



FY1081 DIGITAL MULTIMETER
DIGITAL MULTI METER

1 INTRODUCTION >>>

The series instrument is a high-reliability digital multimeter with stable performance and battery drive. The instrument adopts 34mm high-definition LCD display, which is clear and more convenient to use. LY108 can be used to measure DC voltage and AC voltage, DC current and AC current, resistance, diode, continuity test, automatic shutdown and off, backlight function and other parameters. LY108 can be used to measure DC voltage and AC voltage, DC current and AC current, resistance, capacitance, diode, continuity test, temperature, frequency, automatic shutdown on and off, backlight function and other parameters. With the large-scale integration of the whole machine as the core, it is a tool with excellent performance and is an ideal tool for laboratories, factories, radio enthusiasts and families.

WARNING

Special care should be taken when using this instrument. Improper use may result in electric shock or damage to the instrument. In use, follow normal safety procedures and fully comply with the safety measures specified in the instruction manual. In order to fully utilize the functions of the instrument and ensure safe operation, please carefully follow the usage of this section (chapter).

01

2 SAFETY INFORMATION >>>

⚠ In order to avoid personal injury and damage to the instrument caused by electric shock, users should pay attention to the following safety tips.

- Do not measure any voltage outside the measurement range specified by the instrument.
- Although there is an internal protection circuit in the resistance measurement file, do not measure it in the resistance measurement file. The input terminal is charged with a high voltage (voltage above 100V).
- Check the test leads for damage or exposed metal parts.
- The instrument should be avoided in direct sunlight or extremely high temperature.
- Pay attention to the possibility of electric shock when measuring voltages exceeding 30V AC or 50V DC.
- Before measuring the current, turn off the power, disconnect the circuit under test, and then power on to measure.
- Pay attention to the polarity when replacing the battery.

ELECTRICAL SYMBOL:

	Dangerous voltage		Earthing
	AC (communication)		Warning, check the instructions in the instructions.
	DC (DC)		Double insulation
	AC or DC		Fuse

02

3 PRODUCT OVERVIEW >>>

3.1 PRODUCT APPEARANCE AND DESCRIPTION

- LCD display
- "SEL" function selection button
- Lighting button
- Function range switch
- "COM" input
- "VΩ/A/mA" input
- Date retention and backlight on
- Non-contact voltage sensing
- Light



3.2 FUNCTION BUTTON

SEL

In the voltage and current range, press the "SEL" button and the meter will switch between AC and DC. In the diode and line on-off range, Press the "SEL" button and the meter will switch between them.

Light

In any gear display, you can lightly illuminate the LED illumination and tap once to turn it off.

03

H/A

Press once to keep the data, long press > 2 seconds to turn on the backlight, the backlight will automatically turn off after 30 seconds, and press and hold > 2 seconds to turn off.

4 TECHNICAL INDICATORS >>>

4.1 GENERAL CHARACTERISTICS

- The automatic range multimeter has a full scale of 1999 count.
- Display: 3.1/2 bit LCD
- Overload protection: PTC protection is used in the resistance file.
- Current is self-restoring PTC250mA 250V
- HOLD: Data retention function
- Battery low voltage display
- Power: 2x1.5V AAA battery
- Safety level: IEC61010-1, CAT III 600V
- Dimensions: (L × W × H) and weight: 121x61x31mm, about 113g (without battery)

Attachment:

- Instruction manual..... One set
- Table pen..... One set
- 1.5V battery..... two

04

4.2 Electrical technical indicators

Ambient temperature: 23 ± 5°C Relative humidity: <75%

4.2.1 DC VOLTAGE

Range	Resolution	Accuracy
200mV	0.1mV	± (0.5% reading + 2 words)
2V	0.001V	
20V	0.01V	
200V	0.1V	
600V	1V	

Input impedance: 10M Maximum input voltage: 600V DC (RMS)

4.2.2 AC VOLTAGE (40Hz-1KHz)

Range	Resolution	Accuracy
2V	0.001V	± (1% reading + 3 words)
20V	0.01V	
200V	0.1V	
600V	1V	

• Input impedance: 10M

• Response: true RMS

• Maximum input voltage: 600V AC (effective value)

05

4.2.3 RESISTANCE

Range	Resolution	Accuracy
200Ω	0.1Ω	± (0.8% reading + 3 words)
2KΩ	0.001KΩ	
20KΩ	0.01KΩ	
200KΩ	0.1KΩ	
2MΩ	0.001MΩ	
20MΩ	0.01MΩ	± (1% reading + 2 words)

4.2.4 diode

Range	Resolution	Accuracy
	0.001V	Display diode forward voltage approximation

• Forward DC current: about 3mA

• Reverse DC voltage: about 2.2V

4.2.5 Line continuity

Range	Accuracy
	If the measured line resistance is less than 50Ω, the buzzer will sound in the meter.

• Open circuit voltage is about 0.5V

06

4.2.6 DC current

Range	Resolution	Accuracy
200μA	0.1μA	± (1.5% reading + 3 words)
2000μA	1μA	
20mA	0.01mA	
200mA	0.1mA	

• Overload protection: A/mA range: F250mA self-recovering PTC

• Maximum input current: 250mA

4.2.7 AC current (40Hz-1KHz)

Range	Resolution	Accuracy
200μA	0.1μA	± (1.5% reading + 4 words)
2000μA	1μA	
20mA	0.01mA	
200mA	0.1mA	

• Overload protection: A/mA range: F250mA self-recovering PTC

• Response: true RMS

• Maximum input current: 250mA

07

5 measuring operation

5.1 Measuring AC and DC voltages

Warning: Do not measure any voltage higher than 600V DC or 600V AC rms to prevent electric shock and / or damage to the instrument table.

Do not apply more than 600V DC or 600V AC rms between the common and earth to prevent electric shock and/or damage to the meter.

The voltage is the potential difference between two points. The polarity of the alternating voltage varies with time, while the polarity of the direct voltage does not change over time. The DC voltage range of this instrument is: 200.0mV, 2.000V, 20.00V, 200.0V and 600V; the AC voltage range is: 2.000V, 20.00V, 200.0V and 600V.

Measure AC or DC voltage:

- Turn the knob switch to the "V~" position.
- Connect the black test pen and the red test pen to the side panel white indicator input jack and the panel red indicator input jack, respectively.
- Use the test pen to measure the voltage value of the circuit under test at the other end. (in parallel with the circuit to be tested)
- The measured voltage value is read by the liquid crystal display. When measuring DC voltage, the display will simultaneously display the polarity of the voltage connected to the red test lead.

note:

In the DC 200mV and AC 2V ranges, even if there is no input or connection test pen, sometimes the instrument will display several words (usually when the external electromagnetic field is very disturbed), in which case the actual test value will not be affected.

08

5.2 Measuring resistance

Warning: In order to avoid damage to the instrument under test, all power supplies of the circuit under test should be cut off before measuring resistance and all The high voltage capacitor is discharged.

Resistance is a resistance to current. The unit of resistance is ohms (Ω). The resistance range of this instrument is 200.0, 2.000K, 20.00K, 200.0K, 2.000M, 20.00M.

Measuring resistance:

- Turn the knob switch to the "Ω" position. At the beginning, "OL" is displayed, indicating that the input is open, that is, no resistor is connected.
- Connect the black test pen and the red test pen to the side panel white indicator input jack and the panel red indicator input jack, respectively.
- Use the test pen to measure the resistance value of the circuit to be tested at the other end.
- The measured resistance value is read by the liquid crystal display.

Note: When measuring low resistance, in order to measure accurately, please short-circuit the two test leads to read the resistance value when the test leads are short-circuited. After measuring the measured resistance, subtract the resistance value. When measuring resistance in 20M, it sometimes takes a few seconds for the reading to stabilize. This is normal for high resistance measurements.

09

5.3 Measuring resistance

⚠ WARNING: To avoid damage to the meter or to the equipment under test, disconnect all power to the circuit under test and discharge all high-voltage capacitors before diode measurement.

Test a diode outside the circuit:

- Turn the rotary switch to the "Ω" position and press the SEL button to switch to the "H" position.
- Connect the black test pen and the red test pen to the side panel white indicator input jack and the panel red indicator input jack, respectively.
- Connect the black test pen and the red test pen to the negative and positive poles of the diode under test, respectively.
- The meter will display the forward bias value of the diode under test. If the test pen polarity is reversed, the meter will display "OL". In the circuit, a good diode should still produce a forward voltage drop of 0.5V to 0.8V; however, the reverse bias reading will vary depending on the resistance of the other channels between the two test leads.

5.4 Buzzer continuity test

⚠ WARNING: To avoid damage to the meter or to the equipment under test, disconnect all power to the circuit under test and discharge all high-voltage capacitors before the diode is tested.

Test steps:

- Turn the rotary switch to the "Ω" position and press the SEL button to switch to the "buzzer" position.
- Connect the black test pen and the red test pen to the side panel white indicator input jack and the panel red indicator input jack, respectively.

10

- Use the other end of the test pen to measure the resistance of the circuit under test.

- During the continuity test, if the measured circuit resistance is not more than about 50Ω, the buzzer will emit a continuous sound.

5.5 AC and DC current measurement

⚠ WARNING: When the voltage between the open circuit voltage and ground exceeds 250V, do not attempt to make current measurements, functions and ranges on the circuit. When the test pen is plugged into the current input jack, do not connect the other end of the test pen in parallel to any circuit.

The meter's DC/AC current range is 20A/200A, and 20mA/200mA uses the "SEL" button to convert DC and AC measurement modes.

- Turn off the power of the circuit under test. Discharge all high voltage capacitors on the circuit under test.
- Turn the rotary switch to the current level to be measured.

- Connect the black test pen and the red test pen to the side panel white indicator input jack and the panel red indicator input jack, respectively.
- Disconnect the circuit to be tested. Connect the black test pen to the end of the disconnected circuit (which has a lower voltage) and connect the red test pen to the end of the disconnected circuit (which has a higher voltage). (Connecting the test pen in reverse will cause the reading to become negative, but will not damage the meter); 5. Connect the power to the circuit and read the displayed reading. If the display only shows "OL", this means that the input exceeds the selected range and the rotary switch should be placed at a higher range. 6. Turn off the power to the circuit under test. Discharge all high voltage capacitors. Remove the meter's test pen and restore the circuit to its original state.

11

5.6 Non-contact voltage detection NCV (EF)

Place the top of the meter close to the conductor. When the detected voltage is greater than 90V (RMS), when the meter is close to the conductor, the meter's induced voltage will be bright and the buzzer will have a drip alarm.

⚠ Note: 1. Even if there is no indication, the voltage may still exist. Do not rely on non-contact voltage detectors to determine if a wire has a voltage. Detection operations may be affected by factors such as socket design, insulation thickness, and type.

- When the instrument input terminal input voltage, the background light may also be bright due to the presence of induced voltage.

3. Interference sources in the external environment (such as flash, motor, etc.) may falsely trigger non-contact voltage detection.

6 Maintenance

6.1 Battery replacement

When the meter is in use, the battery must be replaced when the " " appears on the LCD to prevent the meter from working abnormally. Unplug the test leads and turn off the power. Use a screwdriver to open the battery cover on the back cover and remove the battery. Put the battery of the same specification and fix the cover.

6.2 Cleaning

When you need to wipe the surface of the instrument, use a soft cloth. Do not use an organic solvent that is corrosive or soluble in the case.

12