

OWNER'S MANUAL

HH2002

AUTO-RANGING

CLAMP METER

IMPORTANT!

Read and understand this manual before using the tester.

Failure to understand and comply with safety rules and operating Instructions can result in serious or fatal injuries and/or property damage.

1, DESCRIPTION

Thanks for choosing our product as your reliable tool.

The HH2002 auto-ranging clamp multimeter is designed for measuring resistance, DC/AC voltage, DC/AC current, temperature, Freq, and checking continuity.

This meter is designed for indoor use at altitude up to 2000m, temperature between 5°C and

40°C, the maximum humidity 80% for temperature up to 31° C decreasing linearly to 50% relative

humidity at 40° C and pollution degree 2.

The LCD display is clear and easy to read. The functions of auto-range, auto power shut-off,

over-range protection and low battery indication provide you the maximum convenience.

2, SAFETY INSTRUCTIONS

This meter has been designed for safe use, depending on IEC61010.CAT II , but must be operated with caution. The rules listed below must be carefully followed for safe operation.

2.1 NEVER operate this device when the back cover is open or not properly attached in its place.

2.2 Make sure that the insulation of leads is not damaged.

2.3 When BAT appears on the display, change both batteries for the accuracy of measurement.

2.4 NEVER apply voltage to the meter that exceeds the specified maximum: DC1000V or AC750V.

2.5 USE extreme caution when working with voltage over the 36V safe point.

2.6 NEVER change the position of the function switch during measuring.

2.7 CHOOSING the right positions of all function switches before testing.

2.8 NEVER change any connection on the circuit board of the meter.

2.9 USE only damp cloth or mild detergent to clean the outside of the meter.

2.10 Safety Symbols:



Hazardous voltage



Read the manual first



Connect to common ground

SPECIFICATIONS

Function	Range	Resolution	Accuracy
VDC	400mV 4V 40V 400V 600V	0.1mV 0.001V 0.01V 0.1V 1V	$\pm(1.0\%$ of reading+4 digits)
VAC	4V 40V 400V 600V	0.001V 0.01V 0.1V 1V	$\pm(1.5\%$ of reading+4 digits) @50Hz,60Hz,and 400Hz $\pm(3.5\%$ of reading+4 digits) 40 to 1 kHz
ADC	400A 600A	0.1A 1A	$\pm(1.5\%$ of reading+4 digits)
AAC	300A 600A	0.1A 1A	$\pm(1.5\%$ of reading+4 digits) @50Hz,60Hz,and 400Hz $\pm(3.5\%$ of reading+4 digits) 40 Hz to 1 kHz
Resistance	400 Ω 4k Ω 40k Ω 400k Ω	0.1 Ω 1 Ω 10 Ω 100 Ω	$\pm(1.0\%$ of reading+4 digits)
Temperature	0° F to 2000° F	1° F	$\pm(3.0\%$ of reading+4 digits)
Frequency	5Hz-100kHz 1000Hz 10kHz 50kHz	0.01Hz 0.1Hz 1Hz 10Hz	$\pm(1.0\%$ of reading+4 digits)

NOTE: Accuracy specifications consist of two elements:

. “% reading” - This is the accuracy of the measurement circuitry.

. “+ digits” - This is the accuracy of the analog-to-digital(AD)converter.

SPECIFICATIONS(continued)

Input Impedance-10M Ω

Polarity- Automatic (no indication for positive polarity); minus(-)

Sign for negative polarity

Overrange Indication in Continuity Check-400.0M and will

Appear in the display with the “4” flashing

Overrange Indication in Resistance Measurement - 40.0M Ω will

Appear in the display with the “4” flashing

Low Battery Indication-BATT is displayed in the upper part of

The display if battery voltage drops below operating voltage

Continuity-Audible signal will sound if the resistance is less than 36 Ω .

NOTE: The display will read up to 400 Ω in the continuity mode

Frequency Range Sensitivity-The meter will read frequency

From 10 to 600V input

Overload Protection-The meter is protected in the Resistance Range

By PTC (Positive Temperature Coefficient) Thermistor up to 600V

Battery -Requires one 9V battery (sold separately)

Weight-13 3/4 oz. (390g)

Size-3 1/2x9 1/8x1 3/4 in. (90mmx232mmx45mm)

Accessories Included-One pair 44-in. Shielded banana-type Plug test leads with screw-on alligator clips and carrying case
Optional Accessories-Temperature Probe (TCK01),sold separately

INSTALLING THE BATTERY

WARNING: To avoid electric shock, disconnect the test leads from Any source of voltage before removing the back of the meter Or the battery door.

- 1.Disconnect the test leads from the meter.
- 2.Open the battery door by removing the screw and lifting up on the door.
- 3.Insert the battery into the connector and put them back into The battery compartment.
- 4.Put the battery door back in place. Insert the screw and tighten it securely.

WARNING: To avoid electric shock, do not operate your meter until the Back cover and the battery door are in place and are fastened securely.

NOTE: If your meter does not work properly, please check the battery To make sure it is still good and properly inserted.

OPERATING INSTRUCTIONS

WARNING: Risk of electrocution. High-voltage circuits, both AC and DC, Are very dangerous and should be measured with great care.

- 1.ALWAYS turn the meter OFF when not in use. The meter also has an "Auto Off" feature that automatically shuts the meter OFF if 30 minutes elapse between uses. To turn the meter back ON if "Auto Off" has occurred, press and release the Power pushbutton twice.

NOTE: Do not leave the meter in the "Auto Off" mode as there is a slight Drain on the battery in this mode. Press and release the Power pushbutton Once to turn the meter fully OFF.

- 2.Operation of the meter should be restricted to temperatures between 32° to 122° F(0° to 50° C) and humidities below 80% RH.
- 3.For input impedance and other data for each function and range, see Specifications section of this manual.
- 4.For measurement of AC/DC voltage and Frequency, insert the black Test lead banana plug into the negative (-) jack (COM) and the red test Lead banana plug into the positive (+)jack (V/F).
- 5.For measurement of Resistance and Continuity Check, insert the black Test lead banana plug into the negative(-) jack (COM) and the red test Lead banana plug into the positive (+) jack (Ω /

AC CURRENT MEASUREMENTS

WARNING: To avoid electric shock, do not measure current on any Circuit whose voltage exceeds 600V AC.

1. Press and release the Power pushbutton.
2. Press and release the A pushbutton. (AC and A will appear in the display).
3. Press the trigger to open the transformer jaw and insert the wire whose current is to be measured into the jaw. Release the trigger to close the jaw. The ends of the jaw must be fully closed and free of dirt or other Contaminants to make accurate readings.

NOTE: Do not put more than one wire inside the transformer jaw.

- 5.Read the current in the display. The display will indicate the proper Decimal point, value and symbols (AC and A).

DC CURRENT MEASUREMENTS

WARNING: To avoid electric shock, do not measure current on Any circuit whose voltage exceeds 600V DC.

1. Press and release the Power pushbutton. (400.0M and will appear in the display with the "4" flashing).
2. Press and release the A pushbutton. (AC and A will appear in the display).
3. Press and release the AC/DC pushbutton. (DC and A will appear in the display).
4. If the display is other than 0000, use a small screwdriver and adjust the Zero Adjust control until the display reads 0000.
5. Press the trigger to open the transformer jaw and insert the wire whose Current is to be measured into the jaw. Release the trigger to close The jaw. The ends of the jaw must be fully closed and free of dirt or other Contaminants to make accurate readings.
NOTE: Do not put more than one wire inside the transformer jaw.
6. Read the current in the display. The display will indicate the proper Decimal point, value and symbols (DC and A).

DC VOLTAGE MEASUREMENTS

CAUTION: Do not measure DC voltage if a motor on the circuit is being Switched ON or OFF. Large voltage surges that can damage the meter May occur during the ON or OFF operations

1. Insert the black test lead banana plug into the negative (-) jack (COM) And the red test lead banana plug into the positive(+) jack (V/F).
2. Press and release the Power pushbutton. (400.0M and will appear in the display with the "4" flashing).
3. Press and release the V pushbutton. (AC and V will appear in the display).
4. Press and release the AC/DC pushbutton. (DC and V will appear in the display).
5. Touch the test probe tips to the circuit under test. Be sure to observe the correct polarity. (Red lead to positive, black lead to negative).
6. Read the voltage in the display. The display will indicate the proper decimal point, value and symbols (DC and V). If the polarity is reversed, the display will show a minus (-) before the value.

AC VOLTAGE MEASUREMENTS

WARNING: Risk of Electrocution. The probe tips may not be long enough To contact the live parts inside some 240V outlets for appliances because The metal contacts are recessed deep in the outlets. As a result, the Reading may show 0 volts when the outlet actually has voltage on it. Make sure the probe tips are contacting the metal contacts inside the 240V outlet before assuming that no voltage is present.

CAUTION: Do not measure AC voltage if a motor on the circuit is being Switched ON or OFF. Large voltage surges that can damage the meter May occur during the ON or OFF operations.

1. Insert the black test lead banana plug into the negative (-) jack (COM) And the red test lead banana plug into the (V/F) jack.
2. Press and release the Power pushbutton. (400.0M and will appear in the display with the "4" flashing).

3. Press and release the V pushbutton. (AC and V will appear in the display).
4. Touch the test probe tips to the circuit under test.
5. Read the voltage in the display. The display will indicate the proper decimal point, value and symbols (AC and V).

RESISTANCE MEASUREMENTS

WARNING: To avoid electric shock, disconnect power to the unit under Test and discharge all the capacitors before performing any resistance Measurements. Remove the batteries and unplug the line cord.

1. Insert the black test lead banana plug into the negative (-) jack (COM) And the red test lead banana plug into the positive (+) jack (Ω /).
2. Press and release the Power pushbutton. (400.0M and will appear in the display with the "4" flashing).
3. Press and release the Ω / pushbutton. (40.00M Ω will appear in the display with the "4" flashing).
4. Touch the test probe tips across the circuit or part under test.
5. Read the resistance in the display. The display will indicate the proper decimal point, value and symbols (Ω or k Ω or M Ω).

CONTINUITY CHECK

WARNING: To avoid electric shock, never measure continuity on Circuits or wires that have voltage on them.

1. Insert the black test lead banana plug into the negative(-) jack (COM) And the red test lead banana plug into the Ω / jack.
2. Press and release the Power pushbutton. (400.0M and will appear in the display with the "4" flashing).
3. Touch the test probe tips to the circuit or wire you wish to check.
4. If the resistance is less than 36 Ω , the audible signal will sound. The display will also show the actual resistance. The display will indicate the proper decimal point, value and symbols (Ω and).

NOTE: The display will read up to a maximum of 400 ohms in the Continuity mode.

FREQUENCY MEASUREMENTS

NOTE: The meter will read frequency of voltages from 10V to 600V.

1. Insert the black test lead banana plug into the negative(-) jack(COM) And the red test lead banana plug into the positive(+) jack(V/F).
2. Press and release the Power pushbutton. (400.0M and will appear in the display with the "4" flashing).
3. Press and release the FREQ pushbutton. (Hz will appear in the display).
4. Touch the test probe tips across the component under test.
5. Read the frequency in the display. The display will indicate the proper decimal point, value and symbols (Hz or kHz).

TEMPERATURE MEASUREMENTS

WARNING: To avoid electric shock and damage to the meter, do not Measure temperatures of metal parts with a voltage present on them.

NOTE: Temperature measurements require the purchase of the Temperature Probe (Item No.82394) from your Sears store.

1. Insert the Temperature Probe into the socket for Temperature Probe, making sure to observe the correct polarity.
2. Press and release the Power pushbutton.(400.0M and will appear in

- the display with the "4" flashing).
3. Press and release the ° F pushbutton. (° F will appear in the display).
 4. Touch the Temperature Probe head to the part whose temperature you wish to measure. Keep the probe touching the part under test until the reading stabilizes. (About 30 seconds).
 5. Read the temperature in the display. The digital reading will indicate the proper value.

MIN/MAX MEASUREMENTS

The MIN function allows you to store the value of the lowest value measured. The MAX function allows you to store the value of the highest value measured.

NOTE: When you press and release the MIN/MAX pushbutton to go into MIN or MAX, the Auto Ranging feature is canceled and the meter will stay in the range it was in when the MIN/MAX pushbutton was pressed. If a Measurement being taken exceeds this range, the meter will display the Maximum value of that range with the far left-hand digit flashing.

The MIN/MAX mode will not work in the ° F range.

1. Follow the instructions for insertion of the leads and range selection for The type of measurement you wish to take.
2. Touch the test probes to the component or clamp the jaws around The wire whose variable you wish to measure.
3. Press and release the MIN/MAX pushbutton once for MIN (D-H and MIN Will appear in the display). Press and release the MIN/MAX pushbutton a Second time for MAX (D-H and MAX will appear in the display). As the value changes, the meter will show the lowest value measured if in The MIN mode, or the highest value measured if in the MAX mode.
NOTE: If you move the test leads to another component, the value may Or may not change, depending upon the range the meter is in. If moving To another component, turn the meter OFF and start again.
4. To cancel the MIN/MAX mode, turn the meter OFF. Using the MIN/MAX Pushbutton will cancel the MIN/MAX feature, but will not restore the Auto Ranging feature. The meter must be turned OFF to return to standard Operation with Auto Ranging.

DATA HOLD

When the D-H pushbutton is pressed, the data being displayed will be "frozen" in the display and D-H will appear in the display. Changes in the input signal will not change the display. The Data Hold feature can be used for all measurements.

1. Follow the instructions for insertion of the leads and range selection for The type of measurement you wish to take.
2. When you have a value you wish to "freeze", press and release the D-H pushbutton. The value will remain in the display until canceled.
3. To cancel the DATA HOLD mode, press and release the D-H pushbutton.

ADDITIONAL INSTRUCTIONS

For additional instructions on how to use a multimeter, purchase Sears book "Multimeters And Their Use For Electrical Testing" (Item No. 82303) at your local Sears store in the hardware department.

MAINTENANCE

This Multimeter is designed to provide years of dependable service, If the following care instructions are performed:

1. KEEP THE METER DRY. If it gets wet, wipe it off.
2. USE AND STORE THE METER IN NORMAL TEMPERATURES.
Temperature extremes can shorten the life of the electronic parts
And distort or melt plastic parts
3. HANDLE THE METER GENTLY AND CAREFULLY.
Dropping it can damage the electronic parts or the case.
4. KEEP THE METER CLEAN. Wipe the case occasionally with a damp
Cloth. DO NOT use chemicals, cleaning solvents or detergents.
5. USE ONLY A FRESH BATTERY OF THE RECOMMENDED
SIZE AND TYPE. Remove an old or weak battery so it does not leak
And damage the unit.
6. IF THE METER IS TO BE STORED FOR A LONG PERIOD OF TIME,
The battery should be removed to prevent damage to the unit.

REPLACING THE BATTERY

WARNING: To avoid electric shock, disconnect the test leads from any
Source of voltage before removing the back cover or the battery door.

1. When the battery become exhausted or drops below the operating
Voltage, BATT will appear in the upper right-hand side of the display.
The battery should be replaced.
2. Follow instructions for installing the battery. See installing the Battery
Section of this manual.
3. Dispose of the old battery properly.

WARNING: To avoid electric shock, do not operate your meter until
The back cover and the battery door are in place and fastened securely.