



AMB-45

**Digital Megohmmeter
Insulation Resistance Tester**

Users Manual



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Insulation Resistance Tester

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

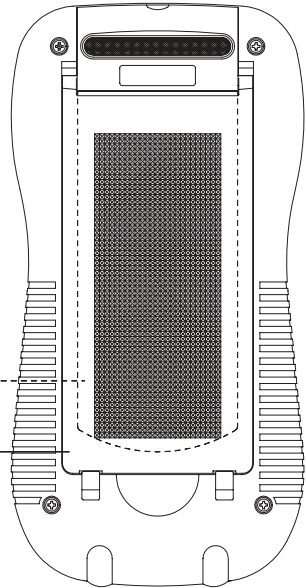
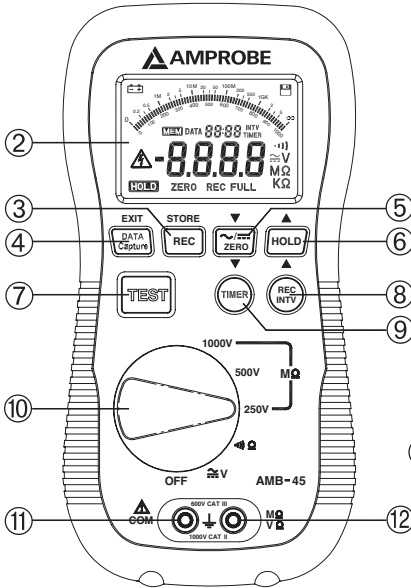
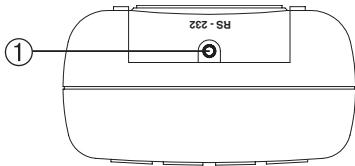
All test tools returned for warranty or non-warranty repair or for calibration should be accompanied by the following: your name, company's name, address, telephone number, and proof of purchase. Additionally, please include a brief description of the problem or the service requested and include the 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.

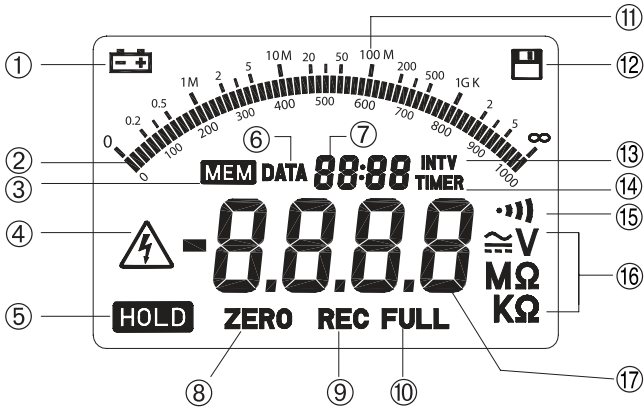
Non-Warranty Repairs and Replacement – US and Canada

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.



- | | |
|-----------------------|-----------------------------|
| ① RS232 connector | ⑧ REC interval setup button |
| ② LCD Display | ⑨ Insulation timer button |
| ③ REC button | ⑩ Function selection dial |
| ④ Data capture Button | ⑪ Black terminal |
| ⑤ AC/DC button | ⑫ Red terminal |
| ⑥ Data Hold Button | ⑬ Battery Compartment Cover |
| ⑦ TEST Button | ⑭ Foldable stand |

Symbol Definition and Button Location







- | | | | |
|---|------------------------------|---|------------------------------|
| ① | Low battery | ⑩ | Memory full |
| ② | Analog bar display | ⑪ | Analog Bar Scale |
| ③ | Data in capture memory | ⑫ | Data recording |
| ④ | High voltage warning | ⑬ | REC interval symbol |
| ⑤ | Data hold | ⑭ | Insulation test timer symbol |
| ⑥ | Data capture mode indication | ⑮ | Continuity buzzer function |
| ⑦ | Second digit display | ⑯ | Measuring unit |
| ⑧ | Low ohm zero function | ⑰ | Main digit display |
| ⑨ | REC in process | | |

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SAFETY SYMBOLS:

	Caution (Refer to this manual before using the meter)
	Dangerous voltages, risk of electric shock.
	Meter is protected throughout by double insulation. When servicing, use only specified replacement parts.
	Underwriters Laboratories Inc. [Note: Canadian and US.]

SAFETY INFORMATION

- Read the following safety information carefully before attempting to operate or service the meter.
- The circuit under test must be de-energized and isolated before connections are made except for voltage measurement.
- Circuit connections must not be touched during a test.
- After insulation test, capacitance circuits must be allowed to discharge before disconnecting the test leads.
- To avoid damages to the instrument do not apply the signals, which exceed the maximum limits shown in the technical specification tables, to the meter.
- Do not use the meter or test leads if they look damaged. Use extreme caution when working around bare conductors or bus bars.
- Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.
- Caution when working with voltages above 60V DC or 30 V AC RMS. Such voltages pose a shock hazard.
- Before taking resistance measurements or testing acoustic continuity, disconnect circuit from main power supply and all loads from the circuit.

ENVIRONMENT CONDITIONS:

- Installation Categories III 600V, Categories II-1000V
- Pollution Degree 2
- Altitude up to 2000 meters
- Indoor use only
- Relatively humidity 80% max.
- Operation Temperature 0 ~ 40°C



MAINTENANCE & CLEANING:

- Only qualified personnel should perform repairs or servicing not covered in this manual.
- Periodically wipe the case with a dry cloth. Do not use abrasives or solvents on these instruments.

GENERAL SPECIFICATION:

- **Display:** 70 x 46mm Big LCD Panel with 60 segments analog bar Indication.
- **Over range Indication:** "OL" will be shown on the LCD Panel when out of range measurement is made, except for insulation resistance test, where the "HI" will be shown.
- **Low Battery Indication:** The will be show when the battery need to be changed.
- **Sampling Rate:** 2.5 times/sec Digital Display; 10 times/sec Bar Graph
- **Power Source:** 1.5V AA size Battery X 8
- **Operating Temperature and Humidity:** 0°C to 40°C (32°F to 104°F), below 80% RH
- **Storage Temperature:** -10°C to 60°C (14°F to 140°F)
- **Dimension:** 230 x 116 x 62 mm; 9 x 4.6 x 2.4 inch
- **Weight:** Approx. 750g (with battery)
- **Accessories:** Test Lead, Large Jaw Alligator Clips, Battery, Carrying Case, Software, RS-232 Cable, Users Manual.

ELECTRICAL SPECIFICATION:


AC Voltage		
Range	Resolution	Accuracy
600V	0.1V	1.5%rdg+5dgts
DC Voltage		
Range	Resolution	Accuracy
600V	0.1V	1%rdg+3dgts
Ω Ohms (Autoranging)		
Range	Resolution	Accuracy
400 Ω	0.1 Ω	1%rdg+5dgts
4000 Ω	1 Ω	
 Continuity Beeper		
Range	Active	Protection
	40 Ω	250Vrms
M Ω (Autoranging)		
Range	Resolution	Accuracy
4/40/400/4000M Ω (250V)	1K Ω	3%rdg+5dgts < 2G Ω 5%rdg+5dgts < 4G Ω
4/40/400/4000M Ω (500V)		
4/40/400/4000M Ω (1000V)		

Recording Length: 4000 records

AUTO POWER OFF

When the tester is idle for thirty minutes, with no function selector or button operation, it will turn itself off automatically. To turn the tester on again, the user has to turn the function selector to "OFF" position, then the selected function.

BATTERY CHANGING


When  appears on the LCD, the battery need to be replaced with new ones. To replace the battery the user should turn the function selector to OFF position. Then the user needs to open the battery compartment cover with a screwdriver. Eight AA 1.5V batteries are needed to replace the old ones. After all Batteries are changed, put the cover back and fasten the screw.

FUSE CHANGING

When connect the meter under Ohm rang to a source > 10V, the protection fuse will break the circuit and new one will be needed for replacement. To replace the fuse, user should prepare an F 0.5A 600V fuse. First, the user should turn the tester off and remove the test leads then remove the Back Cover and Replace the fuse.

MEASURING FUNCTIONS

ACV FUNCTION:

Turn function selector to voltage range. Connect black test lead to Black terminal and red one to the Red terminal. Connect test lead to the test circuit in parallel. Operator can hold the reading by pressing the  key.



DCV FUNCTION:

Turn function selector to voltage range. Connect black test lead to Black terminal and red one to the Red terminal.

Press the  button to change the mode from ACV to DCV function. Connect test lead to the test circuit in parallel. One can hold the reading by pressing the  key.

LOW OHM FUNCTION AND CONTINUITY FUNCTION:

Turn function selector to Ohm range. Connect black test lead to Black terminal and red one to the Red terminal. Connect test lead to the test circuit in parallel. If the reading is less than 40 Ohm, the continuity beeper will sound.

One may null the lead resistance (under 40 Ohm) by shorting the test lead then press the  key. When the lead resistance is recorded a ZERO symbol will display on the LCD. Press  key again to go back to normal operation. If the lead resistance is great than 40Ω, the error beeping will sound. Because the test current provided by the meter could reach 200mA, do not use this range to test electronic component like diode, transistor or fuse.






Caution:

Before measuring, verify the circuit is not live by voltage function

MEGAOHM FUNCTION:

Turn the function selector to the desired test voltage range. The LCD will display “----” to indicate the tester is standing by. Connect black test lead to Black terminal and red one to the Red terminal. Connect test lead to the test circuit in parallel. One may take the measuring under manual power mode or power lock mode:

- **Manual Mode:** If the timer symbol and setup is not shown on the center of LCD, the tester is under manual mode. Press the test key to activate the test voltage source and the measuring will stop after it got the first stable reading or the  is pressed again before a stable reading is reached. A periodic beeping will warn the high voltage output. A series of beeping with shorter period indicate the discharging in progress. When the beeper stops, the discharge is completed. The test result will be held on the display automatically.
- **Lock Mode:** Press the  button to enter or exit the Power Lock operation mode. Under this mode the timer and setup will be shown in the center of LCD. Press the test button once to activate the test source and the testing down counter will be shown in the 2nd digital display. A periodic beeping will warn the high voltage output. The test process can be stop by pressing the  button again or when the testing down counter reaches zero. A series of beeping with shorter period indicate the discharging in progress. When the beeper stops, the discharge is completed. The test result will be held on the display automatically.


















Caution:

Before measuring, verify the circuit is not live by voltage function.

Do not start the test before the lead is connected to the test circuit properly.

Do not remove the test leads from the test circuit before the discharge process is completed.

- **Setup Timer:** When the function selector is under insulation ranges, the user can setup the timer by pressing  for 2 seconds. The timer setup will blink in LCD and it can be changed by  and  keys. Pressing these keys one time will change the setup by one second and pressing these keys for more than two seconds the value will change continuously. Once the setup is done, the user needs to press the timer again to store the value into the memory.
- **Setup REC interval:** The user can setup the REC interval by pressing . The interval setup will blink in LCD and it can be changed by  and  keys. Pressing these keys one time will change the setup by one second and pressing these keys for more than two seconds the value will change continuously. Once the setup is done, the user needs to press the timer again to store the value into the memory.
- **Start/Stop REC measuring DATA:** When the function selector is under voltage and low resistance ranges, the user can start the REC function by pressing  key. The REC symbol will display in the LCD. The REC down counter will also be shown in LCD to forecast the next data sampling time. When the second that the recording occurs, a disk symbol will be shown to indicate this process. When the function selector is under insulation ranges, the user can set the REC mode only before the measuring start. If the REC mode is set, a measuring will start the REC process automatically.
- **Data Capture Function:** When the user want to store a reading on the LCD, he can press  key to enter data capture window. The tester will automatically searched the next available capture memory to store the reading or the user can browse up and down by press the  and  keys. Once the address is chosen, the user need to press  key to store reading. The user can exit data capture window by press  key again.
- **Erase Data Memory:** The user can erase all the memory in the following process. Turn the tester off. Press and hold  key then turn on the tester.  will be shown to indicate the erasing is under process. When it is done, message  will be shown in the LCD and the user can release the key.