

HOLDPEAK 6208 OPERATION MANUAL

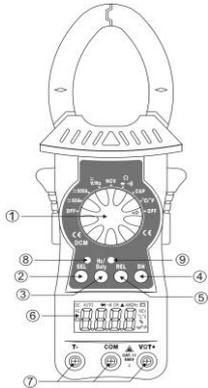
This LCD Auto Range Digital AC (True RMS)/DC clamp multimeter is a portable, 6000digits multimeter. It is ideally suited for field, laboratory, shop and home applications.

1. SAFETY INFORMATION

The following safety information must be observed to insure maximum personal safety during the operation at this meter.

- 1) When measuring voltage ensure that instrument is not switched to the current range, resistance range, diode and continuity range, capacitance range or temperature range.
- 2) Use extreme care when measuring voltage above 50V, especially from sources where high energy is existed.
- 3) Avoid making connections to "live" circuits whenever possible.
- 4) Before making resistance measurements, diode or continuity test, capacitance test or temperature test, ensure that the circuit under test is de-energized.
- 5) Always ensure that the correct function and range is selected.
- 6) Extreme care should be taken when using the instrument to conjunction with a current transformer connected to the terminals if an open circuit occurs.
- 7) Ensure that the test leads and probes are in good condition with no damage to the insulation.
- 8) Take care not to exceed the over-load limits as given in the specifications.
- 9) Before opening the cover of the battery cabinet to replace batteries, disconnect the test leads from any external circuit, set the selector switch to "OFF" position.
- 10) Keep the fingers after the protection ring when measuring through the instrument lead.
- 11) Change the battery when the symbol "  " appears to avoid incorrect data

2. Panel Layout



- 1) Rotary Switch: use this switch to select functions and ranges.
- 2) SELECT key: This key work on the " $\Omega \rightarrow \rightarrow$ " range, Push the key to choose resistance, diode, continuity test. And on the current range, change to DC/AC.
- 3) Hz/Duty key: In Voltage or current range, push the key, you can measure the Hz, push again, can measure the duty.
- 4) HOLD light switch: Pressing this button the present display value will be locked and the "H" symbol will appear, push it again to exit HOLD and the "H" symbol disappear.
- 5) REL switch: Pressing this button, the meter enters relative measuring mode
- 6) LCD Display
- 7) T- Input Jack, COM Input Jack, V Ω /T+ Input Jack.
- 8) Photo sensor: The photo sensor can reaction to the ambient brightness range, then automatically control the LCD backlight to lighten or go out.
- 9) The NCV light

3. SPECIFICATIONS

3.1 GENERAL SPECIFICATIONS

Display: 3 3/4 digit LCD with a max. reading of 3999.

Range control: Auto range control.

Polarity: Automatic negative polarity indication.

Zero adjustment: Automatic.

Over range indication: Only the "OL" display.

Low battery: The "" is display when the battery voltage is below 2.2V

Safety Standards: The meter is up to the standards of IEC1010

Double Insulation, Pollution

Degree 2, Over voltage Category III.

Clamp opening size: 34mm.

Operating Environment: Temperature 32~104° F (0~40°C), humidity <80%RH.

Storage Environment: Temperature -4~140° F (-20~60°C), humidity <90%RH.

Power supply: 3 x 1.5V AAA batteries.

Dimension: 193(H) x 73(W) x 26(D) mm

Weight: Approx. 325 g (including battery)

3.2 ELECTRICAL SPECIFICATIONS

Accuracies are \pm (% of reading +number in last digit)

at 23 \pm 5°C, \leq 70%RH.

3.2.1 DC Voltage

Range	Accuracy	Resolution
600mV	0.8% of rdg+5digits	0.1mV
6V	0.5% of rdg+5 digits	1mV
60V		10mV
600V		100mV

Overload protection: 600V DC/600Vrms AC

Impedance: 10M Ω , More than 100M Ω on 400mV scale

3.2.2 AC Voltage (True RMS)

Range	Accuracy	Resolution	Frequency
600mV	1.5% of rdg+5digits	0.1mV	50~100Hz
6V	1.0% of rdg+5 digits	1mV	50~400Hz
60V		10mV	
600V	1.5% of rdg+5digits	100mV	

Average sensing, calibrated to rms of sine wave

Overload protection: 600V DC/600Vrms AC

Impedance: 10M Ω .

3.2.3 DC Current

Range	Accuracy	Resolution	Frequency
60A	2.5% of rdg+8 digits	0.01A	
600A		0.1A	

Overload protection: 600Arms within 60 seconds

3.2.4 AC Current (True RMS)

Range	Accuracy	Resolution	Frequency
60A	2.5% of rdg+8 digits	0.01A	50~60Hz
600A		0.1A	

Average sensing, calibrated to rms of sine wave

Overload protection: 600Arms within 60 seconds

3.2.5 Resistance

Range	Accuracy	Resolution
600 Ω	1% of rdg+8 digits	0.1 Ω
6k Ω	1% of rdg+5 digits	1 Ω
60k Ω		10 Ω
600k Ω		100 Ω
6M Ω		1k Ω
60M Ω	2.0% of rdg+5 digits	10k Ω

Overload protection: 250V DC/250Vrms AC

3.2.6 Capacitance

Range	Accuracy	Resolution
9.999nF	3.0% of rdg+10 digits	10pF
99.99nF	2.5% of rdg+5 digits	100pF
999.9nF		
9.999 μ F	5.0% of rdg+10 digits	1nF
99.99 μ F		10nF
999.9 μ F		100nF
9.999mF		1 μ F
99.99mF	10% of rdg+20 digits	10 μ F

Overload protection: 250V DC/250Vrms AC

3.2.7 Frequency

Range	Accuracy	Resolution	Sensitivity
9.999Hz	0.5% of rdg+5digits	0.001Hz	\geq 7V/ rms
99.99Hz		0.01Hz	
999.9Hz		0.1Hz	
9.999kHz		1Hz	
99.99kHz		10Hz	
100kHz		100 Hz	

Duty Range: 1%~99% Accuracy 0.2%

Overload protection: 250V DC/250Vrms AC

3.2.8 Temperature(NiCr-NiSi sensor)

Range	Accuracy	Resolution
$^{\circ}$ C	-20~1000 $^{\circ}$ C	2.5% of rdg+3 digits
$^{\circ}$ F	-4~1832 $^{\circ}$ F	2.5% of rdg+6 digits

Overload protection: 250V DC/250Vrms AC

3.2.9 Diode and Audible continuity test

Range	Description	Test condition
	Display read approx. Forward voltage of diode.	Forward DC current approx. 1.0mA Reversed DC voltage approx. 3.0V
	Built-in buzzer sounds if resistance is less than 50 Ω	Open circuit voltage approx. 1.0V

Overload protection: 250V DC/250Vrms AC

4. MEASURING INSTRUCTION

4.1 Voltage measurement

- 1) Connect the black test lead to "COM" socket and red test lead to the "VQT+" socket.
- 2) Set the Rotary Switch to desired "V \surd " position, Push the SELECT button to select DC or AC test, and connect the probes across the source or load under measurement.
- 3) Read the result from the LCD panel.

4.2 DC Current Measurement

- 1) Set the Rotary Switch to desired "60A \surd " or "600A \surd " position, Push the SELECT button to select DC test.
- 2) Press the "REL" the display show "0".

Note:

As the jaw core may remain some magnetic force after using for a while. If the display can not reach "0" When Press the "REL", please take following process to correct it:

- A. To change the direction of the measured DC current.
- B. Open the JAWS several times.
- C. If the result display "OL" When measuring DCA, please turn the direction of the clamp and measuring again. For insure veracity of measuring, please select "600A" when the object DCA over 60A.

- 3) Open the clamp by pressing the jaw-opening handle and insert the cable (one cable only) to be measured into the jaw.
- 4) Close the clamp and get the reading from the LCD panel.

Note:

- a) Before this measurement, disconnect the test lead with the meter for safety.
- b) In same occasion that the reading is hard to read, push the D.HOLD button and read the result later.

4.3 AC Current measurement

- 1) Set the Rotary Switch to desired "60A \surd " or "600A \surd " position, Push the SELECT button to select AC test.
- 2) Open the clamp by pressing the jaw-opening handle and insert the cable (one cable only) to be measured into the jaw.
- 3) Close the clamp and get the reading from the LCD panel.

Note:

- a) Before this measurement, disconnect the test lead with the meter for safety.
- b) In same occasion that the reading is hard to read, push the D.HOLD button and read the result later.

4.4 Resistance measurement

- 1) Connect the black test lead to "COM" socket and red test lead to the "VQT+" socket.
- 2) Set the Rotary Switch to desired " Ω \rightarrow \rightarrow " position, the present function is resistance measurement, if it is other function, push the the SEL button to select resistance measurement.
- 3) Connect the probes across circuit to be tested.
- 4) Read the result from the LCD panel.

Caution: Ensure that the circuit to be tested is "dead".

Max.input over-load: 250V rms<10sec

4.5 Capacitance measurement

- 1) Connect the black test lead to "COM" socket and red test lead to the "VQT+" socket.
- 2) Set the Rotary Switch to desired "CAP" position
- 3) Connect the probes to the capacitance to be tested.
- 4) Read the result from the LCD panel.

Caution:

- a) Capacitors should be discharged before being tested.
- b) When testing large capacitance, it will take longer time before the final indication (For 1uF~99.99mF range, it will take about 4~7 seconds).

c) When testing small capacitance, to assure the measurement accuracy, first press "REL", then go on measuring.

Max.input over-load: 250V rms<10sec

4.6 Frequency/Duty measurement

- 1) Connect the black test lead to "COM" socket and red test lead to the "VQT+" socket (test at current range, do not).
- 2) Set the Rotary Switch to ACV or ACA range, Connect the probes to the point of measurement;
- 3) push the Hz/Duty key to select Frequency or Duty test.
- 4) read the frequency or Duty from the display.

Max.input over-load: 250V rms<10sec

4.7 Temperature measurement

- 1) Connect the black test lead of the sensor to "T-" socket and the red test lead to the "VQT+" socket.
- 2) Set the Rotary Switch to " $^{\circ}$ C/ $^{\circ}$ F" position.
- 3) Push the SELECT button to select $^{\circ}$ C OR $^{\circ}$ F test, Put the sensor probe into the temperature field under measurement.

- 4) Read the result from the LCD panel.

Max.input over-load: 250V rms<10sec

- A. The temperature function shows the ambient temperature when did not insert the thermocouple.
- B. This meter enclosure WRNM-010 type contact thermocouple limit temperature is 250 $^{\circ}$ C (300 $^{\circ}$ C shortly);
- C. Please don't change the thermocouple at will, otherwise we can't guarantee to measure accuracy;
- D. Please don't importing the voltage in the temperature function.
- E. Please use special probe for test high temperature.

4.8 Diode test

- 1) Connect the black test lead to "COM" socket and red test lead to the "VQT+" socket.
- 2) Set the Rotary Switch to " Ω \rightarrow \rightarrow " position.
- 3) Push "SELECT" to select diode test.
- 4) Connect the black and red test probe to the cathode (-) and anode (+) ends of diode to be tested respectively, read the forward voltage drop (junction) value from the display. If reverse connected the probes to diode, display shows over-load.

Caution: Ensure that the circuit to be tested is "dead".

Max.input over-load: 250V rms<10sec

4.9 Audible continuity test

- 1) Connect the black test lead to "COM" socket and red test lead to the "VQT+" socket.
- 2) Set the Rotary Switch to " Ω \rightarrow \rightarrow " position.
- 3) Push "SELECT" to select audible continuity test.
- 4) Connect the probes across circuit to be tested, the beeper sounds continuously if the resistance is less than approx. 50 Ω .

Caution: Ensure that the circuit to be tested is "dead".

Max.input over-load: 250V rms<10sec

4.9 NCV test

- 1) Set the Rotary Switch to "NCV" position, The meter display EF.
- 2) Put the left clamp close to the wire or conductor by test.
- 3) The LED flashing and the beeper sounds, the LED flashing speed said the ac voltage high or low.

4.11 Relative measurement

Press "REL", you can measure the relative value and "REL" appears on the display, the auto range mode be changed to manual range mode. Press again, return to the previous condition and "REL" disappears, but you can not go back to auto range mode. In "Hz" measurement, you can not measure the relative value.

5. CARE AND MAINTENANCE

5.1 CARING FOR YOUR MULTIMETER

Your Digital Multimeter is an example of superior design and craftsmanship. The following suggestions will help you care for the multimeter so you can enjoy it for years.

- 1) Keep the multimeter dry. If it gets wet, wipe it dry immediately. Liquids can contain minerals that can corrode electronic circuits.
- 2) Use and store the multimeter only in normal temperature environments. Temperature extremes can shorten the life of electronic devices, damage batteries and distort or melt plastic parts.
- 3) Handle the multimeter gently and carefully. Dropping it can damage the circuit boards and case, and can accuse the multimeter to work improperly.
- 4) When take current measurement, keep the cable at the center of the clamp will get more accurate test result.
- 5) Keep the multimeter away from dust and dirt, which can cause premature wear of parts.
- 6) Wipe the multimeter with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the multimeter.
- 7) Use only fresh batteries of the required size and type. Always remove old or weak batteries. They can leak chemicals that destroy electronic circuits.
- 8) Please take out the battery when not using for a long time.

5.2 1.5-Volt battery replacement

- 1) Ensure the instrument is not connected to any external circuit. Set the Rotary Switch to OFF position and remove the test leads from the terminals.
- 2) Open the cover of the battery cabinet by a screwdriver.
- 3) Replace the old batteries with the same type batteries.
- 4) Close the battery cabinet cover and fasten the screw.

