



ACD-6 PRO
ACD-6 TRMS-PRO
Professional 1000A
Clamp Meters

Users Manual



ACD-6 PRO ACD-6 TRMS-PRO

Professional 1000A
Clamp Meters

Users Manual

ACD6PRO_Rev002

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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. Amprobe's warranty obligation is limited, at Amprobe's option, to refund of the purchase price, free of charge repair, or replacement of a defective product. 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 excluded. Neither Amprobe nor its parent company or affiliates shall 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 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 below 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: 877-993-5853
Fax: 425-446-6390

In Canada

Amprobe Test Tools
Mississauga, ON L4Z 1X9
Tel: 905-890-7600
Fax: 905-890-6866

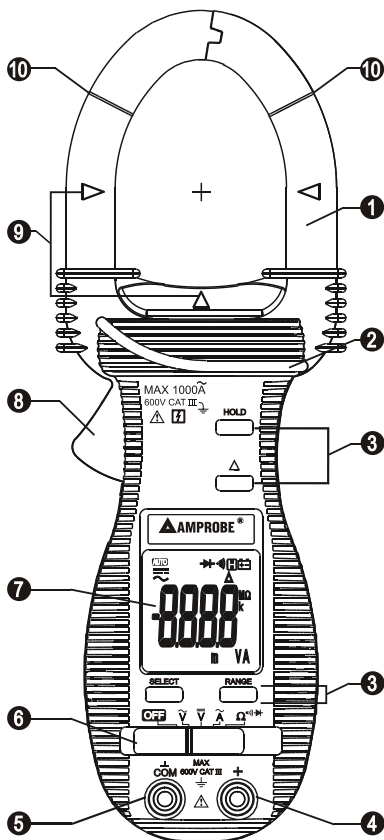
Non-Warranty Repairs and Replacement – Europe

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 for a list of distributors near you.

European Correspondence Address*

Amprobe® Test Tools Europe
Beha-Amprobe GmbH
In den Engematten 14
79286 Glotttetal, Germany
Tel.: +49 (0) 7684 8009 – 0

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




- 1 Transformer Clamp Jaw for AC current magnetic field pick up
- 2 Hand/Finger Barrier to indicate the limits of safe access of the meter during measurement
- 3 Push-buttons for special functions & features
- 4 Input Jack for all functions except ACA current
- 5 Common (Ground reference) Input Jack for all functions except ACA
- 6 Function Selector and power ON/OFF switch
- 7 3-3/4 digits 4000 counts LCD display
- 8 Transformer clamp jaw trigger
- 9 Jaw center Indicators, at where best ACA accuracy is specified
- 10 Jaw marking lines for ACA position error indication














ACD-6 PRO / ACD-6 TRMS-PRO

Professional 1000A Clamp Meters

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SYMBOLS



	Battery		Refer to the manual
	Double insulated		Dangerous Voltage
	Direct Current		Earth Ground
	Alternating Current		Audible tone
	Conforms to relevant Australian standards.		Complies with EU directives
	Do not dispose of this product as unsorted municipal waste.		Underwriters Laboratories. [Note: Canadian and US.]
	Application around and removal from hazardous live conductors is permitted		

SAFETY INFORMATION

- The ACD-6 PRO and ACD-6 TRMS-PRO Digital Clamp meters conform to IEC/EN/UL 61010-1 Ed. 3.0; CAN/CSA C22.2 No.61010-1-12 Ed. 3.0 to Measurement Category III 600 V, class II, pollution degree 2; IEC/EN 61010-2-032 Ed. 3.0; IEC/EN 61010-2-033 Ed. 1.0 and IEC/EN 61010-031 Ed. 1.1 (test leads).
- The instrument conforms to CENELEC Low-voltage directive 2006/95/EC and Electromagnetic compatibility directive 2004/108/EC.
- This instrument is EN61010-1 certified for Installation Category III (600V). It is recommended for use in distribution level and fixed installations, as well as lesser installations, and not for primary supply lines, overhead lines and cable systems.
- Do not exceed the maximum overload limits per function (see specifications) nor the limits marked on the instrument itself. Never apply more than 600 Vdc/600 V ac rms between the test lead and earth ground.

Warnings and Precautions

- Before and after hazardous voltage measurements, test the voltage function on a known source such as line voltage to determine proper meter functioning.
- Disconnect the test leads from the test points before changing meter functions.
- Disconnected from the meter's test leads before measuring current.
- Inspect the Clammeter, test leads and accessories before every use. Do not use any damaged part.
- Never ground yourself when taking measurements. Do not touch exposed circuit elements or test probe tips.
- Do not operate the instrument in an explosive atmosphere.
- To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.
- The meter is intended only for indoor use. To avoid electrical shock hazard, observe the proper safety precautions when working with voltages above 60 VDC, 42.4 Vpk, or 30 VAC rms. These voltage levels pose a potential shock hazard to the user.
- Before and after hazardous voltage measurements, test the voltage function on a known source such as line voltage to determine proper meter functioning.

- Keep your hands/fingers behind the hand/finger barriers (of the meter and the test leads) that indicate the limits of safe access of the hand-held part during measurement.
- Inspect test leads, connectors, and probes for damaged insulation or exposed metal before using the instrument. If any defects are found, replace them immediately.
- This Clamp-on meter is designed to apply around or remove from un-insulated hazardous live conductors. Individual protective equipment must be used if hazardous live parts of the installation could be accessible.
- Exercise extreme caution when: measuring voltage >20 V // current >10 mA // AC power line with inductive loads // AC power line during electrical storms // current, when the fuse blows in a circuit with open circuit voltage >1000 V // servicing CRT equipment.
- Remove test leads before opening the case to change the battery.
- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes, or capacitance.
- To avoid false readings, which could lead to possible electric shock or personal injury, replace the batteries as soon as the low battery indicator () appears.
- To avoid electric shock hazard, do not use the HOLD  mode to determine if a circuit is live. Unstable readings will not be captured and displayed.
- Only use the accompanied test leads, or replace the same rating or better UL Listed Probe Assembly.

CAUTION

For non-invasive ACA current measurements, clamp the jaws around only one single conductor of a circuit for load current measurement. More than 1 conductor will cause false readings.

UNPACKING AND CONTENTS

Your shipping carton should include

- 1 ACD-6 PRO or ACD-6 TRMS-PRO
- 1 Test lead set
- 1 3V coin battery IEC-CR2032 (installed)
- 1 Users Manual
- 1 Carrying Case


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

INTRODUCTION

The ACD-6 PRO or ACD-6 TRMS-PRO Clamp-On meters are autoranging 1000 ACA / 600 V clamp meter. The features include AC / DC voltage, AC current, Resistance, Continuity, Diode and Continuity tests.

OPERATION

Manual or Auto-ranging

Press the RANGE button for more than 1 second to enable/disable auto-ranging. Press the button momentarily again to step through the Ranges. The LCD symbol  is turned off.

Auto Power Off (APO)

The Auto Power Off (APO) feature will set the meter to sleep mode after approximately 30 minutes of no activity to extend battery life. Wake up the meter from APO, by set the slide-switch to the OFF and back to the desired function.

HOLD Function

The HOLD button enables/disables the reading HOLD function. After the reading has stabilized, momentarily press the HOLD button. You can remove the test leads and the reading will remain on the display.

Δ Relative mode

The Δ button enables/disables relative mode. Relative mode offsets the subsequent meter measurements with the displayed reading as a reference value. The display will now show readings relative to the stored reference value. That is, display = measured reading - stored value.

Measuring DC Voltage (see Fig. 1)

1. Set the Function Switch to V_{DC} .
2. Connect the test leads: Red to +, Black to COM.
3. Connect the test probes to the circuit test points.
4. Read the display, and, if necessary, correct any overload (OL) conditions.

Measuring AC Voltage (See Fig. 1)

1. Set the Function Switch to V_{AC} .
2. Connect the test leads: Red to +, Black to COM.
3. Connect the test probes to the circuit test points.
4. Read the display, and, if necessary, correct any overload (OL) conditions.

AC Current Measurement (See Fig. 3)

1. Set the Function Switch to A_{AC} position.
2. Open spring-loaded clamp by pressing the lever on left side of meter.
3. Position clamp around one wire or conductor and release the clamp lever.
4. Read the displayed value.

CAUTION

Using Resistance, Continuity or Diode function in a live circuit will produce false results and may damage the instrument. In most cases the suspected component must be disconnected from the circuit to obtain an accurate measurement reading.

Measuring Resistance (See Fig. 2)

1. Set the Function Switch to Ω .
2. Connect the test leads: Red to +, Black to COM.
3. Turn off power to the circuit being measured. Never measure resistance across a voltage source or on a powered circuit.
4. Discharge any capacitors that may influence the reading.
5. Connect the test probes across the resistance.

6. Read the display. If 0L appears on the highest Range, the resistance is too large to be measured or the circuit is an open circuit.

Testing for Continuity (See Fig. 2)

1. Set the Function Switch to Ω and press the SELECT button until |||| is displayed.
2. Connect the test leads: Red to +, Black to COM.
3. Turn off power to the circuit being measured.
4. Discharge any capacitors that may influence the reading.
5. Connect the test probes across the resistance or the two points of test.
6. Listen for the tone that indicates continuity ($>10\ \Omega$ and $<120\ \Omega$).

Testing Diodes (See Fig. 2)

1. Set the Function Switch to Ω and press the SELECT button until \rightarrow is displayed.
2. Connect the test leads: Red to +, Black to COM.
3. Turn off power to the circuit being measured.
4. Free at least one end of the diode from the circuit.
5. Connect the test probes across the diode.
6. Read the display. A good diode has a forward voltage drop of about 0.6 V. An open or reverse biased diode will read .0L.

MAINTENANCE AND REPAIR

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.
2. Review the operating instructions for possible mistakes in operating procedure.
3. Inspect and test the test leads for a broken or intermittent connection.

Except for the replacement of the battery or test probes, repair of the multimeter 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.

Battery Replacement (see Fig. 4)

Warning

To prevent electrical shock or meter damage, disconnect the meter's test leads from any circuit and the meter, then turn the meter off before removing the battery cover. Battery replacement should be performed in a clean environment and with appropriate care taken to avoid contaminating the meter's interior components.

1. Remove the screws and lift the battery cover.
2. Replace the battery with the same type, 3V coin battery (ANSI/NEDA-5004LC, IEC-CR2032). Note polarity of the battery.
3. Replace the rear case and screws.

SPECIFICATIONS

General

Display: 3-3/4 digits 4000 counts LCD display

Update Rate: 3 per second nominal

Polarity: Automatic

Power Supply: One 3V coin battery (ANSI/NEDA-5004LC, IEC-CR2032)

Power Consumption: ACD-6 PRO: 2.2 mA typical; ACD-6 TRMS-PRO: 2.8mA typical

Low Battery: Below approx. 2.4V

APO Timing: Idle for 30 minutes

APO Consumption: 40 μ A typical on all model functions except that 190 μ A typical on ACD-6 TRMS-PRO voltage & current functions

Environmental: Indoor operation; below 6,562ft (2000m)

Operating Temperature : 0°C to 40°C (32°F to 104°F) ; < 80% RH @ < 31°C; decreasing linearly to 50% RH @ 40°C

Storage Temperature: -40°F to 140°F (-20°C to 60°C), < 80% R.H. (with battery removed)

Temperature Coefficient: nominal 0.15 x (specified accuracy)/°C @ 0°C to 18°C or 28°C to 40°C (32°F to 64°F or 82°F to 104°F)

Sensing: ACD-6 PRO – Average; ACD-6 TRMS-PRO – True RMS

Dimension: 224 x 78 x 26mm (8.8 x 3.1 x 1.1 in.)

Weight: 188 gm (6.7 oz)

Jaw opening & Conductor diameter: 45mm (1.77 in) max

Safety LVD: Meets IEC/EN/UL 61010-1 Ed. 3.0; CAN/CSA C22.2 No.61010-1-12 Ed. 3.0 to Measurement Category III 600 V, class II, pollution degree 2; IEC/EN 61010-2-032 Ed. 3.0; IEC/EN 61010-2-033 Ed. 1.0 and IEC/EN 61010-031 Ed. 1.1 (test leads).

CE EMC: Meets all applicable requirements in IEC/EN 61326-1. The instrument conforms to CENELEC Low-voltage directive 2006/95/EC and Electromagnetic compatibility directive 2004/108/EC. 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.

Electrical (23 °C \pm 5 °C) < 75% RH

DC Voltage

Range	Accuracy
400.0 mV	\pm (1.0% rdg + 3d)
4.000V, 40.00V, 400.0V	\pm (1.7% rdg + 3d)
600V	\pm (2.0% rdg + 4d)

NMRR: >50dB @ 50/60Hz

CMRR: >120dB @ DC, 50/60Hz, Rs=1k Ω

Input Impedance: 10M Ω , 30pF nominal (1000M Ω for 400.0mV Range)

Overload protection: 600 Volts ac & dc.
 Transient protection : 6kV (1.2/50µs surge)

AC Voltage

Range	Frequency	Accuracy
400.0mV ¹⁾	50Hz – 500Hz	± (4.0% rdg + 5d)
4.000V, 40.00V, 400.0V	50Hz – 60Hz	± (2.0% rdg + 5d)
4.000V, 40.00V, 400.0V	60Hz – 500Hz	± (2.5% rdg + 5d)
600V	50Hz – 500Hz	± (3.0% rdg + 5d)

CMRR: >60dB @ DC to 60Hz, R_s=1kΩ

Input Impedance: 10MΩ, 30pF nominal

TRMS Response: 5% to 100% of Range

Crest Factor (ACD-6 TRMS-PRO): < 2.5 : 1 at full scale; < 5.0 : 1 at half scale

Overload protection: 600 Volts ac & dc.

Transient protection: 6.0kV (1.2/50µs surge)

¹⁾ Selection by RANGE button manually, and is specified from AC 40mV (AC 60mV for True RMS model ACD-6 TRMS-PRO) and up

ACA Current (Clamp-on)

Range	Frequency	Accuracy ^{1) 2) 3)}
400.0A	50Hz – 60Hz	± (1.5% rdg + 5d)
1000A	50Hz – 60Hz	± (1.5% rdg + 5d*)

TRMS Response: 5% to 100% of Range

Crest Factor (ACD-6 TRMS-PRO): < 2.6 : 1 at full scale; < 5.2 : 1 at half scale

ACA Clamp-on jaws : AC 1000A rms continuous

¹⁾ Add 8d to specified accuracy if reading is below 15% of Range

²⁾ Induced error from adjacent current-carrying conductor: < 0.06A/A

³⁾ Specified accuracy is for measurements made at the jaw center. When the conductor is not positioned at the jaw center, position errors introduced are:

Add 1% to specified accuracy for measurements made WITHIN jaw marking lines (away from jaw opening)

Add 4% to specified accuracy for measurements made BEYOND jaw marking lines (toward jaws opening)

Resistance

Range	Accuracy
400.0Ω	± (1.5% rdg + 6d)
4.000, 40.00, 400.0kΩ	± (1.0% rdg + 4d)
4.000MΩ:	± (1.5% rdg + 4d)
40.00MΩ:	± (2.5% rdg + 4d)

Open Circuit Voltage: 0.4VDC typical

Overload protection: 600 Volts ac & dc.

Audible Continuity Tester

Open Circuit Voltage: 0.4VDC typical

Range: 400.0Ω;

Accuracy: ± (1.5% rdg + 6d)

Audible threshold: between 10Ω and 120Ω.

Overload protection: 600 Volts ac & dc.

Diode Tester

Open Circuit Voltage: < 1.6 VDC

Test Current (Typical): 0.4mA

Overload protection: 600 Volts ac & dc.

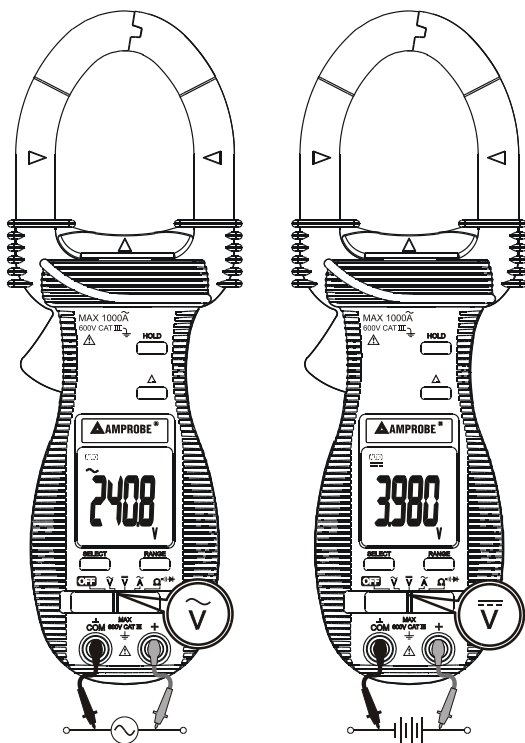


Fig. 1: DC voltage and AC voltage functions

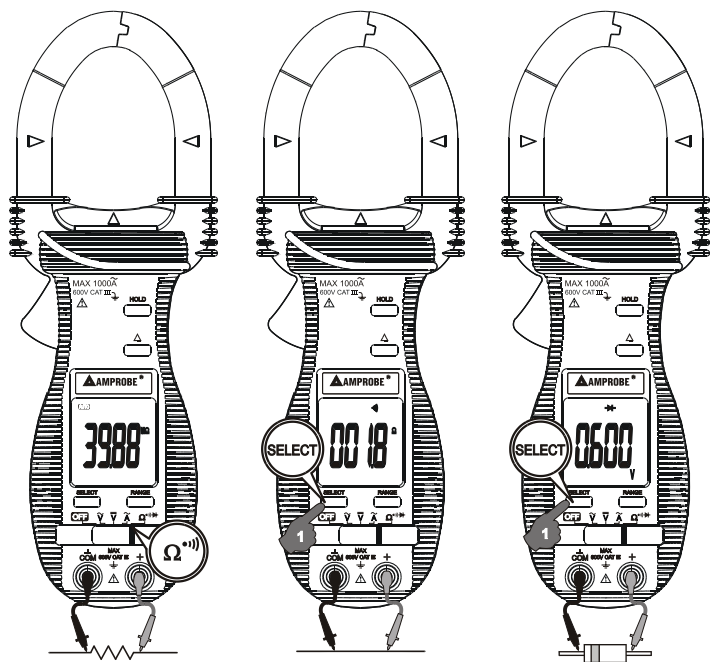


Fig. 2: Resistance, Continuity, Diode

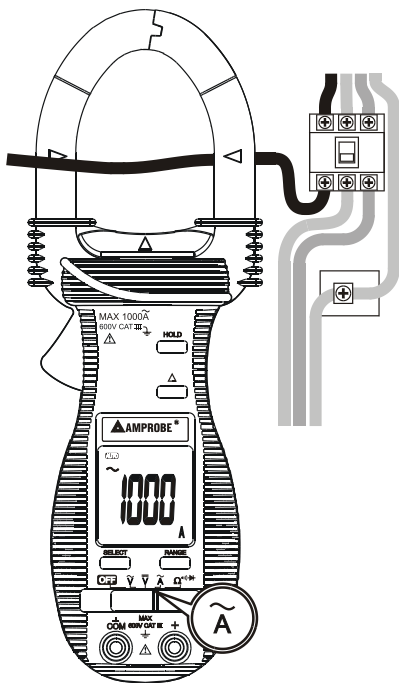


Fig. 3: ACA Current

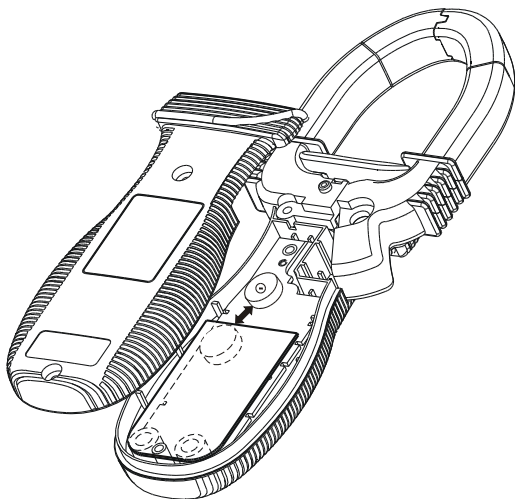


Fig. 4: Battery replacement

Visit www.Amprobe.com for

- Catalog
- Application notes
- Product specifications
- User manuals



Please Recycle