AMPROBE®

AC50A
Leakage Clamp Meter

User Manual

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References marked on instrument or in users manual

	Warning of a potential danger, comply with users manual.		Equipment protected throughout by double insulation or reinforced insulation.
	Caution! Dangerous voltage. Danger of electrical shock.		Conformity symbol, the instrument complies with the valid directives. It complies with the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) with their valid standards.
	Caution: Risk of Electric Shock		
	Reference. Please use utmost attention.		Symbol for the marking of electrical and electronic equipment (WEEE Directive 2002/96/EC).

⚠ The users manual contains information and references, necessary for safe operation and maintenance of the instrument. Prior to using the instrument the user is kindly requested to thoroughly read the users manual and comply with it in all sections.

Failure to read the users manual or to comply with the warnings and references contained herein can result in serious bodily injury or instrument damage

Introduction

The Amprobe AC50A is a universal, multi-purpose electrical measuring instrument. It comply with the standards DIN VDE 0411 and EN 61010, and provide safe, reliable operation. The Currenet Clamp is a valuable tool for all sorts of measurements in both trade and industry.

- 3 3/4 digit liquid-crystal display
- manual range selection for current, voltage, resistance measurements
- Clamp opening 30 mm (1/2 inch)
- Switches off automatically
- Integral memory for readings
- Evaluates MIN/MAX values
- Zero-setting
- relative value function

The Amprobe Current Clamp AC50A is supplied complete with leads. After unpacking, check that the instrument is complete, and that all accessories are present.

Contents:
1 pce. Amprobe Current Clamp AC50A
2 pce. test leads with probes (red/black)
2 pce. batteries 1,5V IEC LR6
1 pce. Carrying Case
1 pce. users manual

⚠ Transport and Storage

- Please keep the original packaging for later transport, e.g. for calibration. Any transport damage due to faulty packaging will be excluded from warranty claims.
- In order to avoid instrument damage, it is advised to remove batteries when not using the instrument over a certain time period. However, should the instrument be contaminated by leaking battery cells, you are kindly requested to return it to the factory for cleaning and inspection.
- Instruments must be stored in dry and closed areas. In the case of an instrument being transported in extreme temperatures, a recovery time of minimum 2 hours is required prior to instrument operation.

⚠⚠Safety

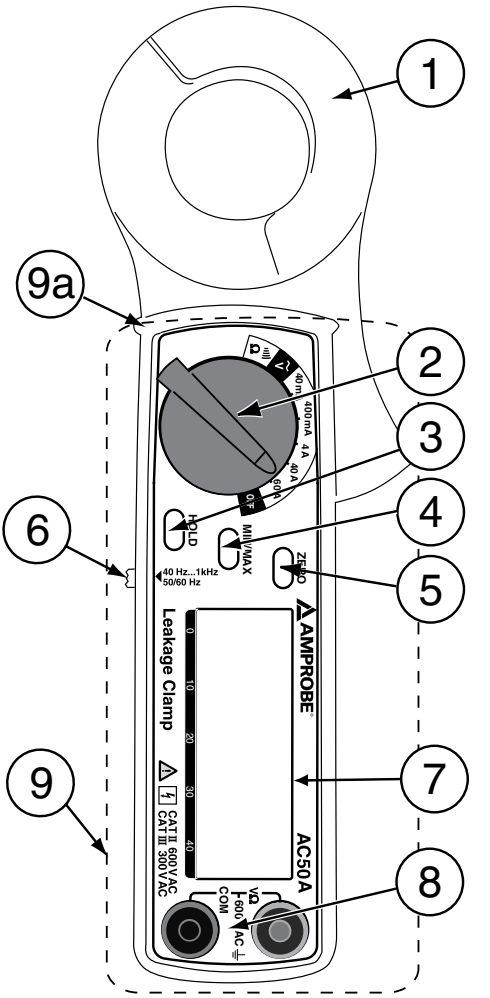
- The Amprobe Current Clamp AC50A has been manufactured and tested to comply with the safety regulations for electronic measuring equipment contained in IEC61010 and EN 61010, and left the factory in a safe condition. To maintain this condition, the user must observe the safety instructions contained in this users manual.
- To avoid electric shock, safety measures must be observed when working with voltages higher than 60V d.c. or 30 V r.m.s.(42.4 V peak).
- Before each measurement make sure that the test leads and the instrument are undamaged.
- Only handle test leads and probes on the grips provided. Avoid touching probes under any circumstances.
- Measurements in dangerous proximity of electrical installations are only to be executed when instructed by a responsible electrical specialist, and never alone.
- The relevant safety regulations for electrical plant and equipment must be observed during all operations.
- The instrument must only be used in the specified ranges.
- Before opening the instrument, it must be disconnected from all circuits.
- Protect the instrument from prolonged exposure to direct sunlight.

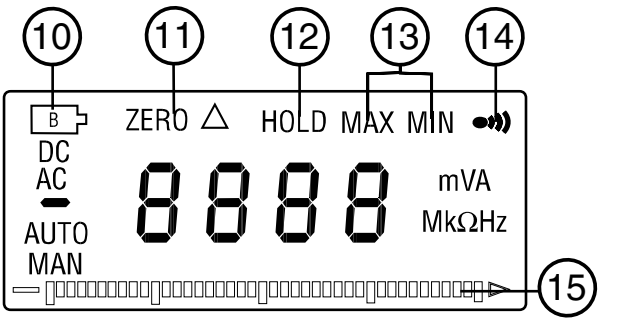
⚠⚠Appropriate Usage

- The instrument may only be used under those conditions and for those purposes for which it was conceived. For this reason, in particular the safety references, the technical data including environmental conditions and the usage in dry environments must be followed.
- When modifying or changing the instrument, the operational safety is no longer ensured.
- The instrument may only be opened by an authorised service technician, e.g. for fuse replacement.

Feature Diagram

1. Induction coil (clamp)
2. Selector switch, for type of measurement
3. Data hold button, to memorise reading
4. MIN/MAX value (page 8)
5. Zero setting / relative value function. Once this button is pressed, the current reading shall be set to zero and be used as a zero reference value for all other subsequent measurement.
6. Frequenzy range select switch. At 50/60Hz position, only the low frequency signal is measured. At Wide position, signal from 40 - 1kHz is measured.
7. Digital display
8. Input socket, for measuring voltage, resistance, continuity testing
9. Hand-hold area incl. Barrier (9a)
10. Low-battery symbol
11. Zero Point / Relative Value Symbol
12. Hold symbol (Data Hold is active)
13. Min/ Max Symbol
14. Continuity Symbol
15. Analogue Bargraph



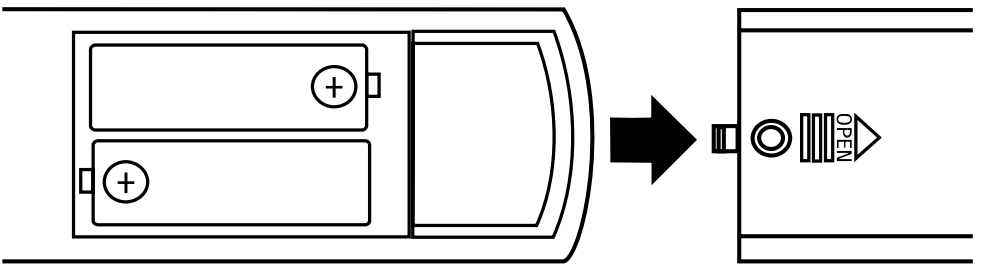


Operation

⚠Preparation and safety measures

Installing the battery
Before using the instrument, the battery must be installed. This is carried out as follows:

1) Separate the instrument from any circuit, and remove the test leads.
2) Open the housing by removing the screw on the rear face.



3) Fit the new batteries (2 type 1.5 V IEC LR6), taking care that the polarity is correct. Make sure that no wires are trapped between the 2 halves of the housing, and close it again.

4) The instrument is now ready for use.

- The selector switch must be turned to the desired type of measurement before the probes are connected to the unit under test (UUT).

- Before switching to a new function, the probes must always be removed from the UUT.

- Use the instrument only in clean and dry surroundings. Dirt and moisture reduce the effectiveness of the insulation, with consequent danger of electric shock, specially when dealing with high voltages.

- Use the instrument only in the specified ranges. Before making measurements, verify that the instrument is functioning properly, for example by testing on a known voltage or current. Make sure that the test leads are undamaged.

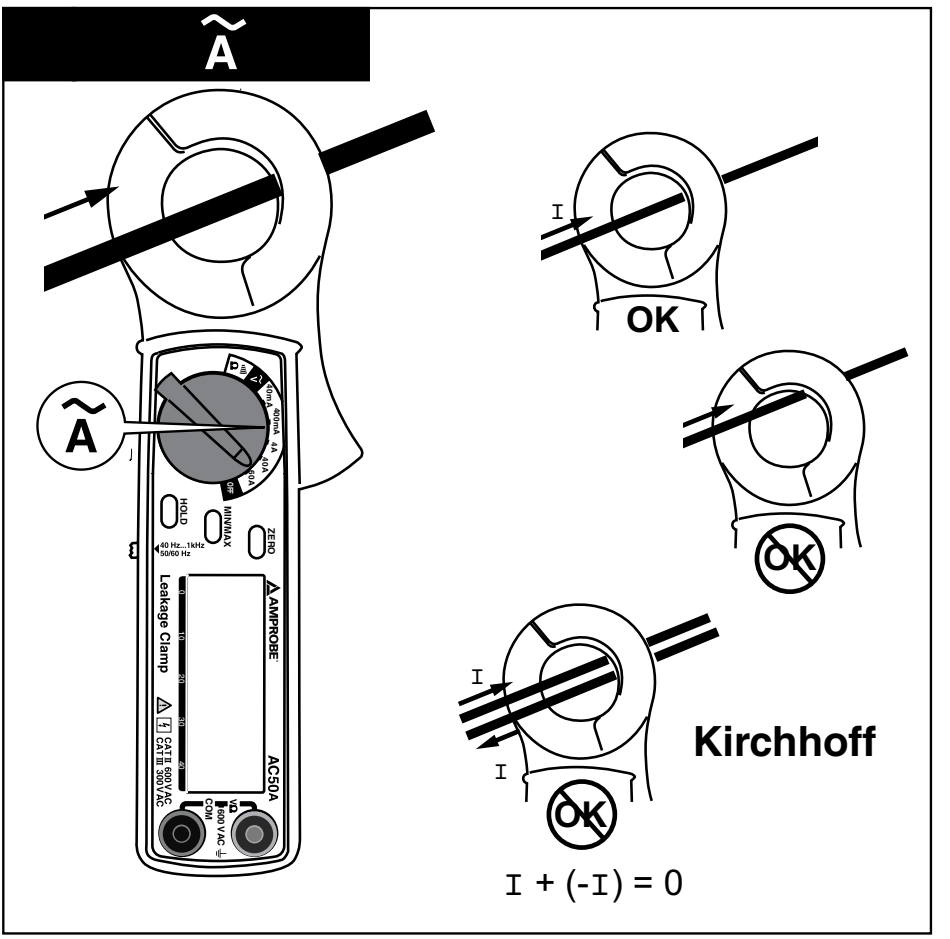
Current Measurements

⚠ If tangible dangerous active parts are present in the plant where you are making measurements, individual protection equipment (e.g. suitable covers) must be used.

⚠ Always hold the instrument below the handle shroud.

⚠ The respective accident prevention regulations established by the professional associations are to be strictly enforced at all times regarding tasks executed under voltage or in proximity of parts under voltage.

1) Turn selector switch (2) to the AC current range you need
2) Open the clamp, and close it round the conductor. Make sure that the clamp properly encircles the conductor, and that there is no air gap between the jaws. For best measurement results and highest accuracy, have the conductor placed in center of clamp jaws.



For incorrect measurement, the display equals zero. In compliance with the Kirchhoff's current law states the sum of all currents equals zero. However, this measurement layout in conjunction with a very sensitive current clamp can be used to measure leakage currents.

☞ If the display is not visible during measurement, press the "HOLD" button (3) to retain the display. The clamp can then be removed from the conductor and the stored value read.

Voltage Measurements

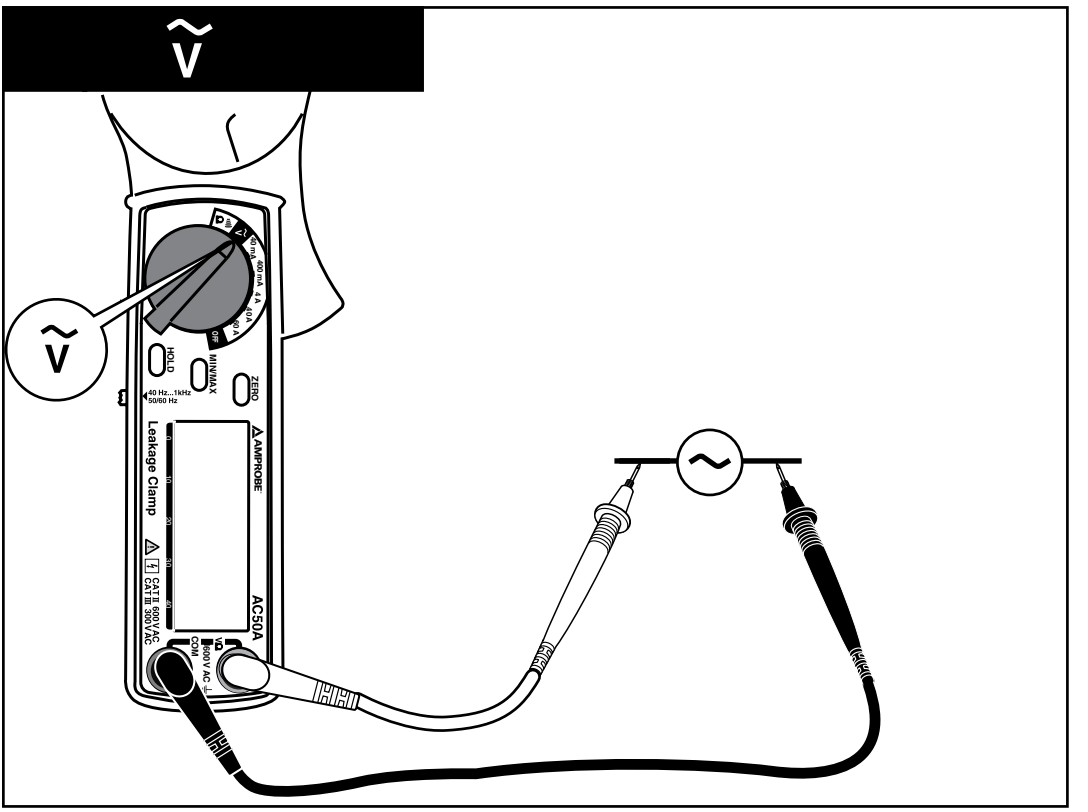
⚠ Do not connect more than 600 V AC/DC to the input sockets. Exceeding these values can endanger the operator, and may result in damage to the instrument.

⚠ Before switching to a new function, disconnect the probes from the UUT.

⚠ Only handle test leads and probes on the grips provided. Avoid touching the probes under any circumstances.

1) Turn selector switch (2) to 400V
2) Plug the black test lead into the "COM" socket and the red lead into the "VΩ" socket
3) Connect the probes to the UUT and read the display

☞ If the display is not visible during measurement, press the "HOLD" button (3) to retain the display. The probes can then be removed from the conductor and the stored value read.



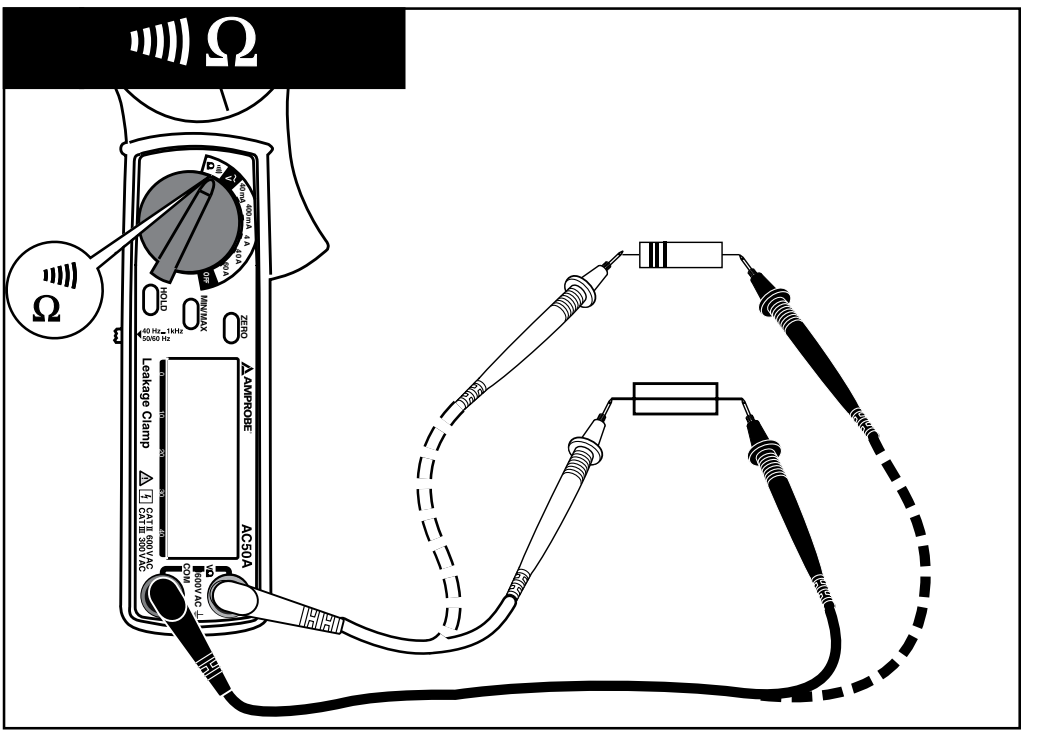
Resistance Measurements / Continuity

⚠ Disconnect the UUT from all sources of supply and check that it is at zero voltage.

1) Turn selector switch (2) to Ω/
2) Plug the black test lead into the "COM" socket and the red lead into the "+" socket
3) Connect the probes to the UUT and read the display

☞ If the display is not visible during measurement, press the "HOLD" button (3) to retain the display. The probes can then be removed from the conductor and the stored value read.

☞ Continuity: At a resistance less than 40 Ω (< 40 Ω) a signal is audible.



MIN/MAX and peak values/ Auto Power Off

The MIN/MAX button can be used to find either the largest or the smallest value of a series of measurements. Pressing the MIN/MAX button activates first the MIN mode, so that the smallest value is selected.

☞ Pressing it a second time changes to MAX mode, for the largest value. Pressing the button a third time returns the instrument to normal operation.

Maintenance

Provided it is used in accordance with the users manual, the instrument needs no special maintenance.

Cleaning
If the instrument is dirty after daily usage, it is advised to clean it by using a humid cloth and a mild household detergent.

⚠ Prior to cleaning, ensure that instrument is switched off and disconnected from external voltage supply and any other instruments connected (such as UUT, control instruments, etc.).
Never use acid detergents or dissolvants for cleaning.

Changing the battery

⚠ Prior to storage battery replacement, disconnect the instrument from any circuits.
⚠ Only use batteries as described in the technical data section.
• If the symbol for Low-battery appears in the upper left corner of the display, the battery must be changed.
This is carried out as follows:
1) Separate the Amprobe Current Clamp AC50A from any circuit, and remove the test leads.
2) Switch the instrument off
3) Open the housing by removing the 3 screws on the rear face.
4) Remove the old batteries
5) Fit the new batteries (2 type 1.5 V IEC LR6), taking care that the polarity is correct. Make sure that no wires are trapped between the 2 halves of the housing, and close it again.
6) The instrument is now ready for further use.

Please consider your environment when you dispose of your one-way batteries or accumulators. They belong in a rubbish dump for hazardous waste. In most cases, the batteries can be returned to their point of sale.

⚠ Please, comply with the respective valid regulation regarding the return, recycling and disposal of used batteries and accumulators.

If an instrument is not used over an extended time period, the batteries must be removed. Should the instrument be contaminated by leaking battery cells, the instrument has to be returned for cleaning and inspection to the factory.

Calibration Interval

We suggest a calibration interval of one year. If the instrument is used very often or if it is used under rough conditions we recommend shorter intervals. If the instrument is used only a few times a year, the calibration interval can be extended to 3 years.

Specifications (at 23° C % 5° C, max. 75 % rel. humidity)

Display:	3¾, LCD incl. functions and symbols
Bargraph:	40 segments
Range Selection:	manual
Auto-Power-Off:	approx. 30 min.
Overload display:	the left digit is blinking
Measuring rate:	20 measurements/sec. (Bargraph) 2 measurements/sec. (LCD)
Clamp opening:	ca. 30 mm (1/2 inch)
Overvoltage Categorie:	CAT II, 600 V
Pollution degree:	2
Height above MSL.:	up to 2000 m
Battery display:	at low battery
Power supply:	Batterie 2 x 1,5 V IEC LR6 (alkaline)
Current Consumtion:	approx. 10 mA
Operation temperature:	-10° C … 50° C
Storage temperature:	20° C … 60° C
Humidity:	< 75 % relative humidity
Dimension:	183 x 63,6 x 35,6 mm (7.2 x 2.5 x 1.4 inch)
Weight:	ca. 190 g (7 oz)

Current AC

Range	Resolution	Accuray 50 Hz/60 Hz	 40 Hz … 1 kHz
0 – 40 mA 0 – 400 mA 0 – 4 A 0 – 40 A	10 µA 100 µA 1 mA 10 mA	±(1,5 % rdg. +3 D)	±(2,0 % rdg. +5 D)
0 – 50 A	0,1 A	±(1,5 % rdg. +5 D)	±(2,0 % rdg. +5 D)
50 – 60 A	0,1 A	±(3,0 % rdg. +5 D)	±(3,5 % rdg. +5 D)

Voltage AC

Range	Resolution	Accuray 50 Hz/60 Hz	 40 Hz … 1 kHz
0...400 V	0,1 V	±(1,0 % rdg. +3 D)	±(2,0 % rdg..± 4 D)

Resistance

Range	Resolution	Accuray	Overload Protection
400 Ω	0,1 Ω	±(1 % rdg. +3 D)	600 V AC

Continuity

Range	Resolution	Beep	Open Circuit Voltage
Ω/	0,1 Ω	< ca. 40 Ω	< 0,4 V

Overload Protection 600 V AC

Limited Warranty and Limitation of Liability

Your Amprobe product will be free from defects in material and workmanship for1 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 a Amprobe dealer or distributor. See Repair Section for details. THIS WARRANTY IS YOUR ONLY REMEDY. ALL OTHER WARRANTIES - WHETHER EXPRESS, IMPLIED OR STAUTORY - 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. Nonwarranty 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 that follows, 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.

Additionally, in the United States and Canada InWarranty 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.

Non-Warranty Repairs and Replacement – Europe
European non-warranty units can be replaced by your Amprobe Test Tools distributor for a nominal charge.