

# 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.

22k

# AMES

I N S T R U M E N T S <sup>TM</sup>

64018

## POCKET DIGITAL MULTIMETER



Visit our website at: <http://www.harborfreight.com>  
Email our technical support at: [productsupport@harborfreight.com](mailto: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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### **⚠ WARNING**

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

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## 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.**
3. Inspect the Multimeter 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 Multimeter 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 400 milliamps.

18. Dress properly. Protective, electrically nonconductive 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 Multimeter is in the Ohms testing setting. Damage can occur to the Meter.

26. Do not switch between testing modes with the multimeter connected to a circuit.

27. Do not use the meter at a setting marked as blank on the scale.

28. Have the Multimeter calibrated by a qualified technician every year to maintain accurate results.

29. Do not disassemble charger; take it to a qualified technician when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.

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.



**SAVE THESE INSTRUCTIONS.**

## Specifications

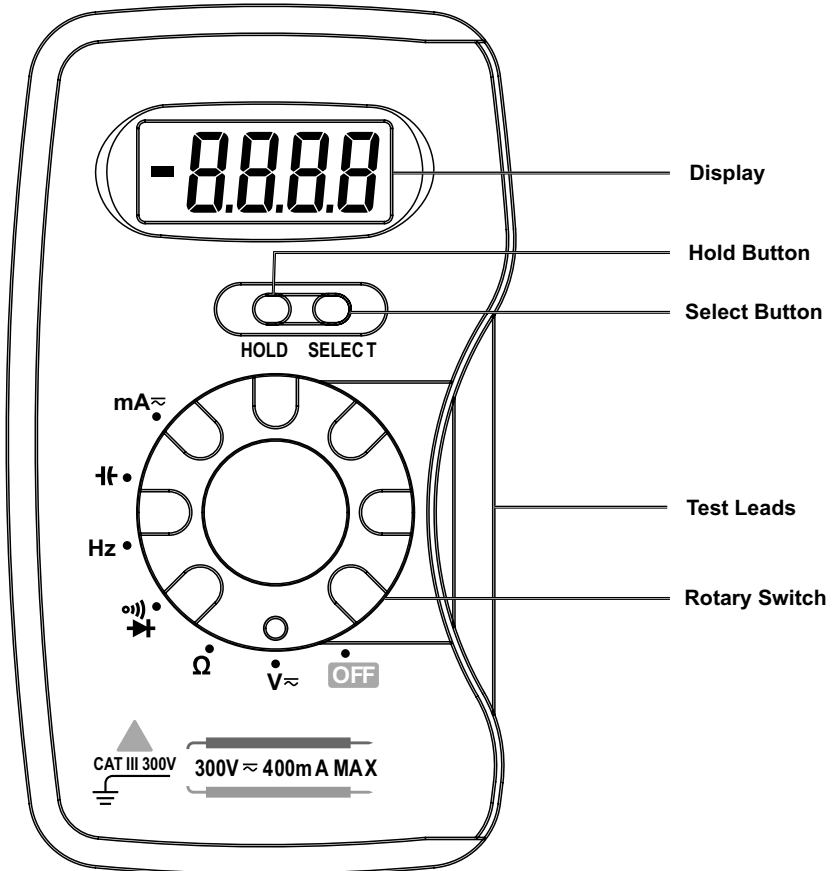
DC Voltage	Ranges: 400mV / 4V / 40V / 300V
DC Voltage Accuracy	(@400mV - 40V) $\pm 0.5\%$ of rdg + 3D (@300V) $\pm 0.8\%$ of rdg + 3D
DC Current	Ranges: 40mA / 400mA
DC Current Accuracy	$\pm 2.0\%$ of rdg + 3D
AC Voltage	Ranges: 4V / 40V / 300V Frequency Range: (@4V - 40V) 50-400Hz; (@300V) 50-60Hz
AC Voltage Accuracy	(@4V - 40V) $\pm 0.8\%$ of rdg + 4D (@300V) $\pm 1.0\%$ of rdg + 4D
AC Current	Ranges: 40mA / 400mA
AC Current Accuracy	$\pm 3.0\%$ of rdg + 4D
Resistance	Ranges: 400 $\Omega$ / 4k $\Omega$ / 40k $\Omega$ / 400k $\Omega$ / 4M $\Omega$ / 40M $\Omega$
Resistance Accuracy	(@400 $\Omega$ - 4M $\Omega$ ) $\pm 1.0\%$ of rdg + 3D (@40M $\Omega$ ) $\pm 2.0\%$ of rdg + 4D
Capacitance	Ranges: 4nF / 40nF / 400nF / 4 $\mu$ F / 40 $\mu$ F / 100 $\mu$ F
Capacitance Accuracy	(@4nF) $\pm 5\%$ of rdg + 10D (@40nF) $\pm 4.0\%$ of rdg + 5D (@400nF - 100 $\mu$ F) $\pm 3.0\%$ of rdg + 3D
Continuity	Meter beeps at $< 50\Omega$
Frequency	Range: 10Hz - 100kHz
Frequency Accuracy	$\pm 0.5\%$ of rdg + 3D
Operating Temperature	Range: 32°F - 104°F (0°C - 40°C)
Display	LCD
Fuse	F 400mA (300V)
Battery	2x LR44 (Included)

## 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
	Alternating current
	Direct current
	Continuity
	Diode test
	Battery low
$\Omega$ , $k\Omega$ , $M\Omega$	Ohms, Kiloohms, Megaohms (Resistance)
nF, $\mu$ F, mF	Nanofarad, Microfarad, Millifarad (Capacitance fF)
mV, V	Millivolts, Volts (Voltage)
mA	Milliamperes (Current)
Hz, kHz	Hertz, Kilohertz (Frequency)
	Indicates that display data is being held
	Auto-range

SAFETY

SETUP

OPERATION

MAINTENANCE

# Operating Instructions

SAFETY



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

**Note:** This Meter automatically selects the appropriate range for each measurement, as necessary. Manual range selection is not available.

### Data Hold

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

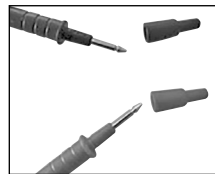
1. Press the **HOLD** button and current reading will be held on the Display. The **HOLD** symbol appears.
2. Press **HOLD** again or turn Rotary Switch to release the hold.

### Measurement Operation

Test Lead probes have removable covers for overvoltage protection. With covers in place, Test Leads are rated for CAT III 300V protection. Exposed probes are rated for CAT II 300V protection. Note that when covers are removed multimeter is only good for CAT II applications including measuring outlet voltage.



Probes with covers in place.



Probes with covers removed.

### AC/DC Voltage Measurement

Measure AC conductors carrying up to 40 VAC, 50-400 Hz and up to 300 VAC, 50-60 Hz.

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. Turn Rotary Switch to the  $V \approx$  position.
2. Press **SELECT** button to choose between AC and DC voltage.
3. Carefully touch exposed conductors with tips of probes.
4. Read measured voltage on the Display. For AC voltage, polarity is shown.
5. When testing is complete, turn Rotary Switch to **OFF** and store Meter.

OPERATION

MAINTENANCE



## Resistance Measurement

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Measure circuit resistance up to 40M Ohms.

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

1. Turn the Rotary Switch to the  $\Omega$  position.
2. Carefully touch exposed conductors with tips of probes.
3. Read measured resistance on the Display.

4. When testing is complete, turn Rotary Switch to **OFF** and store Meter.

**Note:** Sometimes the 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 resistance measurements above 1M $\Omega$ , allow a few seconds to get a steady reading.

**Note:** When leads are disconnected or measurement is out of range, **OL** is displayed.

## Continuity Measurement

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Test continuity between two points of a circuit.

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

1. Turn the Rotary Switch to the  $\bullet \rightarrow \blacktriangleleft$  position.
2. Press **SELECT** until  $\bullet \rightarrow \blacktriangleleft$  is displayed.

3. Connect the test leads across the circuit to be measured.

4. Read measured resistance on the Display. If the measured resistance is less than 50 $\Omega$ , Meter will beep.

5. When testing is complete, turn Rotary Switch to **OFF** and store Meter.

**Note:** If Test Leads are open or the resistance of the circuit is out of range, **OL** is displayed.

## Diode Measurement

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Test voltage drop in diodes.  
Open circuit voltage is 1.5V.

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

1. Turn the Rotary Switch to the  $\bullet \rightarrow \blacktriangleleft$  position.

2. Connect red probe to diode's anode and black probe to its cathode.

3. Read measured forward-biased voltage drop on the Display.

**Note:** If the test leads are reversed or open, **OL** is displayed.

4. When testing is complete, turn Rotary Switch to **OFF** and store Meter.

## Frequency Measurement

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Measure frequency up to 100kHz.

1. Turn the Rotary Switch to the **Hz** position.
2. Connect the Test Leads across the circuit to be measured.
3. Read measured frequency on the Display.
4. When testing is complete, turn Rotary Switch to **OFF** and store Meter.

## Capacitance Measurements

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Measure capacitance up to 100 $\mu$ F.

**WARNING! TO PREVENT SERIOUS INJURY:** Turn off all power and fully discharge capacitors on the circuit under test before measuring.

1. Turn the Rotary Switch to the **f** position.
2. Carefully touch capacitor leads with tips of probes.
3. Read measured capacitance on the Display.
4. When testing is complete, turn Rotary Switch to **OFF** and store capacitor and Meter.

## Current Measurement

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Measure AC and DC conductors carrying up to 400 milliamperes.

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

1. Turn the Rotary Switch to the **mA** position.
2. Press **SELECT** button to choose between AC and DC current.
3. Connect the Test Leads across the circuit to be measured.
4. Read measured frequency on the Display.
5. When testing is complete, turn Rotary Switch to **OFF** and store Meter.

## Maintenance and Servicing



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


### Cleaning, Maintenance, and Lubrication

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

### Battery/Fuse Replacement

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If the  sign appears on the Display, the battery should be replaced.

1. Turn the unit over.
2. Remove screw on back cover.
3. Remove back cover carefully.
4. Pull batteries out of unit and replace with the same (2x LR44).

**Note:** Do not reverse the polarity of the batteries.

5. If fuse is blown, pull fuse out and replace with new fuse of the same type and rating (F400mA/300V).

**Note:** Fuse rarely needs replacement and almost always blows as a result of Operator error.

6. Replace cover and retighten screw.

### Calibration

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Have the Meter calibrated by a qualified technician every year.

**Record Serial Number Here:** \_\_\_\_\_

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

Reference UPC 792363640183.

## 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.

