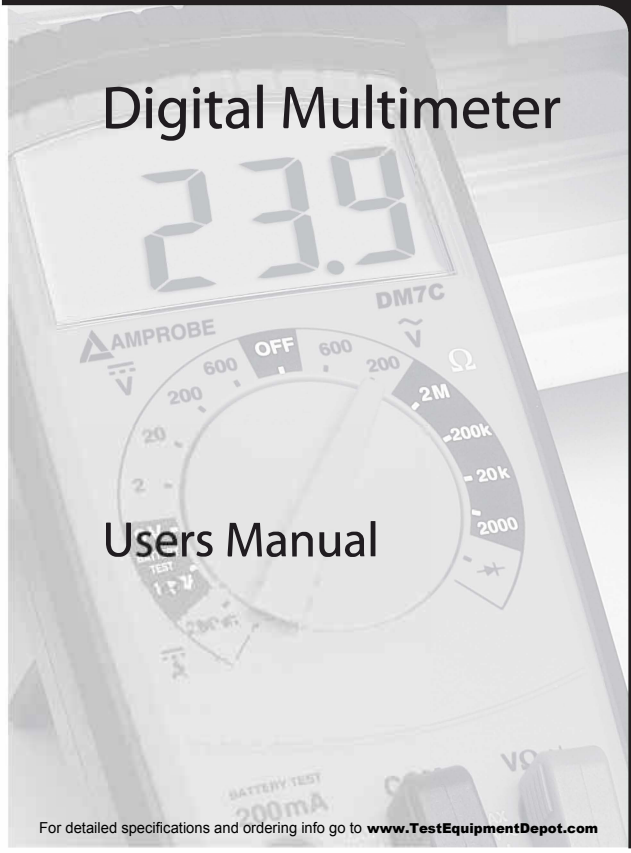
AMPROBE

DM7C

Digital Multimeter



Users Manual

Contents

Users Manual

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.
	Canadian Standards Association.		
	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 Multimeter DM7C 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 multimeter is a valuable tool for all sorts of measurements in both trade and industry.

- 3 1/2 digit LC Display, max. 1999 digits
- manual measurement range selection
- AC and DC voltage measurement up to 600 V
- DC Current measurement up to 200 mA
- Resistance measurement up to 2 MOhm
- Diode test
- Battery test for 1.5 V and 9 V batteries

After unpacking, check that the instrument is complete, and that all accessories are present.

Contents

1 pc. Amprobe Multimeter DM7C
1 pc. Holster
2 pcs. Test Leads (1ea. red, 1ea. black)
1 pc. Battery 9 V IEC 6F22 or 6LR61
1 pc. 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

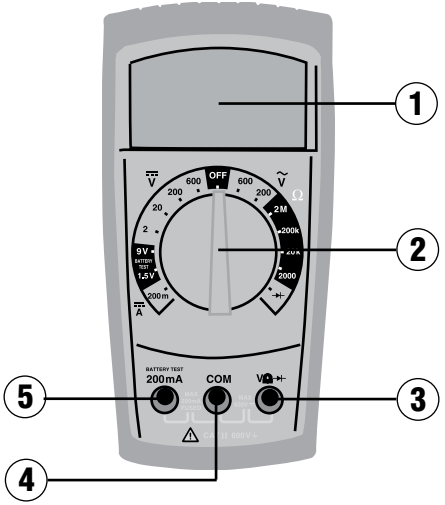
- The Amprobe multimeter DM7C has been manufactured and tested to comply with the safety regulations for electronic measuring equipment contained in IEC61010 and EN 61010, and left the factory in a safe condition. To maintain this condition, the user must observe the safety instructions contained in this users manual.
- To avoid electric shock, safety measures must be observed when working with voltages higher than 120 V (60 V) DC or 50 V (25 V) RMS AC. These are the values of threshold contact voltages given by DIN VDE.
- 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. LCD
2. Measurement function selection switch
3. Input socket for measurement ranges VΩ→⏐
4. Ground connection for all measurement ranges
5. Input socket for current measurement range 200 mA



Operation

⚠ Measurements in dangerous proximity of electrical systems are only to be carried out in compliance with the instructions of a responsible electronics technician, and never alone.

⚠ Test leads and test probes may only be touched at handle surfaces provided. Absolutely avoid the direct contact of the test probes. Prior to switching to a new measurement range or a new type of measurement, remove all connections from UUT.

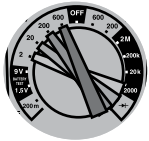
⚠ Measurements have to be carried out by respecting the standards.

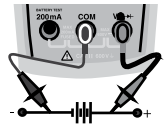
Voltage Measurement

⚠ To avoid electrical shock, the valid safety measures and VDE directives strictly have to be met concerning excessive contact voltage when working with voltages exceeding 120V (60V) DC or 50V (25V)rms AC.

DC Voltage Measurement

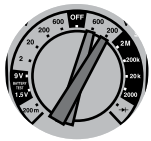
1) Select measurement range (2V, 20V, 200V or 600V) via measurement function selection switch.
2) Connect the black test lead to the COM socket and the red test lead to the VΩ→⊢ socket.
3) Connect test leads to UUT.
4) Read the measurement result displayed on the screen.
   If display shows "1" on the left, change selection to next highest voltage range.

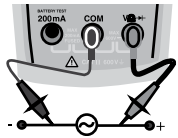




AC Voltage Measurement

1) Select measurement range (200V or 600V) via measurement function selection switch.
2) Connect the black test lead to the COM socket and the red test lead to the VΩ→⊢ socket.
3) Connect test leads to UUT.
4) Read the measurement result displayed on the screen.
   If display shows "1" on the left,, change selection to next highest voltage range.

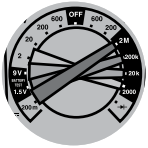


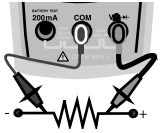


Resistance Measurement

⚠ Prior to any resistance measurement it has to be ensured that the resistor to be tested does not have voltage across it. Failure to comply with this prescription can lead to dangerous user injuries or cause instrument damage. Additionally, foreign voltages falsify the measurement result.

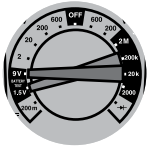
1) Select measurement range (2000Ω, 20kΩ, 200 kΩ or 2 MΩ) via measurement function selection switch.
2) Connect the black test lead to the COM socket and the red test lead to the VΩ→⊢ socket.
3) Connect the test leads to UUT.
4) Read the measurement result displayed on the screen.
   If display shows "1" on the left, change selection to next highest resis.-range.

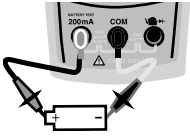




Battery Test

1) Select measurement range 9V or 1.5V via measurement function selection switch .
2) Connect the black test lead to the COM socket and the red test lead to the BATTERY TEST socket.
3) Connect test leads to UUT/Battery.
4) Read the measurement result displayed on the screen.



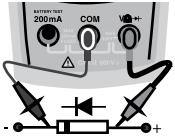


Diode Test

⚠ Prior to any diode test, it must be ensured, that the diode to be tested does not have voltage across it. Failure to comply with this prescription can lead to dangerous user injuries or cause instrument damage. Additionally, foreign voltages falsify the measurement result.

☞ Resistors and semiconductor paths in parallel to the diode cause falsified measurement results.

1) Position measurement function selection switch to ⊣▶ measurement range.
2) Connect the black test lead to the COM socket and the red test lead to the VΩ⊣▶ socket.
3) Connect test leads to UUT.
4) Read the measurement result displayed on the screen.



Current Measurement

☞ Ensure that the measurement circuit is not live when connecting the measurement instrument.

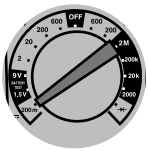
⚠ The instruments may only be used in current circuits protected at 16 A up to a nominal voltage of 600 V.

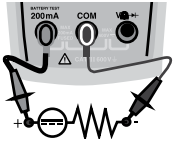
⚠ The nominal cross section of connecting line has to be respected and a safe connection has to be ensured.

⚠ After instrument fuse tripping eliminate the cause for the tripping prior to fuse replacement.

Current Measurement 200 mA

1) Position measurement function selection switch to 200m measurement range.
2) Connect the black test lead to the COM socket and the red test lead to the 200mA socket.
3) Connect test leads to UUT.
4) Read the measurement result displayed on the screen.





Changing the batteries

⚠ Prior to battery replacement, disconnect the instrument from any circuits.

⚠ Only use batteries as described in the specifications.

☞ 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 multimeter DM7C from any circuit, and remove the test leads.
2) Switch the instrument off
3) Open the housing by removing the 4 screws on the rear face.
4) Remove the old battery.
5) Insert a new battery (type 1 x 9 V IEC 6F22 or 6LR61), 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. They belong in a disposal area for hazardous waste.

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

☞ 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.

Fuse replacement

⚠ Prior to fuse replacement, disconnect the instrument from any circuits.

⚠ Only use fuses of voltage and current values as described in the specifications.

⚠ Using auxiliary fuses, in particular short-circuiting fuse holders is prohibited and can cause instrument destruction or serious bodily injury of operator.

1) Separate the Amprobe multimeter DM7C from any circuit, and remove the test leads.
2) Switch the instrument off and remove the holster.
3) Open the housing by removing the 4 screws on the rear face.
4) Remove the defective fuse
5) Insert a new fuse. 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.

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 damp 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.

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:	3 1/2 digits, LC-Display
Total display:	1999 digit
Overload display:	the left "1" is displayed
Polarity display:	automatic
Battery status display:	Battery symbol appears (7.2 V)
Overvoltage class:	CAT II 600 V
Degree of contamination:	2
Power supply:	Battery 9V IEC 6F22 or 6LR61
Power consumption:	approx. 1,5 mA (typical)
Dimensions:	170 x 85 x 50 mm incl. Holster
Weight:	approx.. 410 g (incl. Holster)

Ambient conditions:

Operation temperature:	0...50°C (0...80% rel. humidity)
Storage temperature:	-10...60°C (0...80% rel.humidity)(without battrie)
Height above sea level:	up to 2000 m

Overload protection:
Fuse (mA) : FF200mA / 700V / 50kA , 6x32mm
Temperature coefficient: 0,15 x specified accuracy per 1°C (<18°C and >28°C)

Voltage DC			
Range	Resolution	Accuracy	Overload protection
2 V	1 mV	± (1.2% rdg. + 3 digit)	600 V DC/ACeff
20 V	10 mV		
200 V	100 mV		
600 V	1 V		

Input Impedance 1 MOhm

Voltage AC (40…1 kHz)			
Range	Resolution	Accuracy	
		40...100 Hz	100Hz...1kHz
200 V	100 mV	±(1.5% rdg.+3digit)	±(2.5% rdg.+ 3digit)
600 V	1 V		

Overload protection: 600 V DC/ACeff
Input Impedance: 460 kOhm

Battery Test			
Range	Resolution	Accuracy	Overload protection
1.5V	10 mV	±(2.5% rdg +3 digit)	600 V DC/ACeff
9 V	10 mV		

Current DC			
Range	Resolution	Accuracy	Overload protection
200 mA	100 µA	± (2,.5% rdg. + 3 digit)	600 V DC/ACeff

Resistance			
Range	Resolution	Accuracy	Overload protection
2000 Ohm	1 Ohm	± (1.5% rdg. + 3 digit)	600 V DC/ACeff
20 kOhm	10 Ohm		
200 kOhm	100 Ohm		
2 MOhm	1 kOhm		

Test Voltage < 3,2 V

Diode Test			
Range	Resolution	Test Voltage	Test Current
Diode	1 mV	< 3.2 V	< 1 mA

Overload protection 600 V DC/ACeff

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 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. 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.