



Before using the instrument, please read this manual carefully, and save for future reference.

The instrument is designed according to the requirements of the international electrical safety standard IEC61010-1 for the safety requirements of the electronic testing instruments. The design and manufacture of instruments strictly comply with the requirements of IEC61010-1 CAT.III 600V over voltage safety standards.

- Please read this manual carefully before using the instrument, and pay special attention to safety warning information.
- Strictly observe the operation of this manual and use this instrument. Otherwise, the protection function of the instrument may be damaged or weakened.
- Please be careful if the measurement exceeds 30V AC true RMS, 42V AC peak or 60V DC. There may be danger of electric shock at this kind of voltage.
- Voltage applied between terminals or between each terminal and grounding point shall not exceed the rated value.












Safety Instructions

- By measuring the known voltage to check whether the meter work is normal, if it is not normal or damaged, do not use it again.
- Before using the instrument, please check whether there are cracks in the instrument shell or plastic parts damaged. If so, please do not use again.
- Before using the instrument, please check whether the probe is cracked or damaged. If so, please replace the same type and the same electrical specifications.
- Do not exceed the lowest rated Category of Measurement (CAT) rating in products, probes or accessories.
- Do not measure the current when the probe is inserted into the input jack.
- Please comply with local and national safety code. Wear personal protection equipment to prevent being damaged by electric shock and electric arc due to exposed hazardous live conductor.

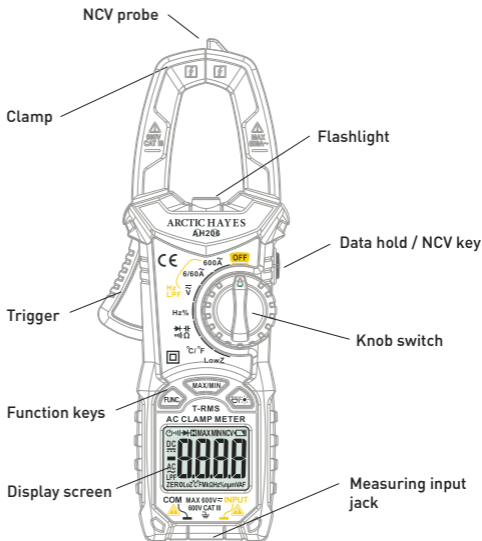
Safety Instructions

- When it shows low battery indicator, please replace the battery in time in case of any measurement error.
- Do not use the instrument around explosive gas, steam or in wet environment.
- When using the probe, please put your fingers behind the finger protector of the probe.
- When measuring, please connect the neutral wire or the ground wire firstly, then connect the live wire; When disconnecting, please disconnect the live wire firstly, then disconnect the neutral wire and ground wire.
- Before opening the outer cabinet or battery cover, please remove the probe on the instrument. Do not use the instrument in the circumstances that the instrument is taken apart or battery cover is opened.
- It only meets the safety standards when the instrument is used together with the supplied probe. If the probe is damaged and needs to replace, the probe with same model number and same electrical specifications must be used for replacement.

Physical Appearance

Safety symbols	
	High Voltage Warning
	AC (Alternating current)
	DC (Direct current)
	AC or DC
	Warning, important safety signs
	Ground
	Fuse
	Equipment with double insulation/reinforced insulation protection
	Battery under voltage
	Product complies with all relevant European laws
	The additional product label shows that do not discard this electrical/electronic product into household garbage.
CAT.II	Class II measurements are suitable for testing and measuring circuits directly connected to power points (sockets and similarities) of low voltage power installations.
CAT.III	Class III measurement is suitable for testing and measuring circuits connected to the distribution part of low voltage power supply devices in buildings.
CAT.IV	Class IV measurements are suitable for testing and measuring circuits connected to the power supply of low voltage power installations in buildings.







Physical Appearance



Height - 194mm
Width - 73.5mm
Depth - 34.5mm


Weight - 189g
(without batteries)

Specification


Operation	
Max/Min measurement	press key "MAX/MIN" View Maximum and Minimum, press key "  and keep more than 2 seconds to exit the maximum and minimum measurements.
Data hold	Press "  key, enter data hold mode/ cancel data hold mode.
Backlight	Press "  key, turn on or off the backlight, or automatically turn off the backlight after 20 seconds.
Flashlight	Press "  key and keep more than 2 seconds to turn on or off flashlight
Non-contact AC Voltage Detection (NCV)	At any position, press the "  key and hold for more than 2 seconds to turn NCV on or off. NCV function can also be turned off by pressing any key or turning knob switch.
Auto power off	<p>No operation in 15 minutes. The instrument will shut down automatically to save battery energy. After automatic shutdown, press any key to restore the working state of the instrument.</p> <p>If you press the " key and hold, then turn on the meter power, the automatic shutdown function will be cancelled. Reboot can restore automatic shutdown function.</p>

Specification

Environment condition of using	
CATIII	600V
Pollution level	2
Altitude	<2000m
Working environment temperature & humidity	0~40°C (<80% RH, <10°C non condensing).
Storage environment temperature & humidity	-10~60°C (<70% RH, remove the battery).

General technical specifications	
Temperature coefficient:	0.1 x accuracy/°C (<18°C or >28°C).
MAX. Voltage between terminals and earth ground	600V
Display	6000 counter readout. Automatically display the unit symbols according to the shift of the measurement function.
Over range indication	Displays "OL".
Low battery indication	when the battery voltage is lower than the normal working voltage, "  " will be displayed.
Input polarity indication	automatically display "-".
Power requirement:	2 x 1.5V AAA batteries




AC current measurement

1. Turn the knob to “ \tilde{A} ” and select Proper range (6A,60A or 600A),
2. Then press the trigger to open the clamp, clamp the conductor to be tested, slowly release the trigger until the clamp are completely closed, and determine whether the conductor to be tested is clamped in the centre of the pliers, if the conductor is not in the centre of the pliers, additional errors will occur.
3. Read the measurement results from the display screen.
4. When the measurement result is greater than 3A, the orange backlight will on.
5. When measuring AC current, press “” key to view frequency or LPF function measurement.

Warning.

When measuring high voltage, pay special attention to safety, so as not to be subjected to electric shock or personal injury. In order to ensure the measurement accuracy, the measured conductor must be placed in the centre of the clamp, otherwise additional errors will occur.

AC/DC voltage measurement

1. Turn the knob to “ \bar{v} ” Switching AC or DC Current Measurement Function by Pressing “” Key.
2. Insert the red probe in “INPUT” jack, insert the black probe in “COM” jack
3. Contact the probe to the measured circuit (connect to the measured power supply or circuit in parallel), measure the voltage.
4. Read the measurement result on the screen.
5. When the measurement result is greater than 80V, the orange backlight will on.
6. When measuring AC voltage, press “” key to view frequency or LPF function measurement.
7. When low impedance measurements are required, the knob is turned to LowZ position. Switching AC or DC Voltage Measurement Function by Pressing “” Key.

Warning.


The voltage above 600V can't be measured; otherwise the instrument may be damaged. Pay special attention to safety when measuring high voltage to avoid electric shock or personal injury.

Caution.

High impedance voltage measurement: 10M Ω

Low impedance voltage measurement: 300K Ω

Frequency/duty measurement

1. Turn the knob to Hz%, Switching frequency or duty Measurement Function by Pressing “” Key.
2. Insert the red probe in “INPUT” jack, insert the black probe in “COM” jack.
3. Contact the probe to the measured circuit (connect to the measured power supply or circuit in parallel).
4. Read the measurement result on the screen.



Warning.

The voltage above 600V can't be measured; otherwise the instrument may be damaged. Pay special attention to safety when measuring high voltage to avoid electric shock or personal injury.

Caution.

To avoid damaging the instrument or equipment, do not input a voltage greater than 10V.

Resistance measurement

1. Turn the knob to “” Switching resistance Measurement Function by Pressing “” Key.
2. Insert the red probe in “INPUT” jack, insert the black probe in “COM” jack
3. Contact the probe to the measured circuit or resistance.
4. Read the measurement result on the screen.

Warning.

When measuring resistance on the line, disconnect the power supply and discharge all the high-voltage capacitors. Otherwise, the instrument may be damaged and may be struck by electric shocks.



Caution.

To avoid damaging the instrument or equipment, do not input a voltage greater than 10V.

Note.

When measuring resistance on a circuit, the reading may be affected by other circuits.

Continuity test

1. Turn the knob to “”, Switching continuity test Function by Pressing “” Key.
2. Insert the red probe in “INPUT” jack, insert the black probe in “COM” jack
3. Contact the probe to the measured circuit or resistance.
4. If the resistance or circuit of the measured resistance is less than 30Ω , the buzzer sounds and the orange backlight on; the screen displays the resistance.

Warning.

When measuring capacitance on the line, disconnect

the power supply and discharge all the high-voltage capacitors. Otherwise, the instrument may be damaged and may be struck by electric shocks.



Caution. 

To avoid damaging the instrument or equipment, do not input a voltage greater than 10V.

Note. 

When measuring resistance on a circuit, the reading may be affected by other circuits.

Diode test

1. Turn the knob to “”, Switching diode test Function by Pressing “” Key.
2. Insert the red probe in “INPUT” jack, insert the black probe in “COM” jack.
3. Touch the diode anode with the red probe, the black probe contacts the diode cathode.
4. Read the measurement result on the screen.



Warning. 

When measuring diode on the line, disconnect the power supply and discharge all the high-voltage capacitors. Otherwise, the instrument may be damaged and may be struck by electric shocks.

Caution.

To avoid damaging the instrument or equipment, do not input a voltage greater than 10V.

Capacitance measurement

1. Turn the knob to “”, Switching capacitance Function by Pressing “” Key
2. Insert the red probe in “INPUT” jack, insert the black probe in “COM” jack.
- 3 Contact the probe to the measured circuit or Capacitance.
4. Read the measurement result on the screen.

Warning.

When measuring capacitance on the line, disconnect the power supply and discharge all the high-voltage capacitors. Otherwise, the instrument may be damaged and may be struck by electric shocks.


Caution.

To avoid damaging the instrument or equipment, do not input a voltage greater than 10V.

Note.

When measuring capacitance greater than 100uF, it will take a long time to measure correctly.

Temperature Measurement

1. Turn the knob to the “ °C / °F “.
2. Insert the black side of K Type adapter into the negative (COM) jack and the red side of K Type adapter into the positive input “” making sure to observe the correct polarity.
3. Contact the measured object with the thermocouple probe and read the result from the display.

Note 1: The cold junction of thermocouple is placed inside the instrument, and it needs longer heat balance with the measuring environment.


Note 2: Using K type thermocouple probe.

Calibration


To maintain the integrity of measurements, Arctic Hayes recommends that the multimeter is calibrated annually at an approved Calibration Laboratory.

Arctic Hayes can offer this service, please contact sales@arctic-hayes.com or call +44(0)113 271 5245 to arrange.

Non-contact AC Voltage Detection (NCV)

1. At any position, hold down the “” key for more than 2 seconds, “click” a sound, the instrument shows the “NCV” character, and then enter the NCV detection function.
2. Then NCV probe gradually approaches the detected point.
3. When the signal of weak electromagnetic field is sensed, the character “--- L” is displayed, and the buzzer make a slow beeping sound.
4. When the signal of strong electromagnetic field is sensed, the character “--- H” is displayed, and the buzzer make a slow beeping sound.
5. Press key more than 2 seconds or turn knob to exit NCV detection function.

DC Voltage		
Range	Resolution	Accuracy
600mV	0.1mV	±(0.5% reading +3)
6V	0.001V	
60V	0.01V	
600V	0.1V	


Continuity Test		
	<30Ω, the buzzer sounds and the orange backlight on	Test Voltage Approx. 1V Overload protection: 600V

Accuracy Specification

AC Voltage		
Range	Resolution	Accuracy
6V	0.001V	±[0.8% reading +5]
60V	0.01V	
600V	0.1V	

AC Current		
Range	Resolution	Accuracy
6A	0.001A	40~400Hz: ±[2.5% reading +5] other: ±[3.0% reading +10]
60A	0.01A	
600A	0.1A	

Capacitance		
Range	Resolution	Accuracy
10nF	0.001nF	±[4.0% reading +5]
100nF	0.01nF	
1000nF	0.1nF	
10μF	0.001μF	
100μF	0.01μF	
1000μF	0.1μF	
10mF	0.001mF	
100mF	0.01mF	

Diode Test		
	It displays the approximate forward voltage of the diode	Forward DC current is about 2.5mA Reverse DC voltage is about 3V Overload protection:600V

Accuracy Specification

Resistance		
Range	Resolution	Accuracy
600Ω	0.1Ω	±(1.0% reading +5)
6kΩ	0.001kΩ	
60kΩ	0.01kΩ	
600kΩ	0.1kΩ	
6MΩ	0.001MΩ	
60MΩ	0.01MΩ	

Frequency / Duty		
Range	Resolution	Accuracy
10Hz	0.001Hz	±(1.0% reading +3)
100Hz	0.01Hz	
1000Hz	0.1Hz	
10kHz	0.001kHz	
100kHz	0.01kHz	
1000kHz	0.1kHz	
10MHz	0.001MHz	±(3.0% reading +3)
1~99%	0.1%	

Temperature			
Range	Resolution	Temperature	Accuracy
°C	1°C	-40°C ~1000°C	±(1.0%+3)
°F	1°F	-40°F ~1832°F	±(1.0%+3)


Thermocouple rating		
Range	Temperature	Accuracy
°C	-40°C ~200°C	±1.5°C
°F	-40°F ~392°F	±1.5°F

Battery Replacement

The instrument uses two AAA 1.5V batteries. Please install or replace the batteries according to the following steps.

1. Turn off the power of the instrument and remove the probe.
2. Use screwdriver to unscrew the screw that fixes the battery cover and remove the battery cover.
3. Remove the old battery and install the new battery according to the polarity of the battery marked in the battery box.
4. After installing the new battery, cover the battery cover and lock the screw.


Warning.

To avoid the possibility of electric shock or personal injury caused by incorrect reading, replace the battery immediately when the “” sign is displayed on the display screen. Please use the same type of batteries, do not use substandard batteries.

In order to ensure safe operation and maintenance of the instrument, please take out the battery when not in use for a long time, in order to prevent damage to the product caused by battery leakage.

Limited warranty

1 year warranty against any manufacturing defects or faulty workmanship. This warranty does not cover fuses, disposable batteries or damage from accident, neglect, misuse, alteration, contamination or abnormal conditions of operation or handling.

 **WEEE Directive 2012/19/EU At the end of the product life, dispose of the instrument & batteries in a corresponding recycling centre. Do not dispose of the unit with the usual domestic refuse. Do not burn the product.**



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