



**ACD-4**

**Mini-Clamp DMM, 400A**

## **Users Manual**

- Mode d'emploi
- Bedienungshandbuch
- Manual d'Uso
- Manual de uso





# **ACD-4**

## **Mini-Clamp DMM, 400A**

### **Users Manual**

**English**

### **Limited Warranty and Limitation of Liability**

Your Amprobe product will be free from defects in material and workmanship for 1 year from the date of purchase. This warranty does not cover fuses, disposable batteries or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Amprobe's behalf. To obtain service during the warranty period, return the product with proof of purchase to an authorized Amprobe Test Tools Service Center or to an Amprobe dealer or distributor. See Repair Section for details. **THIS WARRANTY IS YOUR ONLY REMEDY. ALL OTHER WARRANTIES - WHETHER EXPRESS, IMPLIED OR STATUTORY - INCLUDING IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, ARE HEREBY DISCLAIMED. MANUFACTURER SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY.** Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

### **Repair**

All test tools returned for warranty or non-warranty repair or for calibration should be accompanied by the following: your name, company's name, address, telephone number, and proof of purchase. Additionally, please include a brief description of the problem or the service requested and include the test leads with the meter. Non-warranty repair or replacement charges should be remitted in the form of a check, a money order, credit card with expiration date, or a purchase order made payable to Amprobe® Test Tools.

### **In-Warranty Repairs and Replacement – All Countries**

Please read the warranty statement and check your battery before requesting repair. During the warranty period any defective test tool can be returned to your Amprobe® Test Tools distributor for an exchange for the same or like product. Please check the "Where to Buy" section on [www.amprobe.com](http://www.amprobe.com) for a list of distributors near you. Additionally, in the United States and Canada In-Warranty repair and replacement units can also be sent to a Amprobe® Test Tools Service Center (see next page for address).

### **Non-Warranty Repairs and Replacement – US and Canada**

Non-warranty repairs in the United States and Canada should be sent to a Amprobe® Test Tools Service Center. Call Amprobe® Test Tools or inquire at your point of purchase for current repair and replacement rates.

In USA

Amprobe Test Tools

Everett, WA 98203

Tel: 888-993-5853

Fax: 425-446-6390

In Canada

Amprobe Test Tools

Mississauga, ON L4Z 1X9

Tel: 905-890-7600

Fax: 905-890-6866

### **Non-Warranty Repairs and Replacement – Europe**

European non-warranty units can be replaced by your Amprobe® Test Tools distributor for a nominal charge. Please check the "Where to Buy" section on [www.amprobe.com](http://www.amprobe.com) for a list of distributors near you.

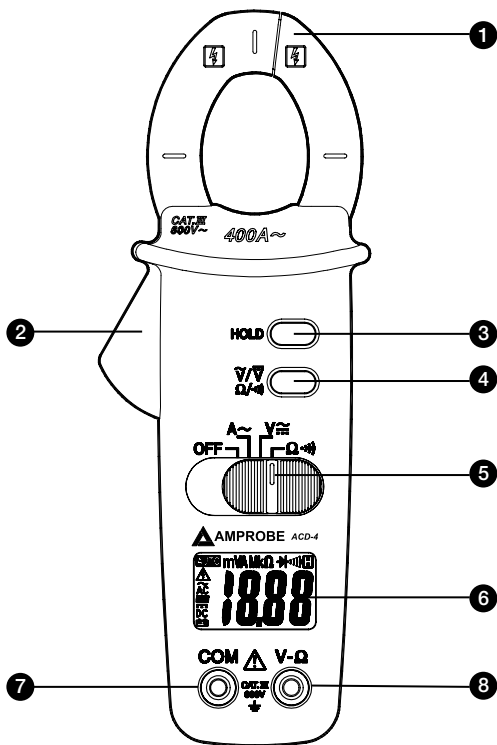
Amprobe® Test Tools Europe

In den Engematten 14

79286 Glottental, Germany

tel: +49 (0) 7684 8009 - 0

\*(Correspondence only – no repair or replacement available from this address. European customers please contact your distributor.)



- ① Current Jaws
- ② Jaw Opening Lever
- ③ Hold function key
- ④ Push-button for Vac/ Vdc or Resistance/Continuity measurement
- ⑤ Selector switch
- ⑥ LCD Display
- ⑦ Common (Ground reference) input jack
- ⑧ Input jack (+) for voltage and resistance function

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## SYMBOLS

|                                                                                   |                                                                                                                      |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
|  | Warning! Dangerous Voltage (Risk of electric shock).                                                                 |
|  | Caution ! Refer to the user's manual before using this Meter.                                                        |
|  | Double Insulation or Reinforced insulation                                                                           |
|  | Alternating Current (AC).                                                                                            |
|  | Direct Current (DC).                                                                                                 |
|  | Low battery indicator                                                                                                |
|  | Ground (maximum permitted voltage between terminal and ground).                                                      |
|  | Please remove all the test leads before performing maintenance, cleaning, battery replacement, fuse replacement, etc |
|  | Complies with European Directives                                                                                    |
|  | Conforms to relevant Australian standards                                                                            |
|  | Do not dispose of this product as unsorted municipal waste.<br>Contact a qualified recycler for disposal             |

### **Warnings!**

To ensure safe operation and service of the Meter, follow these instructions.

Failure to observe warnings can result in severe injury or death.

- Do not operate this meter in explosive gas (material), combustible gas (material) steam or filled with dust.
- When using test leads or probes, keep your fingers behind the finger guards.
- Remove test lead from Meter before opening the battery door or Meter case.
- Avoid working alone so assistance can be rendered.
- Do not use test leads or the Clamp Meter if they look damaged.
- Do not use the Meter if the Clamp Meter is not operating properly or if it is wet.
- Use the Clamp Meter only as specified in the Instruction card or the protection by the Clamp Meter might be impaired.

- Individual protective device must be used if hazardous live parts in the installation where the measurement is to be carried out could be accessible.

## UNPACKING AND INSPECTION

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Your shipping carton should include:

- 1 ACD-4 Meter
- 2 Test Leads
- 2 Battery (SIZE AAA, 1.5V)
- 1 User's Manual

If any of the items are damaged or missing, return the complete package to the place of purchase for an exchange.

## INTRODUCTION

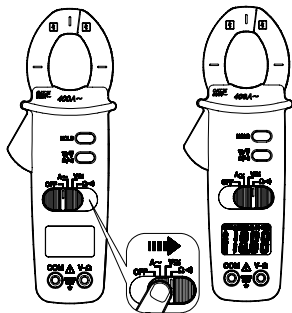
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This meter ACD-4 can be used to measure voltage, resistance and current; It is an electronic measuring instrument that combines several measurement functions in one unit. ACD-4 multimeter is portable hand-held devices useful for basic fault finding and field service work. It can be used to troubleshoot electrical problems in a wide array of industrial and household devices such as batteries, motor controls, appliances, power supplies and wiring systems.

## OPERATION

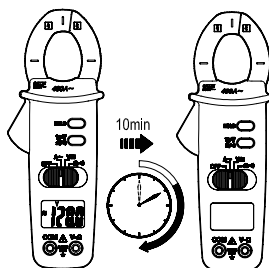
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### Power On / Off



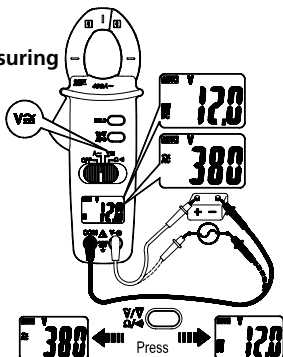


## Auto Power Off

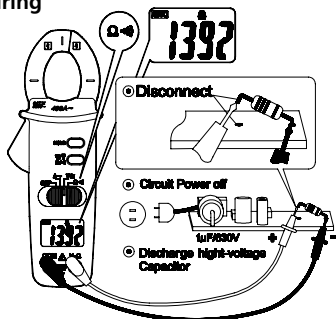


The meter will automatically shut itself off after approximately 10 minutes after power on.

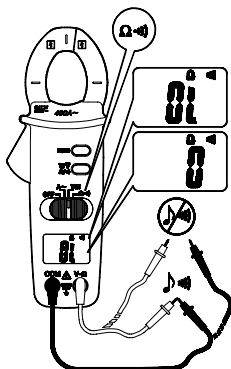
## AC V / DC V Measuring



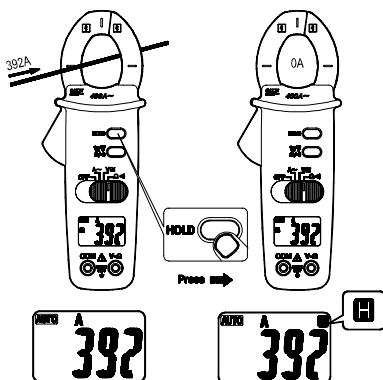
## Resistance Measuring



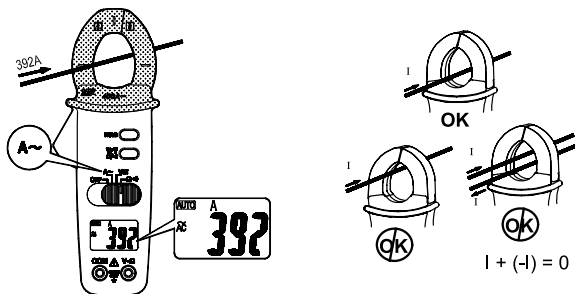
## Continuity Tester



## Data Hold Function



## ACA Measuring



CAT III 600V with respect to earth for the jaw.  
Tactile Barrier for hang guard.  
Do not hold the meter across the Tactile Barrier.

## SPECIFICATIONS

### General Specifications

|                                  |                                                                                                 |
|----------------------------------|-------------------------------------------------------------------------------------------------|
| <b>LCD display digits:</b>       | 3 1/2 digit large scale LCD readout.                                                            |
| <b>Display count:</b>            | 2000 counts.                                                                                    |
| <b>Measuring rate:</b>           | 1.5 times / sec.                                                                                |
| <b>Overrange display:</b>        | "OL" is displayed for " $\Omega$ " functions, shows the real value for "A" and "V" function.    |
| <b>Automatic power off time:</b> | Approximately 10 minutes after power on.                                                        |
| <b>Low battery indicator:</b>    |  is displayed. |
| <b>Power requirement:</b>        | 1.5V x 2 batteries                                                                              |
| <b>Battery life:</b>             | ALKALINE 200 hours                                                                              |

### Environmental Conditions

Indoor Use.

|                               |                                                                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>Calibration:</b>           | One year calibration cycle.                                                                                                     |
| <b>Operating temperature:</b> | 0°C/32°F ~ 30°C/86°F ( $\leq 80\%$ RH)<br>30°C/86°F ~ 40°C/104°F ( $\leq 75\%$ RH)<br>40°C/104°F ~ 50°C/122°F ( $\leq 45\%$ RH) |

**Storage temperature:** -20 to +60°C (-4°F to 140°F), 0 to 80% RH  
(batteries not fitted).

**Overvoltage category:** IEC 61010-1 600V CAT.III.

| CAT | Application field                                                |
|-----|------------------------------------------------------------------|
| I   | The circuits are not connected to mains.                         |
| II  | The circuits are directly connected to Low-voltage installation. |
| III | The building installation.                                       |
| IV  | The source of the Low-voltage installation.                      |

**Operating altitude:** 2000m (6562 ft)

**Conductor Size:** 27mm (1.06 in) diameter.

**Pollution degree:** 2

**EMC:** EN 61326-1

**Shock vibration:** Sinusoidal vibration per MIL-T-28800E  
(5 ~ 55 Hz, 3g/0.007lb maximum).

**Drop Protection:** 4 feet drop to hardwood on concrete floor.

**Dimensions (W x H x D):** 56mm x 188mm x 28mm  
(2.2 in x 7.4 in x 1.1 in)

**Weight:** 225g (0.5 lb) including battery.

**Accessories:** Battery (installed), Carrying case, Test lead  
and User manual.

## Electrical Specifications

Accuracy is  $\pm$ (% reading + number of digits) at 23°C  $\pm$  5°C (73.4°F  $\pm$  41°F) < 80% RH.

**Temperature coefficient:** Add  $0.2 \times (\text{Specified accuracy}) / ^\circ\text{C}$ ,  
< 18°C (64.4°F), > 28°C (82.4°F).

## DC / AC Volts

| Range  | DC Accuracy                | AC Accuracy                                |
|--------|----------------------------|--------------------------------------------|
| 200.0V | $\pm(1.0\% + 2\text{dgt})$ | $\pm(1.5\% + 5\text{dgt})$<br>50Hz ~ 500Hz |
| 600V   |                            |                                            |

**Over voltage protection:** DC / AC 600V

**Input Impedance:** 10M $\Omega$  // less than 100pF.

**CMRR / NMRR:** (Common Mode Rejection Ratio)  
(Normal Mode Rejection Ratio)

**VAC:** CMRR > 60dB at DC, 50Hz / 60Hz

**VDC:** CMRR > 100dB at DC, 50Hz / 60Hz  
NMRR > 50dB at DC, 50Hz / 60Hz

**AC Conversion Type:** Average sensing rms indication.

## AC Current

| Range          | DC Accuracy   | AC Accuracy                 |
|----------------|---------------|-----------------------------|
| A<br>(50~60Hz) | 0.0 ~ 40.0A   | $\pm(1.9\% + 10\text{dgt})$ |
|                | 40.0 ~ 200.0A | $\pm(1.9\% + 5\text{dgt})$  |
|                | 201 ~ 400A    | $\pm(1.9\% + 5\text{dgt})$  |

**Overload protection:** 600 Arms

**AC Conversion Type:** Average sensing rms indication.

**Position Error:**  $\pm 1.5\%$  of reading.

## Resistance

| Range                | Accuracy                      |
|----------------------|-------------------------------|
| 200.0 $\Omega$ *3    | $\pm(1.0\% + 5\text{dgt})$ *2 |
| 2.000 K $\Omega$ *3  | $\pm(0.7\% + 2\text{dgt})$    |
| 20.00 K $\Omega$ *3  |                               |
| 200.00 K $\Omega$ *3 |                               |
| 2.000 K $\Omega$ *3  | $\pm(1.0\% + 2\text{dgt})$    |
| 20.00 K $\Omega$ *3  | $\pm(1.9\% + 5\text{dgt})$ *1 |

- Overload protection:** 600V rms  
**Open circuit Voltage:** -1.3V approx.  
\* 1 < 100 dgt rolling.  
\* 2 < 10 dgt rolling.  
\* 3 The maximum LCD reading is 1400 counts.

## Continuity

Internal beeper activates if the resistance of the circuit under test is less than 20Ω. It will then turn off if the resistance is increased beyond 50Ω. Response time is approximately 50m sec.

- Overload protection:** 600V rms.

**CE** - EMC: EN61326-1.

This product complies with requirements of the following European Community Directives: 89/ 336/ EEC (Electromagnetic Compatibility) and 73/ 23/ EEC (Low Voltage) as amended by 93/ 68/ EEC (CE Marking). However, electrical noise or intense electromagnetic fields in the vicinity of the equipment may disturb the measurement circuit. Measuring instruments will also respond to unwanted signals that may be present within the measurement circuit. Users should exercise care and take appropriate precautions to avoid misleading results when making measurements in the presence of electronic interference.

## MAINTENANCE

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If there appears to be a malfunction during the operation of the meter, the following steps should be performed in order to isolate the cause of the problem.

1. Check the battery. Replace the battery immediately when the "E-3" symbol appears on the LCD.
2. Review the operating instructions for possible mistakes in operating procedure.

Except for the replacement of the battery, repair of the meter should be performed only by a Factory Authorized Service Center or by other qualified instrument service personnel. The front panel and case can be cleaned with a mild solution of detergent and water. Apply sparingly with a soft cloth and allow to dry completely before using. Do not use aromatic hydrocarbons or chlorinated solvents for cleaning. If the meter is not to be used for periods of longer than 60 days, remove the batteries and store them separately

Do not attempt to repair this Meter. It contains no user-serviceable parts. Repair or servicing should only be performed by qualified personnel.

## TROUBLE SHOOTING

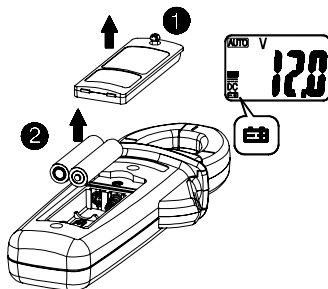
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If the instrument fails to operate, check batteries and test leads etc., and replace as necessary. Double check operating procedure as described in this user's manual.

If the instrument voltage-resistance input terminal has subjected to high voltage transient (caused by lightning or switching surge to the system) by accident or abnormal conditions of operation, the series fusible resistors will be blown off (become high impedance) like fuses to protect the user and the instrument. Most measuring functions through this terminal will then be open circuit. The series fusible resistors and the spark gaps should then be replaced by qualified technician. Refer to the LIMITED WARRANTY section for obtaining warranty or repairing service.

## Battery Replacement

Refer to the following figure to replace the batteries:



**Visit [www.Amprobe.com](http://www.Amprobe.com) for**

- Catalog
- Application notes
- Product specifications
- User manuals



Please Recycle