

Introduction

Dear customer, Thank you for making the excellent decision to purchase this UNI-T product. You are acquiring an above-average quality product from a brand name which has distinguished itself in the field of measuring instruments and related accessories...

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Intended Use

Measuring and displaying electrical parameters in the range of safety voltage category II (up to max. 600V against ground potential, pursuant to EN 61010-1) and all lower categories. Measuring direct current up to max. 1000 V (CAT II).

Safety instructions

Please read the entire operating instructions before using the product for the first time; they contain important information on the correct operation. The guarantee is rendered invalid when damage is incurred as a result of non-compliance with the operating instructions.

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CE

This product has been CE tested and meets the necessary European guidelines. Class 2 insulation (double or reinforced insulation). Overvoltage category II for measurements on electric and electronic devices connected to the mains supply with a potential.

Safety instructions

In schools, training centres, computer and self-help workshops, handling of measuring instruments must be supervised by trained personnel in a responsible manner. Before measuring voltages, always make sure that the measuring instrument is not set to a measuring range for current.

If you have a reason to believe that the device can no longer be operated safely, disconnect it immediately and secure it against being operated unintentionally. It can be assumed that safe operation is no longer possible if:

Rotary switch (4)

The individual measuring functions are selected using a rotary switch for which 'Auto' is the measuring range selection, and 'Auto' is the appropriate range of measurement to be set for each application individually.

Product Description

The multimeter (referred to as DMM in the following) indicates measured values on the digital display. The measuring value display of the DMM comprises 4000 counts (count = smallest display value). The measuring device can be used for do-it-yourself or for professional applications.

Contents

Multimeter with removable rubber holster. 9V battery. Safety measuring cable. Operating instructions.

Display indications and symbols

- Auto range stands for 'automatic measuring range selection'. Correct meaning: Graphic values to select the required measuring range. Overload, the measuring range was exceeded. Symbol for the diode test. Symbol for the acoustic continuity tester. Alternating sign for voltage and current. Direct magnitude for voltage and current. mA (milliamp (exp. 3)). Volt (unit of electric potential). ampere (unit of electric current). Milliamper (exp. 3). MHz (Hertz (unit of frequency)). Hz (Hertz (unit of frequency)). Hz (Hertz (unit of frequency)). MHz (Megahertz (exp. 6)). Ohm (unit of electric resistance). kΩ (Kiloohm (exp. 3)). MΩ (Megohm (exp. 6)). Only use alkaline batteries. exp. 6: Milliamp (exp. 6). Microohm (exp. 6).

Measuring

Do not exceed the maximum permitted input values. Do not contact circuits or parts of circuits if these could be voltages higher than 25 V ACrms or 35 V DC present within them. Before measuring, check the connected measuring leads for damage such as, for example, cuts, cracks or loosening. Defective measuring cables must not be used. Moral danger! During measuring, do not grip beyond the tangible grip range markings present on the test probes.

a) Voltage measuring „V“

Proceed as follows to measure DC voltages „DC-V“: Turn the DMM on at the rotary switch and select measuring range „V“ for lower voltages up to max. 400 mV, select the measuring range „mV“. Plug the red measuring lead into the V measuring socket and the black measuring lead into the COM measuring socket. Do not connect the two test probes to the object to be measured (battery, circuit etc.). The red measuring tip indicates the positive pole, the black measuring tip the negative pole. The polarity of the respective measuring value is indicated on the front of the current measuring value.

b) Current measuring „A“

Do not exceed the maximum permitted input values. Do not contact circuits or parts of circuits if these could be voltages higher than 25 V ACrms or 35 V DC present within them. Moral danger! The voltage in the measuring circuit may not exceed 250 V. Measuring in the 10 A range may only be performed for max. 10 seconds and with 15 minutes measuring intervals. Current measuring operations are possible in three ranges. The first range is from 1 to 4000 μA, the second from 1 to 400 mA and the third from 1 to 10 A. Current measuring ranges are protected against overload. The mA measuring fuse has a self-restoring PTC fuse. Fuse changes are not required.

c) Frequency measuring

The DMM can be used to measure and indicate signal voltage frequencies up to 10 MHz. Proceed as follows to measure frequencies: Turn the DMM on at the rotary switch and select measuring range „Hz“. The display shows „Hz“. Plug the red measuring lead into the Hz measuring socket and the black measuring lead into the COM measuring socket. Do not connect the test lead probes to the object to be measured (signal generator, circuit etc.). The frequency and corresponding unit are displayed.

d) Resistance measuring

Make sure that all the circuit parts, switches and components and other objects of measurement are disconnected from the voltage at all times. Proceed as follows to measure the resistance: Turn the DMM on at the rotary switch and select measuring range „Ω“. Plug the red measuring lead into the Ω measuring socket and the black measuring lead into the COM measuring socket. Check the measuring leads for continuity by connecting both measuring probes to one another. After that the resistance value must be approximately 55 Ohm (internal resistance of the measuring leads).

e) Diode test

Make sure that all the circuit parts, switches and components and other objects of measurement are disconnected from the voltage at all times. Turn the DMM on at the rotary switch and select measuring range „▶“. Plug the red measuring lead into the Ω measuring socket and the black measuring lead into the COM measuring socket. The display indicates the diode symbol „▶“. Check the measuring leads for continuity by connecting both measuring probes to one another. After that the value must be approximately 0.5 V.

f) Continuity check

Make sure that all the circuit parts, switches and components and other objects of measurement are disconnected from the voltage and discharged. Turn the DMM on at the rotary switch and select measuring range „◀“. Plug the red measuring lead into the Ω measuring socket and the black measuring lead into the COM measuring socket. To activate the acoustic continuity test function, press the button „SELECT“. Pressing this button again takes you back to the first measuring function (resistance measuring) etc. The display indicates the symbol „Continuity test“ „◀“.

g) Capacity measuring

Make sure that all the circuit parts, switches and components and other objects of measurement are disconnected from the voltage and discharged. With electrolytic capacitors, observe the polarity. Turn the DMM on at the rotary switch and select measuring range „F“. Plug the red measuring lead into the F measuring socket and the black measuring lead into the COM measuring socket. The display shows the unit „μF“.

REL A function

The REL function allows a reference voltage measurement to avoid possible biases which may caused e.g. during resistance measurements. For this purpose, the current indicated value is set zero. A new reference value is set. Press the „REL A“ button to activate the measuring function. The display shows „A“. The automatic measuring range selection is deactivated now. To turn this function off, keep the button „REL A“ depressed until „A“ goes off.

Low Imp. 400 kΩ function

This function enables you to be used for the measuring of a range of 250 V and a max. of 3 seconds! The measuring function enables the reduction of the measuring impedance from 10 MΩ to 400 kΩ. Through the reduction of the measuring impedance, possible phantom voltages are suppressed, which could falsify the measuring result. Press the button during voltage measurement (max. 250 V) for a max. of 3 seconds. After release, the multimeter has the normal measuring impedance of 10 MΩ.

Auto power OFF function

The DMM turns off automatically after 30 minutes if no button or switch is operated. This function saves battery power and extends the service life.

Changing the 10 A fuse

The 10 A measuring range is protected against overload with a standard fine-wire fuse. If switching in this range is not possible, you have to change the fuse. Proceed as follows for replacement: Separate the connected measuring leads from the measuring circuit and the measuring device. Switch the DMM off. Unscrew the three screws on the back of the device and carefully pull the casing apart. Replace the defective fuse with a new fuse of the same type and nominal voltage. The fuse has the following values: Fine wire fuse, quick action, 10A (250 V (B 5 x 20 mm)) Current Carrying Capacity: 10A/250V.

Disposal

Old electronic devices are hazardous waste and should not be disposed of in the household waste. When the regulations in your country concerning the disposal of it are accordance with current liability regulations at the communal collection points, it is forbidden to dispose of it in the household waste.

Troubleshooting

In purchasing the DMM, you have acquired a product which has been designed to the state of the art and is operationally reliable. Nevertheless, problems or faults may occur. For this reason, the following is a description of how you eliminate possible malfunctions yourself. Please always observe the safety instructions!

Replacing/charging the batteries

Operating of the measuring device requires a 9V battery (902AA). You need to insert a new, charged battery prior to initial operation or when the battery charge level „B“ appears on the display. To separate the connected measuring leads from the measuring circuit and the measuring device: Switch the DMM off. Unscrew the three screws on the back of the device and carefully pull the casing apart. Connect a new battery with the battery clip in the DMM observing the polarity sign. Now close the casing carefully. Never operate the measuring instrument when it is open. IRRK OF FATAL INJURY!

Technical data

Table with 3 columns: Range, Accuracy, Resolution. Includes sections for Alternating current, overload protection 750 V, Direct current, overload protection 400 mA/250V + 10 A/250 V, Resistance, overload protection 1000 Ω/DC + 750 Ω/AC.

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Table with 2 columns: Error, Possible cause, Remedy. Includes sections like Error: Multimeter does not work, Error: Measuring value change, Error: The fuse detected, Error: Repairs other than those described should only be carried out by an authorized specialist.

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