OPERATOR'S MANUAL

ULTRATHIN POCKET TYPE DIGITAL MULTIMETER

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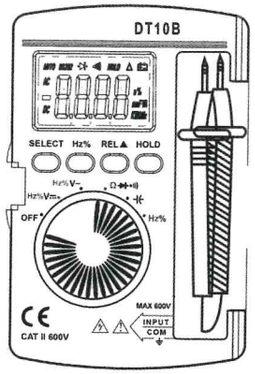

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READ AND UNDERSTAND THIS MANUAL BEFORE USING THE INSTRUMENT.

1. INTRODUCTION

This manual provides all safety information, operation instruction, specifications and maintenance for the meter, which is compact, handheld, and battery operated.

This instrument performs AC/DC voltage, AC/DC Current, Resistance, Audible Continuity, Diode, measurements and Frequency measurements, it is a 3 3/4 digits, 3999 counts auto ranging DMM.

It has the functions of polarity indication, data hold, relative data measurements, over range indication and automatic power-off. It can be operated easily and is an ideal instrument tool.

The digital multimeter has been designed according to EN61010-1 oncoming electronic measuring instruments with an over voltage category (CAT II 600V) and Pollution degree 2.

⚠Warning

To avoid possible electric shock or personal injury, and to avoid possible damage to the Meter or to the equipment under test, adhere to the following rules:

- Before using the Meter inspect the case. Do not use the Meter if it is damaged or the case (or part of the case) is removed. Look for cracks or missing plastic. Pay attention to the insulation around the connectors.

- Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity.
- Do not apply more than the rated voltage, as marked on the Meter, between the terminals or between any terminal and grounding.
- The rotary switch should be placed in the right position and no any changeover of range shall be made during measurement is conducted to prevent damage of the Meter.
- When the Meter working at an effective voltage over 60V in DC or 30V rms in AC, special care should be taken for there is danger of electric shock.
- Use the proper terminals, function, and range for your measurements.
- Do not use or store the Meter in an environment of high temperature, humidity, explosive, inflammable and strong magnetic field. The performance of the Meter may deteriorate after dampened.
- When using the test leads, keep your fingers behind the finger guards.
- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes.
- Replace the battery as soon as the battery indicator appears. With a low battery, the Meter might produce false readings that

can lead to electric shock and personal injury.

- Remove the connection between the testing leads and the circuit being tested, and turn the Meter power off before opening the Meter case.
- When servicing the Meter, use only the same model number or identical electrical specifications replacement parts.
- The internal circuit of the Meter shall not be altered at will to avoid damage of the Meter and any accident.
- Soft cloth and mild detergent should be used to clean the surface of the Meter when servicing. No abrasive and solvent should be used to prevent the surface of the Meter from corrosion, damage and accident.
- The Meter is suitable for indoor use.
- Turn the Meter power off when it is not in use and take out the battery when not using for a long time. Constantly check the battery as it may leak when it has been using for some time, replace the battery as soon as leaking appears. A leaking battery will damage the Meter.
- Do not enter a voltage higher than 600V, although the instrument can be displayed correctly, but there is a danger of damaging the internal wiring of the meter.

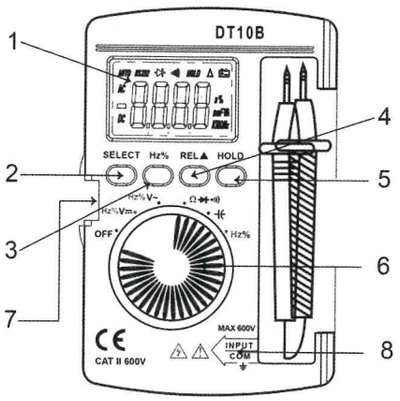
2. GENERAL CHARACTERISTICS

Display	: LCD, 3999 counts updates 2/sec
LCD Size	: 41 x 29mm
Polarity Indication	: "-" displayed automatically
Over-range Indication	: "OL" displayed
Low Battery Indication	: "" displayed
Range select	: auto or manual
Operation Temperature	: 0°C to 40°C, less than 80%RH
Storage Temperature	: -10°C to 50°C, less than 85%RH
Battery Type	: CR2032, size: 20*3.2（mm）
Dimension(H×W×D)	: 115×75×18mm
Weight	: Approx 103g（including battery）

3. ELECTRICAL SYMBOLS

⎓	DC (Direct Current)
∼	AC (Alternating Current)
≂	DC or AC
⚠	Important safety information. Refer to the manual
⚠	Dangerous voltage maybe present
⏚	Earth ground

	Low battery
	Fuse
	Diode
	Continuity test
AUTO	Auto range
CE	Conforms to European Union directive
⧈	Double insulated



1) Display

3 3/4 digit LCD, with a max. reading of 3999

2) "SELECT" key

The key is resistor, Continuity diode testing Function switch key, with buzzer sound when switching， Press this key to wake up the meter in dormant state and the auto power off function is canceled.

3) "Hz%" key

Press this key in DCV ACV to convert to Hz or % measurement (press the Hz% key to select the measurement frequency or duty; when returning to DCVorACV after Hz % measurement, the range of the meter is DCV-400m or ACV-4 V, while the "AUTO" symbol on LCD disappears. At this point, if test the higher range. set function knob switch or turn off the meter, reset V or uA or mA for auto range.)

On the Hz% position. can measure frequency or duty by pressing"Hz%" key.

4) "REL▲ " key

Press this key to have the meter use the current display value as the reference value, and the readings taken there after will be taken from Subtract the reference value dynamically; then press this key, and the

meter will exit the relative value measure state and enter the normal measure state

The Hz/% measure has no relative value measurement function.

5) "HOLD" key

After pressing the button, the present reading is held on the display, meanwhile "HOLD" is displayed on the LCD as an indicator. To exit the Hold Mode, press the button again and the indicator "HOLD." will disappear.

6) Function/Range Switch

This switch can be used to select desired function and range

7) "OPEN CASE" botton

Press this case to open the front cover of the meter

8) "INPUT or COM" port

The meter has built-in test leads, red test lead is INPUT port, black test lead is COM port

5. SPECIFICATIONS

Accuracy is guarantied for 1 year 23°C±5°C less than 80%RH

5-1. DC VOLTAGE

Range	Resolution	Accuracy
400mV	0.1mV	±(0.8% of rdg + 5dgts)
4V	1mV	±(0.8% of rdg +3dgts)

40V	10mV	±(1.0% of rdg + 5dgts)
400V	100mV	
600V	1V	

Input Impedance: 10MΩ

Overload Protection: 600V DC or 600AC rms (200mV range: 250V DC/AC rms)

Max. Input voltage: 1000V DC

5-2. AC VOLTAGE

Range	Resolution	Accuracy
400mV	1mV	±(1.2% of rdg + 8dgts)
4V	1mV	±(1.0% of rdg + 8dgts)
40V	10mV	
400V	100mV	
600V	1V	±(1.2% of rdg + 8dgts)

Input Impedance: 10MΩ

Frequency Range: 40Hz ~ 400Hz

Overload Protection: 600V DC or 600AC rms

Response: Average, calibrated in rms of sine wave

Max. Input voltage: 600V AC rms

5-3. DC CURRENT (only DT10C)

Range	Resolution	Accuracy
400μA	0.1μA	±(1.0% of rdg + 8dgts)
4000μA	1μA	
40mA	10μA	
400mA	100μA	±(1.2% of rdg + 8dgts)

Overload Protection:

μA ≂ and mA ≂ ranges: Self-recovery fuse 400mA/250V RoHS

Max. Input Current:

"INPUT" jack: 400mA

Voltage Drop: 400μA, 40mA and 4A ranges: 40mV

4000μA, 400mA ranges: 400mV

5-4. AC CURRENT (only DT10C)

Range	Resolution	Accuracy
400μA	0.1μA	±(1.5% of rdg + 8dgts)
4000μA	1μA	
40mA	10μA	±(1.5% of rdg+10dgts)

400mA	100μA	±(1.5% of rdg+10dgts)

Overload Protection:
μA⎓ and mA⎓ ranges: Self-recovery fuse 400mA/250V RoHS
Max. Input Current:
"INPUT" jack: 400mA
Voltage Drop: 400μA, 40mA and 4A ranges: 40mV
4000μA, 400mA ranges: 400mV
Frequency Range: 40Hz ~ 400Hz
Response:average, calibrated in rms of sine wave

5-5. RESISTANCE (Auto Ranging)

Range	Resolution	Accuracy
400Ω	0.1Ω	±(1.2% of rdg + 8dgts)
4KΩ	1Ω	±(1.2% of rdg + 5dgts)
40KΩ	10Ω	
400KΩ	100Ω	
4MΩ	1KΩ	
40MΩ	10KΩ	±(1.5% of rdg + 5dgts)

Open Circuit Voltage: about 0.25V
Overload Protection: 250V DC/AC rms

5-6. Diode and Continuity

Range	Introduction	Remark
⊣▶⊢	The approximate forward voltage drop will be displayed	Open circuit voltage: about 1.5V
•)))	The built-in buzzer will sound if the resistance is less than about 30Ω.	Open circuit voltage: about 0.5V

Overload Protection: 250V DC/AC rms
For continuity test: When the resistance is between 30Ω and 100Ω, the buzzer may sound or may not sound. When the resistance is more than 100Ω, the buzzer won't sound.

5-7. Capacitance

Range	Resolution	Accuracy
40nF	10pF	±(5% of rdg + 10dgts)
400nF	100pF	±(5% of rdg + 5dgts)
4uF	1nF	
40uF	10nF	
100uF	100nF	

5-8. FREQUENCE(Auto ranging)

Range	Accuracy
5/50/500/5K 50K/500K/5MHz	±(1.0% of rdg + 3dgts)

6. OPERATION INSTRUCTION

6-1. Measuring Voltage

1) Set the function switch to V∿ or V⎓ range. LCD display "AUTO AC" or "AUTO DC".
2) Connect the test leads across the source or load to be measured.
3) Read LCD display. The polarity of the RED lead connection will be indicated when making a DC measurement.
4) If the AC voltage is tested, the LCD shows the value of the AC voltage.
5) If press the Hz% key to select the measurement frequency or duty.

Note:

- High-voltage measure should be very careful to avoid electrical shock, after the completion of the measure, to disconnect the meter lead and the circuit tested.
- Especially, the pure DC voltage does not have frequency and duty cycle, so the operation is invalid for DC voltage test.

6-2. Measuring Current（only DT10C）

1) Set the range switch to desired μA⎓, mA⎓ range.
2) Press the "SELECT."key.select DC current measure or AC current measure.
3) Connect test leads in series with the circuit to be measured.
4) Read the reading on the display. For DC current measurement, the polarity of the red test lead connection will be indicated as well.
5) If press the Hz% key to select the measurement frequency or duty.

Note: Especially, the pure DC current does not have frequency and duty cycle, so the operation is invalid for DC current test.

6-3. Measure Resistance

1) Set the range switch to Ω⊣▶•))) range, The default of the meter is the resistance test function
2) Connect the test leads across the load to be measured.
3) Read the reading on the display.

Note:

- In order to avoid damage to the instrument when measuring the resistance on line, it is necessary to make sure that the circuit under test is turned off, and at the same time, The capacitance can only be measured after the

discharge of electricity.

- When measuring resistance in a 400Ω range, the meter lead will cause a measuring error of 0.1 g to 0.9. In order to get the exact reading, you can subtract the red and black reading values for the final reading Reading. It is recommended that the function of measuring the relative value of the instrument be used.
- When no input, such as open circuit situation, the meter shows "OL". When the measured resistance is greater than MΩ, it takes several seconds for the instrument to be able to read steadily, which is a normal phenomenon.

6-4. Continuity Test

1) Set the range switch to Ω⊣▶•))) range
2) Press the "SELECT." key to select continuity measure mode, and the symbol " •))) " will appear as an indicator.
3) Connect the test leads across the load to be measured.
4) If the circuit resistance is lower than about 60Ω, the built-in buzzer will sound.

6-5. Diode Test

1) Set the range switch to Ω⊣▶•))) range

2) Press the "SELECT." key to select continuity measure mode, and the symbol " ⊣▶⊢ " will appear as an indicator.
3) Connect the red test lead to the anode of the diode to be tested and the black test lead to the cathode.
4) The meter will show the approximate forward voltage of the diode. If the connections are reversed, "OL" will be shown on the display.

6-6. Capacitance Measuring

1) Set the range switch to ⊣⊢ range
2) The meter defaults to the nF capacitance test range
3) Connect test leads across the capacitor under measure and be sure the polarity of connection is observed.

NOTE:

- All capacitors must discharge fully before testing. When measuring online capacitors, you must first turn off all power sources in the line under test and charge all capacitors Partial discharge
- If the measured capacitance is a polar capacitance. When measuring, the red meter pen should be connected to the positive pole of the capacitance, and the black meter lead

should be connected to the capacitance The negative pole of It takes a few seconds to display the test value for capacitors larger than 10μF, which is a normal phenomenon.

- Do not enter voltage higher than 60 V DC or AC 30Vrms, avoid damaging the meter and harming yourself.

6-9. Frequency and Duty Measuring

1) Set the range switch to "Hz%" range
2) Press "Hz%" key to select measure frequency or duty.
3) meter default test frequency function

NOTE: The input voltage should be between 200mV and 10V rms AC. If the voltage is more than 10V rms, reading may be out of the accuracy range.

7. Auto Power Off

If you don't operate the meter for about 30 minutes, it will turn off automatically.
Press "SELECT" key to wake up the meter in dormant state and the auto power off function is canceled.
The meter do not cancel the function of auto power off.

8. BATTERY REPLACEMENT

If the sign "▭" appear on the display, it indicates

battery should be replaced. Remove screws and open the back case, replace the exhausted battery with new batteries (CR2032, size: 20*3.2（mm）).

9. OPEN CASE

The meter is boxed design, when using, please press the left button, the front cover will be open, after the measurement, please put the test table lead, carefully into the box, close the front cover.

DISPOSAL OF THIS ARTICLE
Dear Customer,
If you as some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled. Please do not discharge it in the garbage bin, but check with your local council for recycling facilities in your area.

WARRANTY

This Instrument is warranted to be free from defects in material and workmanship for a period of one year. Any instrument found defective within one year from the delivery date and returned to the factory with transportation charges prepaid, will be repaired, adjusted, or replaced at no charge to the original purchaser. This warranty does not cover expandable items such as batteries & fuses. If the defect has been caused by a misuse or abnormal operating conditions, the repair will be billed at a nominal cost.