

**OPERATING
INSTRUCTIONS**
for
**AMPROBE®
AC/DC**
Digital Clamp-on Instrument
Model ACDC-1000A

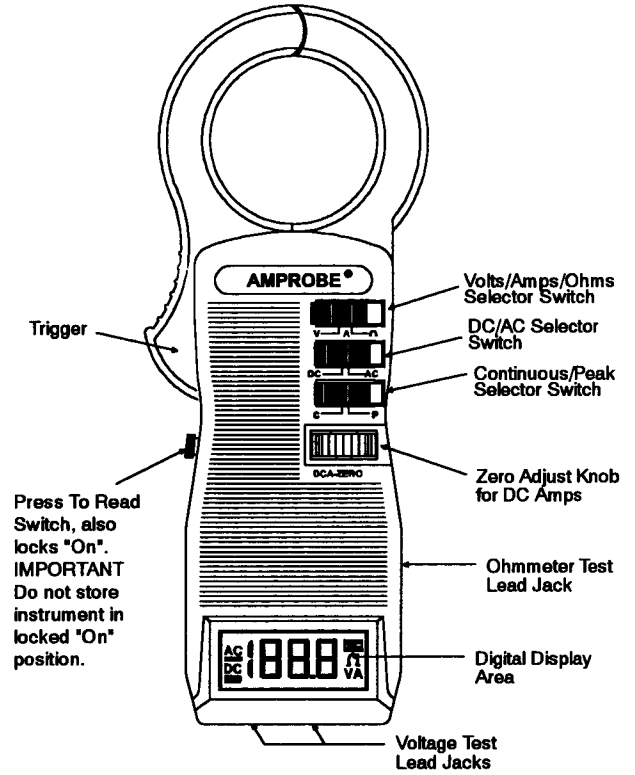


Fig. 1

See "PRECAUTIONS FOR PERSONAL AND INSTRUMENT PROTECTION" on Page 3

See "LIMITED WARRANTY" on Page 2



AMPROBE INSTRUMENT®

DIVISION OF CORE INDUSTRIES INC
630 Merrick Rd., P.O. Box 329, Lynbrook, NY 11563
(516) 593-5600 FAX (516) 593-5682

LIMITED WARRANTY

Congratulations! You are now the owner of an AMPROBE Instrument. It has been crafted according to quality standards and contains quality components and workmanship. This instrument has been inspected for proper operation of all of its functions. It has been tested by qualified factory technicians according to the long established standards of AMPROBE INSTRUMENT.

Your AMPROBE instrument has a limited warranty against defective materials, and/or workmanship for one year from the date of purchase provided that, in the opinion of the factory, the instrument has not been tampered with or taken apart.

Should your instrument fail due to defective materials and/or workmanship during the one year warranty period, return it along with a copy of your dated bill of sale which must identify instrument by model number and mfg. number.

For your protection, please use the instrument as soon as possible. If damaged, or should the need arise to return your instrument, it must be securely wrapped (to prevent damage in transit) and sent prepaid via Air Parcel Post insured or U.P.S. where available to:

Service Division
AMPROBE INSTRUMENT
630 Merrick Road (For U.P.S.)
P.O. Box 329 (For P.P.)
Lynbrook, NY 11563-0329

Outside the U.S.A. the local Amprobe representative will assist you. Above limited warranty covers repair and replacement of instrument only and no other obligation is stated or implied

PRECAUTIONS FOR PERSONAL AND INSTRUMENT PROTECTION

IMPORTANT:

1. Before using any electrical instrument or tester for actual testing, the unit should be checked on a known live line to make certain it is operating properly.
2. In many instances you will be working with dangerous levels of voltage and/or current: therefore, it is important that you avoid direct contact with any uninsulated, current-carrying surfaces. Appropriate insulating gloves and clothing should be worn.
3. The jaws of clamp-on instruments should not, under any circumstances, be used as a device to hold the instrument when taking other than a current reading. When using a clamp-on as a voltmeter or ohmmeter, never clamp the jaws around or on a conductor, box or anything else - conducting or non-conducting - except a test lead.
4. Before applying test leads to the circuit under test, make certain that the test leads are plugged into the proper instrument jacks.
5. "Before using any electrical instrument or tester for actual testing, the unit should be checked on a low energy high impedance source. Do not use power distribution lines or any other high energy sources."
6. Make certain that no voltage is present in circuit, before connecting ohmmeter to circuit.
7. Should the instrument accidentally be used to try to measure a voltage or current beyond the range of the instrument, immediately remove the instrument from the circuit. See Over-Range Indication.
8. When not in use, keep instrument in it's carrying case.
9. When instrument will not be used for a period of time, remove the battery from the instrument.
10. Use only AMPROBE test leads and accessories.

DESCRIPTION

The model ACDC-1000A will directly measure AC or DC current or voltage and resistance and provides a digital readout of the value.

When measuring AC, instrument is Average-sensing, RMS reading except when used in the "P" mode in which case it is Peak-sensing. RMS reading: when measuring DC, it is Average-sensing, Average reading.

SPECIFICATIONS

Ranges: 0-199.9/999 amperes and volts, AC and DC in the "Continuous" mode. Model ACDC1000A also measures 0-199.9/1999 ohms and also measures AC and DC* volts and amperes up to 999 in the "Peak" mode for capturing motor-starting currents and other surges.

AC is average-sensing, RMS reading except in Peak mode where it is peak-sensing, RMS reading: DC is average-sensing, average reading.

*Continuous, chopped, half wave or full-wave.

Frequency Response: AC 40 to 400 Hz; chopped DC 30 to 300 Hz with duty cycle of 20% to 90%.

Accuracy†:

±1% of reading ±5 LSD‡	±1% of reading ±1 LSD‡
0-999 Amps DC	0-600 Volts DC
0-600 Volts AC	0-1999 ohms
0-750 Amps AC	±3.5% of reading ±5 LSD‡
	750-999 Amps AC

†Based on sinusoidal wave form for AC and Continuous DC

‡Least Significant Digit

Update rate: 2.5 times/sec.

Case Voltage Breakdown: 3000VAC/DC

Ohmmeter Test Voltage: 2.5 Volts

Power: 1 No. MN1604, 9V Alkaline Battery (not supplied)

Fuse: 1 No. 8AG-360x023, 1 Amp Fast Blow (supplied)

Operating Temperature and Humidity:

+32°F to 120°F; 0°C to 49°C. UP to 80% RH

ACCURACY

The accuracy is based on a percentage of reading plus or minus a number of Least Significant Digits. (See Specifications)

Example 1: Instrument reading is 850 Amperes DC -
±1% of reading equals ±8.5 amps or ±9 because this would be measured on the high range which does not read out in tenths. Combining the ±9 with the possible ±5 LSD, we get ±14 as the maximum possible error which means the actual current value is between 836 and 864.

Example 2: Instrument reading is 20.0 Volts DC -

±1% of reading equals ±0.2. Combining the ±0.2 with the possible ±1LSD, we get ±0.3 as a maximum possible error which means the actual voltage value is between 19.7 and 20.3.

HELPFUL HINTS FOR GETTING TOP PERFORMANCE FROM YOUR DIGITAL CLAMP-ON

Make certain that all the switches (DC/AC, A/V/Ω, /C/P) are slid fully into one position or the other.

When measuring resistance, make certain the voltage test lead that is being used is inserted into the jack marked "COM" on the back of the instrument.

When measuring currents of widely varying values, start with the conductor in which you expect to find the lowest current, then the next highest, etc. To reduce the possibility of retained magnetism in the jaws, open and close the jaws a few times between measurements.

When using the Peak Mode to take and lock in a low current measurement that is to be read away from the conductor, open the jaws slowly and slowly remove them from around the conductor.

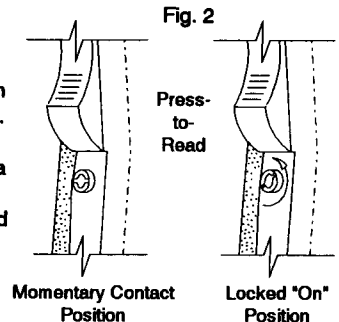
When measuring resistance, the "C/P" selector switch should be in the "C" position. In the "P" position, any accidental opening of the circuit will cause a locked-in, over-range indication unless the Press-to-Read button is released.

The operating temperature range of your instrument is +32°F to +120°F. If the instrument has been in a location where the temperature was lower than 32°F or higher than 120°F, allow the instrument to adjust to within the operating temperature range.

PRESS-TO-READ SWITCH

To take a reading once the instrument has been connected as per the following instructions, push in on the Press-To-Read button. See Fig. 2.

To "lock" the button "On" for a continuous readout, gently push in on the Press-To-Read button and while depressed, turn it counterclockwise 1/8 turn.



OVER-RANGE INDICATION

Because the maximum current or voltage that can be measured without causing damage to the instrument is 999 amps or 600 volts and the display can go up to 1999, do not rely on an over-range indication to tell you that you are overloading the instrument if you try to measure more than 999 amps or 600 volts.

Do not apply more than 999 amps or more than 600 volts.

In the ohmmeter mode, if you try to measure a resistance higher than 1999 ohms, the instrument will indicate over-range by displaying "1" in the most significant digit position.

CONTINUOUS OR PEAK OPERATION

The Model ACDC-1000A can be used to continuously monitor a fluctuating variable (current, voltage, resistance) or to measure the peak (surge) value of a variable, such as a motor starting current. Peak must last at least 0.08 seconds. Motor starting currents normally persist for approximately 0.17 seconds. The Peak Mode can also be used to take and lock in a measurement when the display cannot be read because of instrument position. Lock "On" the Press-To-Read button. Connect instrument for the measurement (volts, amps). Remove instrument to a position where it could be read. Unlock the Press-To-Read button. Note: In the "Peak" mode the display will lose one significant digit every 30 seconds.

For continuous operation, move the C/P Selector Switch to the left into the "C" position. For peak measurements, move C/P Selector Switch to the right into the "P" position. See Fig. 3. **Important:** In the AC mode, push in the "Press To Read" button *before* moving the "C/P" switch into the "P" position to avoid an erroneous reading due to the "Press To Read" switch closure.



Fig. 3

INSTALLING BATTERY AND FUSE

The Model ACDC-1000A uses one No. MN1604 9V Alkaline Battery.

To install:

1. Loosen screw toward the bottom on the back of the instrument. (See Fig. 4)
2. Lift battery compartment cover.
3. Firmly snap connector onto battery terminals.
4. Replace cover and tighten screw.

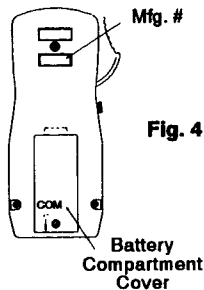


Fig. 4

The Model ACDC-1000A uses one No. 8AG-360x023 1Amp Fast Blow Fuse which installs in the probe handle of the OHB-4HE Ohmmeter Battery Attachment.

To install:

1. Unscrew the top (probe tip) section from the bottom section of the probe handle.
2. Insert fuse into top section.
3. Screw two sections together.

LOW BATTERY INDICATION

Replace the battery when "BAT" at the end of the digital display appears or the display digits do not light up.

HOW TO MEASURE AC OR DC CURRENT

See Precautions for Personal and Instrument Safety.

1. Disconnect voltage test leads and ohmmeter test lead from instrument.
2. Slide the "A-V-Ω" switch into the "A" position.
3. Slide the "DC-AC" switch into the "AC" position for measuring AC or "DC" position for measuring DC current.
4. Position the "C/P" switch (See Continuous or Peak Operation).
5. Press the "Press to Read" button and use the "DCA zero" knob which works on both AC and DC for making your zero adjustment. The two areas requiring zero adjust prior to their use are DC amps and AC peak. Zero adjustment is made by first sliding the appropriate switch into position, then depressing the press to read switch and adjust the DCA zero knob accordingly.
NOTE: The DCA zero knob is used for AC peak reading.
6. Press trigger to open transformer jaws.
7. Encircle single conductor with jaws.
8. Release finger pressure on trigger and allow jaws to close around the conductor.
9. Press the "Press-to-Read" button and read the display.

NOTE: When DC current is being measured, while the C/P switch is in the Continuous portion, the direction of current sensing is not critical. If Surge DC is being measured however, the orientation of the jaw could be only one way. If this is not followed the display would read zero.

HOW TO MEASURE AC OR DC VOLTAGE

NOTE: Because the instrument is a high impedance voltmeter (10 Megohms), and RF signals exist almost everywhere, it is possible to get a voltage reading even when the instrument is not connected to a circuit. This will not, however, affect your actual voltage measurements.

See Precautions for Personal and Instrument Safety.

1. Disconnect ohmmeter test lead from instrument and/or remove transformer jaws from around any conductors.
2. Slide the "A-V-Ω" switch into the "V" position.
3. Slide the "DC-AC" switch into the "AC" position for measuring AC or "DC" position for measuring DC voltage.
4. Position the "C/P" switch. (See Continuous or Peak Operation)
5. Insert insulated voltage test lead connectors into voltage receptacles in bottom of instrument. (See Fig. 1) Push in against receptacle spring and twist clock-wise to lock in place.
6. Clamp one voltage test lead probe between jaws.
7. With instrument in one hand and the other voltage test lead probe in the other hand, apply test probes to the points of the circuit.
8. Press the "Press-to-Read" button and read the display.
9. If "-" sign appears to the left of the display, reverse the test leads. (Indicates reversed polarity when measuring DC)

HOW TO MEASURE RESISTANCE

Caution: Make certain no voltage is present in circuit before connecting ohmmeter to circuit. If ohmmeter is applied to a live line, the ohmmeter fuse may blow or incorrect readings may be obtained. Also make certain any capacitors in circuit are discharged.

See Precautions for Personal and Instrument Safety.

1. Insert one insulated voltage test lead connector into the right hand (viewing instrument from front) voltage receptacle in the bottom of the instrument. Looking at the back of the instrument, this voltage receptacle is marked "COM". (see Fig. 4)
2. Clamp voltage test lead probe between jaws.
3. Plug ohmmeter lead into jack on the right side of the instrument. (See Fig. 1)
4. Position C/P Selector Switch in the "C" position.
5. Short ohmmeter test probe tip to voltage test lead probe tip and press the "Press-to-Read" button.
 - a) If fuse is good, reading should be below on ohm
 - b) If fuse is blown, the display will indicate an over range
6. With instrument in one hand and ohmmeter test probe in the other hand, apply probe tips to circuit or device. Press the "Press-to-Read" button and read the display. NOTE: When measuring low resistances, subtract the resistance value obtained in 5(a) above from the reading obtained in the actual test. Instrument measures its own lead resistance at the same time it measures circuit or device resistance. Subtracting the test lead resistance gives a more accurate resistance measurement. Also, make certain good electrical contact is made with test points. Because of the sensitivity of the instrument, even slight corrosion on probe tips or test points may cause erroneous readings. To clean probe tips, use fine steel wool.

ACCESSORIES

The AMPROBE AC/DC instruments may be used with the Energizer Model A-47L for either AC or DC. They may also be used with the Ampran CT-50-1 or CT-50-2 for AC only.

SERVICE

Manufacturing number is located on the back label of the instrument. For factory service, package instrument and packing slip with sufficient cushioning material in a shipping carton; make certain your name and address also appears on the box as well as the packing slip; ship prepaid via U.P.S (where available) or Air Parcel Post insured to:

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