

Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

24a

CENTECH®

96308

6 FUNCTION MINI CLAMP METER



Visit our website at: <http://www.harborfreight.com>

Email our technical support at: productsupport@harborfreight.com

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.






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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

⚠ WARNING

Read this material before using this product. Failure to do so can result in serious injury. **SAVE THIS MANUAL.**

WARNING SYMBOLS AND DEFINITIONS

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	Addresses practices not related to personal injury.

IMPORTANT SAFETY INFORMATION

Safety Warnings and Precautions

WARNING

Read all safety warnings and all instructions.

Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

1. Electrical shock can cause death or injury! NEVER TOUCH exposed conductors of electricity.
2. **Test cable voltages with care.**
One use one hand when securing the clamp around cable.
3. Inspect the Meter before use. In addition to a general inspection, look specifically for:
 - a. Pay special attention to the insulation protecting the connectors.
 - b. Check the leads for exposed metal, damaged insulation, and continuity.
 - c. Replace damaged test lead immediately, before use.
4. Do not use the Meter if:
 - a. Either of the test leads are damaged in any way.
 - b. Test leads are dirty or have residue on them.
 - c. The battery is low.
 - d. Near any explosive gasses or fumes.
 - e. Any abnormal operation is detected. (If in doubt about the condition of the Meter, have it serviced before use.)
 - f. The battery cover is open.
5. Power this Meter using only the battery(ies) referenced in the Specifications Chart.

6. Use caution when working near voltages above 30 VAC rms, 42 VAC peak, or 60 VDC. Voltages this high present a risk of electric shock.
7. Disconnect the circuit's power before connecting the Meter in series, when measuring current.
8. Connect the common (COM) test lead first and disconnect it last.
9. Hold the probes with fingers behind guards.
10. Avoid electrical shock. Use extreme caution when working near uninsulated conductors or bus bars. Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and cabinet enclosures when testing voltages.
11. Observe work area conditions. Do not test voltages in damp or wet locations. Don't expose to rain. Keep work area clean and well lit.
12. Keep children away. Children must never be allowed in the work area.
13. Stay alert. Watch what you are doing, use common sense. Do not operate any Meter when you are tired.
14. Do not operate Meter if under the influence of alcohol or drugs. Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the Meter.
15. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.
16. Do not test voltage on circuits higher than 300 volts.
17. Do not test current on circuits higher than 400A.
18. Dress properly. Protective, electrically non-conductive clothes and nonskid footwear are recommended when working.
19. Wear ANSI-approved safety goggles during use.
20. Only use accessories intended for use with this Meter.
21. Avoid damaging Meter. Use only as specified in this manual.
22. Prior to testing resistance, diodes, or continuity; disconnect all power to the circuit and discharge all high-voltage capacitors.
23. Performance of this Meter may vary depending on battery condition.
24. Use the proper settings, terminals, techniques, and range for the tests performed. Start with the range stated in the instructions.
25. Do not apply voltage to the Test Leads when the Meter is in the Ohms testing setting. Damage can occur to the Meter.
26. Do not switch between testing modes with the Meter connected to a circuit.
27. Do not use the Meter at a setting marked as blank on the scale.
28. Have the Meter calibrated by a qualified technician every year to maintain accurate results.
29. Do not disassemble Meter; take it to a qualified technician when service or repair is required.
30. The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Button/Coin Battery Safety

WARNING

- **INGESTION HAZARD:** This product contains a button cell or coin battery.
- **DEATH** or serious injury can occur if ingested.
- A swallowed button cell or coin battery can cause **Internal Chemical Burns** in as little as **2 hours**.
- **KEEP** new and used batteries **OUT OF REACH OF CHILDREN**
- **Seek immediate medical attention** if a battery is suspected to be swallowed or inserted inside any part of the body.



This symbol means:

INGESTION HAZARD: This product contains a button cell or coin battery.

1. Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
2. Even used batteries may cause severe injury or death.
3. Call a local poison control center for treatment information.
4. Non-rechargeable batteries are not to be recharged.
5. Do not force discharge, recharge, disassemble, heat above 104°F or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
6. Ensure the batteries are installed correctly according to polarity (+ and -).
7. Do not mix old and new batteries, different brands or types of batteries, such as alkaline, carbon-zinc, or rechargeable batteries.
8. Remove and immediately recycle or dispose of batteries from equipment not used for an extended period of time according to local regulations.
9. Always completely secure the battery compartment. If the battery compartment does not close securely, stop using the product, remove the batteries, and keep them away from children.



SAVE THESE INSTRUCTIONS.

Specifications

AC Voltage	300V
AC Voltage Accuracy	$\pm 1.5\%$ of rdg + 5D
AC Current	Range: 20A / 200A / 400A
AC Current Accuracy	20A: $\pm 3.0\%$ of rdg + 5D 200A / 400A: $\pm 2.5\%$ of rdg + 5D
DC Voltage	300V
DC Voltage Accuracy	$\pm 1.2\%$ of rdg + 5D
Resistance	Range: 200k Ω / 2000 Ω
Resistance Accuracy	200k Ω : $\pm 1.2\%$ of rdg + 2D 2000 Ω : $\pm 1.5\%$ of rdg + 2D
Continuity	Less than 50 Ω meter will beep
Diode Measurement Voltage	Open Circuit Voltage: $\sim 2.1V$
Max Jaw Opening	1"
Battery Type	3V CR2032 x 3 (included)
Operating Temperature	32° - 104° F
Storage Temperature	-4°F - 140°F

Setup - Before Use:








Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Functions



Display

Symbol	Description
	Direct Current
	Alternating Current
	Low Battery
V	Volts (Voltage)
A	Amps (Current)
Ω , k Ω	Ohms (Resistance)
	Continuity
	Diode
HOLD	Display Hold

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Operating Instructions



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Electrical shock can cause death or injury! **NEVER TOUCH** exposed conductors of electricity.

General Operating Instructions

Data Hold

The data hold function will keep the current reading on the Display. To activate data hold:

1. Press the **HOLD** button and the reading will be held on the Display. The word **HOLD** appears.
2. Press **HOLD** again to release the hold.

Measurement Operation

Note: Remove plugs from ends of Test Leads (included) before connecting to Meter.

Note: Test Lead probes have removable covers for overvoltage protection. With covers in place, Test Leads are rated for use with CAT III circuits. Exposed probes are rated for use with CAT II circuits.

Current Measurement

Measure AC conductors carrying up to 400 amperes.

WARNING! TO PREVENT SERIOUS

INJURY: To avoid electric shock, use only one hand to hold Meter when measuring current.

WARNING! TO PREVENT SERIOUS

INJURY: Remove Test Leads before taking measurements with the Current Clamp.

Note: Amperage is always tested in series with circuit under test.

Note: To measure 2- and 3-wire power cords, use an AC Line Splitter (not included) and follow its instructions.

1. Turn Rotary Switch to **20A~**, **200A~** or **400A~** position. Start with highest range if amperage is unknown.
2. Using one hand, press Clamp Trigger to open Clamp jaws. Position Clamp jaws around conductor to be tested.
3. Center conductor between Clamp Jaws.
4. Read measured current on the Display. Switch to lower ranges, as necessary, to get the most accurate reading.
5. When testing is complete, turn Rotary Switch to **OFF**, and store Meter.

AC/DC Voltage Measurement

Measure AC conductors carrying up to 300 VAC.

Measure DC conductors carrying up to 300 VDC.

WARNING! TO PREVENT SERIOUS

INJURY: Use caution when working near voltages above 30 VAC rms, 42 VAC peak, or 60 VDC. Voltages this high present a risk of electric shock.

1. Plug Black Test Lead into **COM** Jack. Insert Red Test Lead into **Input** Jack.
2. Turn Rotary Switch:
 - a. To 300V $\overline{\text{---}}$ position for DC.
 - b. To 300V~ position for AC.
3. Carefully touch exposed conductors with tips of probes.
4. Read measured voltage on the Display.
5. When testing is complete, turn Rotary Switch to **OFF**, remove Test Leads and store with Meter.

Continuity Measurement

Test continuity between two points of a circuit.

WARNING! TO PREVENT SERIOUS

INJURY: To prevent electric shock, turn off all power and fully discharge capacitors on the circuit under test before measuring.

1. Plug black test lead into **COM** Jack. Plug red test lead into **INPUT** Jack.
2. Turn Rotary Switch to 200k Ω or 2000 Ω \bullet \rightarrow position.
3. Connect the test leads across the circuit to be measured.
4. Read measured resistance on the Display. If measured resistance is less than 50 Ω Meter will beep.
5. When testing is complete, turn Rotary Switch to **OFF**, remove Test Leads and store with Meter.

Diode Measurement

Test voltage drop in diodes.

WARNING! TO PREVENT SERIOUS

INJURY: To prevent electric shock, turn off all power and fully discharge capacitors on the circuit under test before measuring.

1. Plug black test lead into **COM** Jack. Plug red test lead into **INPUT** Jack.
2. Turn Rotary Switch to 2000 Ω \bullet \rightarrow position.
3. Connect red probe to diode's anode and black probe to its cathode.
4. Read measured forward biased voltage drop on the Display.
5. When testing is complete, turn Rotary Switch to **OFF**, remove Test Leads and store with Meter.

Resistance Measurement

Measure circuit resistance up to 2000Ω.

WARNING! TO PREVENT SERIOUS

INJURY: To prevent electric shock, turn off all power and fully discharge capacitors on the circuit under test before measuring.

Note: When measuring Ohms, start with the lowest range if the resistance is unknown.

1. Plug black test lead into **COM** Jack.
Plug red test lead into **INPUT** Jack.
2. Turn **Rotary Switch** to 2000Ω or 200kΩ.
3. Carefully touch exposed conductors with tips of probes.
4. Read measured resistance on Display.

Note: Meter will beep if measured resistance is less than approximately 50Ω in 2000Ω position.

5. When testing is complete, turn Rotary Switch to OFF, remove Test Leads and store with Meter.

Note: Sometimes resistor value and measured resistance differ. This is due to the Meter's output test current going through all possible paths between leads.

Note: For low resistance measurements, short the test leads and record the resistance displayed. Then connect to the circuit and subtract the recorded resistance from the measurement for the most accurate results.

Record Serial Number Here:

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts. Refer to UPC 193175514301.

Maintenance and Servicing




Procedures not specifically explained in this manual must be performed only by a qualified technician.

Cleaning, Maintenance, and Lubrication

1. Wipe unit with a dry, lint-free cloth. Do not use solvents or abrasives.
2. Remove batteries if not in use for long periods.
3. Store unit in a dry location.
4. Other than the batteries, there are no replaceable parts on this unit. **Repairs should be done by a qualified technician.**

Battery Replacement

1. When the Low Battery symbol  is shown on the Display Screen, the batteries are low and must be replaced.
2. Remove screw(s) and open battery compartment.
3. Remove batteries and dispose of properly.
4. Insert new batteries in correct polarity, close compartment and replace screw(s).

Calibration

Have the Meter calibrated by a qualified technician every year to maintain accuracy.

LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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