

MEXTECH DT-450 OPERATING INSTRUCTIONS

I. Introduction

This measuring appliance is a kind of stable and reliable numeral multi-meter, with battery power supply. The design of the whole circuit takes the double-integral switch as the core, and the entire function with the monolithic integrated circuit management. The user is able to control all measuring ranges without opening the cover. With The entire overload protection, the measuring appliance is loaded with surge electric, can protect the measuring appliance not to be burnt out. The measuring appliance can display various grade of test pen or the right position for the plug, in case you insert it to the wrong place. The measuring appliance can measure the DC voltage and the electric current, the alternating voltage and the electric current, the resistance, capacitance, the diode, the electric circuit passes or breaks and so on. With accurate measure, and stable and reliable performance, it is your ideal tool.

II. Safety Rules and Notes

The instrument design conforms to EN61010-1 1000V CAT III, 600V CAT IV and pollution degree 2 safety requirements for standards. Please read this manual carefully before use.

Please read this handbook carefully before use.

1. notes on securities mark

⚠ Warning, be careful!

⚡ Danger of being hit by high-pressured electric!

☐ Dual insulation protection.

2. when measure, do not surpass the greatest stipulated input value.

3. do not surpass 10V voltage to the input end, except the voltage grade
4. in the process of measuring, do not turn switch to change the measuring range at random, in case to destroy the measuring appliance. The measuring appliance can display the mark while the voltage is bigger than DC51V and the AC37V, remind the user that the measured voltage has surpassed the safety voltage, please operate carefully.

5. all grades of positions when the input value is bigger than the greatest stipulated value, can display the warning symbol "OL".

6. measuring appliances should avoid the straight sunlight, the high temperature, and moisture.

7. after use, must release the power switch to turn off the power

8. if it doesn't use or a long time, should take out the battery, in case the battery leaks to damage the parts.

III. Capability

1.General features

1-1. basic accuracy of direct current: $\pm 0.5\%$;

1-2. way of Display: Liquid crystal display;

1-3. greatest display: 1999 (3 1/2), greatest display of the resistance files: 1980;

1-4. Sampling speed: approximately 2.5 per second;

1-5. displays while surpass the measuring range : Highest position display "OL";

1-6. display of insufficient battery: Displays "F $\frac{+}{-}$ ";

1-7. auto power off

After turning on the instrument and without turning the function switch or pressing any button, the instrument will automatically enter into sleep mode after 15 minutes, to save battery power. when it is in the sleep mode you can press the any button to wake up the instrument. If you don't need the automatic sleep mode, you should hold down the SELECT button to turn on the instrument, and then the symbol "O" will not be display on the LCD.

1-8. Working conditions: 0~40 °C, relative humidity <80%;

1-9. storage environment: -10~50 °C, relative humidity <80%;

1-10 Power source: One 9v battery (6F22 or same level model);

2.Technical index

Precision $\pm$ (a % reading + figures) Warranty period: 1 year
Guaranteed temperature precision: 23°C $\pm$ 5°C RH<70 %

2-1 DC voltage

range	Resolution	Accuracy
200mV	0.1mV	$\pm (0.5\%+5)$
2V	1mV	
20V	10mV	
200V	100mV	
1000V	1V	$\pm (0.8\%+5)$
2000V	1V	$\pm (2\%+5)$

Input impedance: 200mV > 100M Ω , others are 10M.

2--2.AC voltage

range	Resolution	accuracy
2V	1mV	$\pm (0.8\%+5)$
20V	10mV	
200V	100mV	
700V	1V	$\pm (1.2\%+7)$
2000V	1V	$\pm (3\%+5)$

Input impedance: 200mV > 100M Ω , others are 10M.

Frequency range: 10Hz~1kHz (700V,2000V measuring range 10Hz~100Hz)。

display: True-RMS (sine wave virtual value calibration)

2-3. DC current

range	Resolution	accuracy
200uA	0.1uA	$\pm (0.8\%+5)$
2mA	1uA	$\pm (0.8\%+5)$
20mA	10uA	$\pm (0.8\%+5)$
200mA	100uA	$\pm (1.2\%+5)$

Overload protection: F 0.2A/250V fuse.

Measure voltage: approximately 200mV full measure range.

2--4.AC current

range	Resolution	accuracy
20mA	10uA	$\pm (1.5\%+5)$
200mA	100uA	$\pm (1.5\%+5)$

Overload protection: F 0.2A/250V fuse.

⚠ Measure voltage: 200mV for full measure range.

Frequency range : 10Hz~1kHz.

display: True-RMS (sine wave virtual value calibration)

2--5. Resistance Ω

range	Resolution	accuracy
200 Ω	0.1 Ω	$\pm (1\%+5)$
2k Ω	1 Ω	$\pm (0.8\%+5)$
20k Ω	10 Ω	
200k Ω	100 Ω	
2M Ω	1k Ω	
20M Ω	10k Ω	$\pm (2\%+5)$
200M Ω	100k Ω	$\pm (5\%+10)$

Overload protection: 220V virtual value.

Plough voltage: <1V

2--6.capacitance μF (Auto range)

range	Resolution	accuracy
20nF	10pF	$\pm (3\%+10)$
200nF	100pF	
2uF	1nF	
20uF	10nF	
200uF	100nF	$\pm (5\%+10)$
2000uF	1uF	

Overload protection: F 200mA/250V fuse

2-8 Continuity

range	Illustration	Test conditions
	Displays the diode forward voltage approximation	Positive direction DC1mA Reverse direction DC2.2V
	Break over resistance < approximately 50 Ω beep rings, displays the resistance approximation	Plough voltage about 2V

Overload protection: 220V virtual value.

IV. OPERATING INSTRUCTIONS

Before use pay Caution to mark "⚠" beside measures pen, this is to warn you that the tested voltage and electric current can not surpass the instructed measuring range. In addition, to set in the files position to the supposed measure range before use

1. DC/ACV measure

1) inserts the black test lead to the COM jack, inserts the red test lead to V Ω jack., Inserts 2kV jack above DC1000V/AC700V.

2) set the range switch to the V range, Connect test leads across the source or load under measurement., it will display the polarity the red test

leads meets

⚠ Caution:

a. if don't know the range of the voltage measured before measure, should set the measure range switch at the highest grade, and then lower the grade gradually

b. if the display monitor only displays " OL ", shows the voltage being measured has surpassed the measuring range, the measure range switch needs to be moved to the highest grade.

c. Measure no more than 2kV to avoid personal injury or damage to the internal circuitry of the instrument

d. specially pays Caution when measuring high voltage, avoids getting an electric shock.

E. Press the SELECT key in the ACV function to enter the voltage frequency measurement mode, it can measure the frequency range from 10Hz to 20kHz with voltage at AC 20V~2kV range.

2. DC /AC current measure

1) Connect the black test lead to COM jack and the red to the mA jack

2) Set the rotary switch at the desired A range position.

3) Connect test leads in series with the load under measurement.

4) You can get reading from LCD. The polarity of the red lead connection

will be indicated along with the current value.

⚠ NOTE:

a. When the value scale to be measured is unknown beforehand, set the range selector at the highest position.

b. When only the figure 'OL' or 'OL' is displayed, it indicates over-range situation and the higher range has to be selected.

3. resistance measure

1) Connect the black test lead to the COM jack and the red table test lead to V Ω jack.

2) Set the rotary switch at the desired Ω range position, Connect test Leads across the resistance under measurement.

⚠ Caution:

a. when the input end leads the way, the measuring appliance displays " OL " for the surpassed measuring range

b. when the measured resistance > 1M Ω , the measuring appliance needs several seconds to stabilize the reading, this is normal regarding to high resistance measure

c. when measuring high resistance, as far as possible insert the resistance to V Ω and the COM jack directly as far as possible, avoids disturbing.

d. when measuring the on-line resistance, make sure to confirm the measured electric circuit has shut off, at the same time the electric capacity has given out the electricity power, then carry on the survey.

4. capacitor measure

1) Connect the black test lead to the COM jack and the red table test lead to V Ω jack (V Ω meets " + ").

2) Set the rotary switch at the desired " --- " range .

⚠ Caution:

a. before it meets the capacitor, the measuring appliance generally may automatically school slowly to zero, if some drifting reading exists, it won't affect the test precision.

b. when measuring the big electric capacity, needs a period of time to stabilize reading.

c. do not connect the already capacitor which charges (specially to be big capacitor) to the test end.

d. if the non- electric capacity ingredient is big, it will affect the test precision (for example resistance leak and body resistance and so on).

5. diode and Buzzing continuity conductance testing

1) insert the black test lead to the COM jack, insert the red test lead To V Ω jack (red test lead polarity is " + ").

2) set the rotary switch to the --- range, connect the test pen to The measured diode.

3) if the resistance between the two ends being measured is smaller than approximately 50 Ω the buzzers then can send out the sound.

⚠ Caution:

a. when the input end leads the way, measuring appliance displays the surpassed measuring range condition.

b. the measuring appliance displays the value of positive voltage,

while the diode is connected reversely, it display the surpassed condition

c. the measured electric circuit must be measured without power source, because any load signal will be able to cause the buzzer sound, thus cause the wrong judgment.

6. use of back light

1) When carries on the survey under the weak light condition, may press down the " LIGHT " key within 2 seconds, the back light will shine, in order to clearly reading. Again presses down the " LIGHT " key within 2 seconds, the back light will be closed.

2) The back light consumes more electricity, after the lamp bright approximately 30 seconds, it will shut-off automatically. In the survey process press the number maintenance key " DH", can maintain the measuring appliance demonstrating number. Press again, it restores the normal survey.

7. use of DH key

In the process of measuring press the reading maintenance key "DH", it can keep the device to display the reading, press again, recover to normal measure value.

V. maintenance

1. this appliance is a precise electronic meter, do not modify the internal circuit at random, in case damage.

2. do not connect to the voltage above 1000VDC or virtual value 700V AC, in case get electric shock or damage the device.

3. make sure not to connect to improper measuring range modify internal circuit in order to avoid damages.

4. do not input voltage when the measuring range switch is at electric current, resistance, diode or buzzer position.

5. never use it when it is not completely covered, in case electric shock.

6. when replace the battery and fuse, must after put aside the test pen and cut off the power.

7. keep the cover clean, could use a little water or diluted cleanser, but not gasoline, ethanol, in case corruption.

8. avoid high temperature, high moist environment, in case to worsen the performance.

9. if not used for a long time, take out the battery, in case the battery leaks to damage the interior line.

VI Accessories

1. 1 Instruction manual
2. 1 couple test leads
3. 1 piece PVC protection sleeve