# 830 Series Digital Multimeter


# user's Guide

overview

The instrument is a pocket digital multimeter, which can be used to measure parameters such as DC voltage and AC voltage, DC current, resistance, diode, and continuity test. It is an ideal tool for laboratories, factories, radio amateurs and families.

Safety matters 1.

When measuring, do not input the limit value exceeding the range; whether the

2. When measuring voltages higher than 36V DC and 25V AC, check whether the test leads are in reliable contact and connected correctly. insulation is good, etc., to avoid electric shock: 3.

When changing the function and range, the test leads should leave the test point;

4. In resistance mode, please do not apply voltage to the input terminal.

characteristic

1. General characteristics

Display mode: 19.5mm character height LCD liquid crystal

display; maximum display: 1999 (31/2) digits automatic polarity display;

sampling rate: about 3 times per second;

Over-range display: the highest digit displays "1";

Low voltage display: the "wide" symbol appears;

Working environment: (0~40) ℃, relative humidity

<80%; Power supply: 9V battery (NEDA1604/6F22 or equivalent);

Dimensions: 145×85×30mm (length×width×height); Weight: about

170g ( Including 9V battery); Accessories:

an instruction manual, a certificate of conformity, an outer packing box, a pair of test leads and a 9V battery. 2. Technical characteristics

Accuracy: ±(% of reading + least significant digit); Ambient

temperature: (23±5)℃, relative humidity <75%, calibration guarantee period is one year from the date of delivery.

DC voltage (DCV)

| Range | Accuracy | Resolution |
|---|---|---|
| 200mV | ±(0.5%+4) | 100uV |
| 2V | | 1mV |
| 20V | | 10mV |
| 200V | | 100mV |
| 500V | ±(1.0%+5) | 1V |

Input Impedance: 1M 2 for all ranges.

AC voltage (ACY)

| Range | Accuracy | Resolution |
|---|---|---|
| 200V | ±(1.2%+10) | 100mV |
| 500V | | 1V |

Input Impedance: 1M2:

Frequency response: (40~200)Hz.

DC current (DCA)

| Range | Accuracy | Resolution |
|---|---|---|
| 20uA | ±(1.5%+3) | 0.01uA |
| 200uA | | 0.1uA |
| 2mA | | 1uA |
| 20mA | | 10uA |
| 200mA | | 100uA |
| 10A | ±(2.0%+5) | 10mA |

Maximum input current: 10A (less than 10 seconds);

Overload protection: 0.2A/250V fuse (10A range without fuse).

Resistance(2)

| Range | Accuracy | Resolution |
|---|---|---|
| 200 2 | ±(1.0%+5) | 0.1Ω |
| 2k2 | ±(0.8%+3) | 1Ω |
| 20kΩ | | 10Ω |
| 200kΩ | | 100Ω |
| 2M S2 | ±(1.0%+15) | 1k 2 |

Overload protection: 250V DC and AC peak value;

Note: When using the 2002 range, the test leads should be short-circuited first, and the lead resistance should be measured, and then subtracted in the actual measurement:

Diode and continuity test

| Range | Display value | Test conditions The |
|---|---|---|
|  | Diode Forward Voltage Drop | forward DC current is about 1mA, and the reverse voltage is about 3V |
|  | The buzzer beeps for a long time, and the resistance of the two test points is small at (70±20) 2 | Open circuit voltage about 3V |

Overload protection: 250V DC and AC peak.

## Transistor hFE test:

| Range | illustrate | Test Conditions |
|---|---|---|
| hFE | Can measure NPN or PNP transistor hFE parameters, display range 0-1000 B | Base current 10A, Vce about 2.8V |

DC voltage measurement

1. Insert the black test lead into the "COM" jack, and the red test lead into the "V/2" jack;

2. Turn the range switch to the corresponding DCV range, then connect the test lead to the circuit under test, the red test lead is The voltage and polarity of the connected point are displayed on the screen.

Notice:

1. If you have no concept of the measured voltage range in advance, you should turn the range switch to the highest gear, and then according to the displayed value; Turn to the corresponding gear;

2. If "1" is displayed at the high position, it indicates that the range has been exceeded, and the range switch must be turned to a higher position.

3. The input voltage must not exceed 500V, if it exceeds, there is a danger of damaging the instrument circuit;

4. When measuring a high-voltage circuit, the human body must be careful not to touch the high-voltage circuit.

AC voltage measurement

1. Insert the black test lead into the "COM" jack, and the red test lead into the "V/2" jack; 2. Turn the range switch to the corresponding ACV range, and then connect the test lead to the circuit under test.

Notice:

1. If you have no concept of the measured voltage range in advance, you should turn the range switch to the highest gear, and then according to the displayed value Turn to the corresponding gear;

2. If "1" is displayed at the high position, it indicates that the range has been exceeded, and the range switch must be turned to a higher position;

3. The input voltage must not exceed 500Vrms, otherwise there is a danger of damaging the instrument circuit;

4. When measuring a high-voltage circuit, the human body must be careful not to touch the high-voltage circuit.

DC current measurement

1. Insert the black test lead into the "COM" jack, the red test lead into the "V/2/mA" jack (maximum 200mA), or the red test lead into "10A" (maximum 10A);

2. Turn the range switch to the corresponding DCA gear, and then connect the meter to the circuit under test. The measured current value and red The current polarity of the color meter pen point will be displayed on the screen at the same time.

Notice:

1. If you have no concept of the measured current range in advance, you should turn the range switch to the highest gear, and then turn it according to the displayed value.

to the corresponding file;

2. If the LCD displays "1", it means that the measuring range has been exceeded, and the range switch must be raised by one gear:

3. The maximum input current is 200mA or 10A (depending on the insertion position of the red test lead), excessive current will blow the fuse

When measuring, if the meter has no reading, please check the corresponding fuse.

Resistance measurement

1. Insert the black test lead into the "COM" jack, and the red test lead into the "V/2" jack;

2. Turn the range switch to the corresponding resistance range, and connect the two test leads to the measured resistance.

Notice:

1. If the resistance value exceeds the selected range value, "1" will be displayed. At this time, the switch should be turned up by one gear.

When the measured resistance value exceeds 1MS2, the reading will take a few seconds to stabilize. resistance is normal;

2. When the input terminal is open circuit, it will display the overload condition;

3. When measuring online resistance, make sure that all power supplies of the circuit under test have been turned off and all capacitors have been fully discharged before

proceeding:

4. Do not input voltage in the resistance range, which is absolutely prohibited, although the meter has a voltage protection function in this gear!

## Diode test

1. Insert the black test lead into the "COM" jack, and the red test lead into the "V" jack (note that the polarity of the red test lead is "+"); it is the

2. Set the range switch to the "leaf" position, connect the test lead to the diode to be tested, connect the red test lead to the positive pole of the diode, and read

approximate value of the forward voltage drop of the diode.

Continuity test

Set the range switch to "o" and connect the test leads to two points of the circuit to be tested. If the buzzer sounds, the resistance

between the two points is lower than about (70±20) 2 .

## Transistor hFE test

1. Set the function switch to hFE range.

2. Determine whether the transistor is NPN or PNP type, connect the base, transmitter and collector

The electrodes are respectively inserted into corresponding jacks on

the panel. 3. The approximate value of hFE will be read out on the display, test conditions: Ib: 10 uA,

Vce= 2.8V。

## data hold function

Press the HOLD key, the indicator will display the "H" symbol, and the measurement data is locked at this time, which is convenient for reading and recording.

Press the HOLD button again to reset, the "H" symbol disappears, and the meter resumes measurement.

## backlight display

Press the "*" key and the backlight will turn on automatically after about 10 seconds.

## Instrument maintenance

The instrument is a precision instrument, the user should not change the circuit at will.

## Notice:

1. Do not connect the AC voltage higher than 500V DC voltage or 500Vrms; 2. Do not measure the voltage value when the range switch is in position 2;

3. Please do not use this meter for testing when the battery is not installed or the back cover is not tightened;

4. Before replacing the battery or fuse, please remove the test lead from the test point and turn off the power switch.

## battery replacement

Note: battery usage, when the LCD displays the "two" symbol, the battery should be replaced, the steps are as follows:

1. Remove the battery door screw and exit the battery door;

2. Remove the 9V battery and replace it with a new one, although any standard 9V battery can be used, but for extended use time, it is best to use alkaline batteries;

3. Install the battery door and screw on.

## fuse replacement

When replacing the fuse, the steps are the same as above, please use a fuse with the same specification and model. This manual is subject to change without notice.

The content of this manual is considered to be correct. If the user finds any errors or omissions, please contact the manufacturer. The company is not responsible for the accidents and hazards caused by the user's wrong operation.

The functions described in this manual are not a reason to use the product for special purposes.