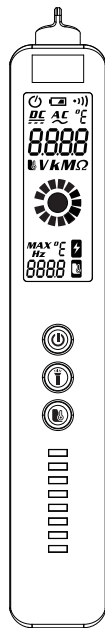


三模式红外测温万用表

Triple Mode Infrared Temperature-Testing Multimeter



CAT. II
500V



CONTENTS

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1

安全注意事项

- △** 使用此仪表时应特别注意，不当的使用可能造成电击或损坏仪表。在使用中应遵循通常的安全规程及完全遵守使用手册所规定的安全措施。
为了充分地利用仪表的功能和确保安全操作，请仔细地阅读并遵循本说明书的使用方法。

仪表符合GB/T 13978-92数字多用表通用技术条件，符合GB4793.1-1995（IEC-61010-1）电子测量仪器安全要求，属二级污染，过压标准为CAT II 500V。

请遵循安全操作指南，保证安全使用仪表。
适当的使用和保护，仪表将给你令人满意的服务。

- 1.使用仪表时，用户必须遵守标准的安全规则：
 - 通用的防电击保护
 - 防止误用仪表
- 2.接收仪表后，检查是否在运输中损坏。
- 3.在粗劣的条件下保存、装运后，检查并确认仪表是否损坏。
- 4.表笔必须处于好的状态。在使用之前，检查表笔的绝缘是否损坏，导线的金属丝是否裸露。
- 5.使用随表提供的表笔能保证安全，如果需要，必须用同样或同等等级的表笔取代。
- 6.使用时，必须使用正确的功能及量程。
- 7.不要超过各量程的保护范围指示值进行测量。
- 8.在仪表连接测量电路的时候，不要接触表笔顶端（金属部分）。
- 9.在测量时，若被测电压高于 60V DC 或 30V AC（有效值），应注意保持手指头始终在表笔护指装置之后。
- 10.若测量端电压超过500VDC或者500AC时，不要测量电压。
- 11.在转动转换开关改变测量功能之前，应将表笔从被测电路移开。
- 12.不要带电测量电阻及线路通断。
- 13.在电阻及线路通断测试量程，应小心避免将仪表连接电压源。
- 14.不要在爆炸性的气体、蒸汽或灰尘附近使用本仪表。
- 15.如果注意到仪表有任何异常或故障，应停止使用。
- 16.除非仪表底壳及电池盖在原位完全扣紧，否则不应使用仪表。
- 17.不要在阳光直射、高温、高潮湿的情况下储存或使用仪表。

仪表外观及使用说明符号

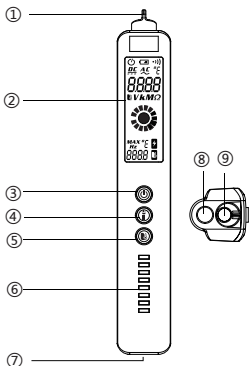
- ⚡ 可用于危险的带电导体上。
- ⚠ 注意（重要的安全信息，参见使用说明书）
- Ⓜ 双重绝缘保护（II类）
- CAT II 按照IEC-61010-1标准的过电压（安装）等级II、污染程度2，CAT II指所提供的脉冲耐受电压保护的级别。
- CE 符合欧共体（EU）标准

2

产品描述

1、产品外观描述

序号	说明
1	非接触电压感应区域
2	液晶显示器
3	电源开关
4	照明灯开关
5	红外测温键
6	电压指示灯
7	表笔输入端口
8	红外感温区
9	照明灯



2、开关和按钮及输入插孔说明

- ⏻ 按键：长按2秒开机，短按关机。
- 🔦 按键：手电筒开关。

- 🔦 按键：持续长按可激活红外测温模式；在测温模式下同时长按 🔦 手电筒开关按键2秒切换℃/℉单位。

3、LCD全显符号说明



符号	说明
$\overline{\sim}$	交流电压
$\overline{\text{DC}}$	直流电压
⋯)	蜂鸣器
🔋	电池电压不足
AUTO	自动量程模式
⏻	自动关机状态
VOLT	非接触交流电压感应模式
⚡	非接触交流电压感应模式
🔦	红外测温模式
MAX	最大测得温度值
V	伏特（电压）
Hz	赫兹（频率）
Ω, kΩ, MΩ	欧姆，千欧姆，兆欧姆（电阻）
°C, °F	摄氏度，华氏度（温度）

- 1.自动量程。
- 2.全量程过载保护。
- 3.测量端允许的最大电压：500V DC 或 500V AC (有效值)
- 4.工作高度：最大2000m
- 5.显示：LCD
- 6.最大显示值：2000数字。
- 7.极性指示：自动指示，‘-’表示负极性。
- 8.超量程显示：‘OL’或‘-OL’。
- 9.采样速率：约3次/秒。
- 10.单位显示：具有功能、电量单位显示。
- 11.自动关机时间：约5分钟
- 12.工作电源：1.5Vx2 AAA电池。
- 13.电池欠压指示：LCD显示符号。
- 14.温度系数：小于0.1%准确度/°C
- 15.工作温湿度：0~40°C (<80% RH, <10°C时不考虑)
- 16.存储温湿度：-10~60°C (<70% RH, 取掉电池)
- 17.尺寸：181×28×31mm
- 18.重量：约87g (不含电池)

技术指标

准确度指标

准确度在校准后一年内适用。

基准条件：环境温度18°C至28°C、相对湿度不大于80。

1、直流电压

量程	分辨率	准确度
500V	0.1V	±(0.8% 读数 + 3字)

灵敏度：最小0.5V直流电压

输入阻抗：1MΩ

最大输入电压：500V DC或AC有效值。

2、交流电压

量程	分辨率	准确度
500V	0.1V	±(1.2% 读数 + 5字)

灵敏度：最小1V交流电压

输入阻抗：1MΩ

最大输入电压：500V DC或AC有效值。

频率范围：50Hz~60Hz，真有效值响应。

3、电阻

量程	分辨率	准确度
10MΩ	1Ω	±(1.2% 读数 + 3字)

输入保护：最大500V DC或AC有效值。

4、频率

量程	分辨率	准确度
1000Hz	0.1Hz	±(2.0% 读数 + 3字)

频率范围：40Hz~1000Hz。

5、蜂鸣通断

功能	准确度
	当内置蜂鸣器发声时，被测电阻小于约30。

输入保护：最大500V DC或AC有效值。

6、非接触交流电压检测

量程	说明
低档	显示1/3模拟条，蜂鸣器发出报警声，亮起绿色电压指示灯。
中档	显示2/3模拟条，蜂鸣器发出高频率报警声，亮起黄色电压指示灯。
高档	显示满格模拟条，蜂鸣器发出更高频率报警声，亮起红色电压指示灯。

电压范围：90V~1000V 交流电压

7. 红外测温

量程	分辨率	准确度
0°C~380°C	0.1°C	±(2.5%读数+2°C)
-20°C~0°C	0.1°C	±(2.5%读数+3°C)

测温范围：-20°C~380°C (-4~716°F)

发射率：0.95

光谱范围：8-14um

响应时间：~1s

光学分辨率：6:1

4.

操作说明

1. 交直流电压/频率/电阻测量/连通性检测

1. 将红色表笔插入INPUT输入端，黑色表笔插入COM端，按红色键开机，仪表显示AUTO模式工作状态。

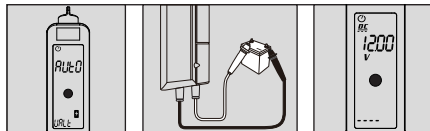
2. 将表笔并联到待测电路、电源或电阻上。仪表自动判别交流电压、直流电压、电阻，并自动显示交流信号频率值。

3. 当被测量电阻小于约30Ω时，内置蜂鸣器发声。

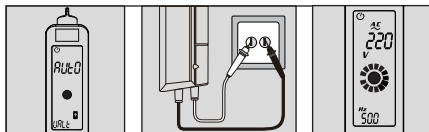
4. 测量直流电压时，显示屏同时显示红色表笔测试点的电压极性。

5. 从显示屏读取测量结果，并可通过模拟条查看数值的动态变化。

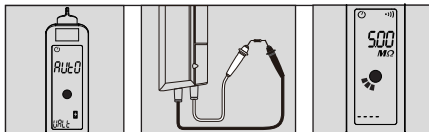
直流电压



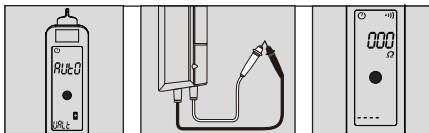
交流电压 频率



电阻



连通性检测



警告：

- 不要输入高于500V的电压，显示更高电压值是可能的，但可能会有损坏仪表的危险。
- 测量高电压时，要格外小心，以避免触电。
- 在完成所有的测量操作后，要断开表笔与被测电路的连接。

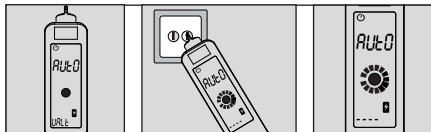
2. 非接触交流电压检测

1. 按红色按键开机

2. 把测试仪的感应头插入电源插座或靠近带电导线，当测试仪探测到90V~1000V交流电压信号时，感应电压信号指示灯闪烁，屏幕条形数值亮起，测试仪依据探测到的信号强度，点亮相应信号强度指示灯（高、中、低），同时蜂鸣器发出不同频率的报警声。

3. 测试仪的感应头分别贴近导线，如果是插座则将探针插入插孔中，感应信号强的一根是火线，感应信号弱的或无感应信号的是零线。

非接触交流电压检测



警告：

●非接触交流电压和火线探测操作可能会受到插座设计、绝缘厚度及类型不同等因素的影响。即使没有指示，电压仍然可能存在。不要完全依靠非接触电压探测器来判断导线是否存在电压。

●仪表输入端子输入电压时，由于感应电压的存在，非接触电压感应指示灯亦可能会亮。

●外部环境的干扰源（如闪光灯，马达等），可能会误触发非接触电压探测。

3. 红外测温

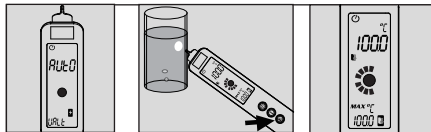
1. 按红色按键开机

2. 保持长按  按键，激活红外测温模式。

3. 把测试仪的红外测温区靠近被测物体5-10cm（建议距离）。被测物体越小 需要越靠近被测物。

4. 从显示屏读取测量结果，并可通过模拟条查看数值的动态变化。

●可通过开启手电筒照明辅助观察测试范围区域，照明范围区域与红外测温范围区域基本一致。



5.

保养与维修

△打开仪表的电池盖之前，应确保仪表电源已断开，并检查测试笔已从测试电路中断开。

1. 一般保养与维护

*定期使用湿布和少量洗涤剂清洁仪表外壳。请勿用研磨剂或化学溶剂。

输入插座如果弄脏或潮湿可能会影响读数。

*如发现仪表有异常，请立即停止使用并送回校准维修

2. 更换电池

△如果LCD 出现“ ”符号，应立即更换电池，否则会影响测量精度。

1) 关断仪表电源；

2) 将所有测试笔从输入插座中拔出；

3) 用螺丝刀旋松固定电池盖的螺钉；

4) 取下电池盖，将旧电池更换；

5) 将电池盖按原样装上。

△电池的极性不可装反

⚠ Warning

People who use this meter should pay special attention to it , because the improper use might cause electric shock or damage to the meter. Please follow the actual safety rules and safety measures as specified in the manual.

To fully use the function of this meter and ensure its safety operation, please read and follow its usage methods in the specification carefully.

This meter matched the technical requirement of digital multimeter GB/T 13978-92 and the safety requirement of electronic measuring meter GB4793.1-1995 (IEC-61010-1. It belongs to secondary pollution and its over-voltage standard is CAT II 500V.

Please follow the safe operation guide and ensure safe use for this meter. Proper use and maintenance for meter will give you a satisfied service.

1.1 Preparation

1. Users must follow the standard safety rules when using it :

- Need some universal protection to avoid electric shock.
- To avoid misuse the meter.

2. Check if there is any damage on this meter or not in the process of transportation when received it.

3. Check if there is any damage on this meter or not when preserved, loaded and delivered it in poor condition.

4. The test lead must be in a good condition. Check whether there is any damage on its insulation or not and if meter's metal wire is exposed or not before using it.

5. Using the test lead provided by meter can guarantee the use of meter safety. If needed, you must use the same or similar pen to replace it.

1.2 Usage

1. The correct function and measuring range must be guaranteed when using it.

2. Don't overtake the indicating value of protection extent of every measuring range when testing.

3. Don't touch the top of test lead (the metal part) when linked meter with measuring circuit.

4. When testing, if the voltage tested is over 60V DC or 30V AC (RMS), please keep your fingers behind the test lead protector.

5. When the measuring terminal voltage is over 500V DC or 500V AC, please stop testing voltage.

6. Before turning the switch to change the testing function, the test lead should be removed from the measuring circuit.

7. Do not measure resistance and lines when the line is energized.

8. When use resistance and circuit breaker, user should avoid to link meter with voltage source.

9. Don't use the meter under the explosive gas, steam or dust environment.

10. If there is any abnormality or malfunction in the meter, user should stop using it.

11. Multimeter should not be used unless the meter bottom shell and the battery cover are completely clasped in place.

12. Don't preserve or use meter in the condition of direct sunlight, high temperature, high humidity.

Marks

⚡ It can be used on hazardous live conductors.

⚠ Warning sign

☐ Double insulation protection. (II Level)

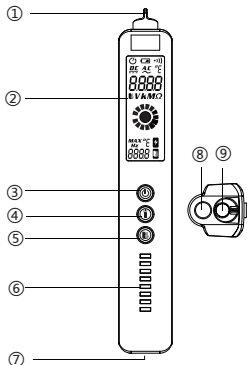
CAT II In accordance with the IEC-61010-1 standard over-voltage (installation) level II, pollution level 2, CAT II means the level of pulse withstand voltage protection provided.

CE Matched EC(EU) standard.

2 Product Description

1. Part Name

No.	Description
1	V~Alert sensor area
2	Display
3	Power switch
4	Flashlight switch
5	Infrared temperature-testing switch
6	Voltage signal indicator
7	Input terminal
8	Infrared temperature-testing sensor area
9	Flashlight



2. Key Description

⏻ Power switch

🔦 Flashlight switch button: turn on the flashlight.

🔦 Infrared temperature-testing switch: Press and hold to keep infrared temperature measurement test; While measuring the infrared temperature, press and hold the 🔦 switch button for 2 seconds to switch the unit of °C/°F

3. LCD full display symbol



Symbol	Elaborate on
	Voltage AC
	Voltage DC
	Continuity
	Battery is low and should be changed
AUTO	Automatic range measurement mode
	Auto power off function indication
VALT	Non-contact AC voltage detection/NCV
	Non-contact AC voltage detection/NCV
	Infrared Temperature-Testing
MAX	Maximum temperature
V	Voltage unit: volt
Hz	Hertz, Kilohertz, Megahertz
Ω, kΩ, MΩ	Resistance unit: Ohm, kilohm, mega ohm
°C, °F	Celsius, Fahrenheit (temperature)

Specification

Automatic measuring range.

Full measuring range overload protection.

Maximum voltage allowed at the measuring end. : 500V DC or 500AC(RMS).

Work height: maximum 2000mm

Display : LCD.

Maximum display value: 2000 digits.

Polarity indication : Self-indicating, '-' means Negative polarity.

Over-range display : 'OL' or '-OL'.

Sampling time : The meter figures show about 0.4 seconds

Unit display : Function and battery unit display.

Automatic Power off time: 5 minutes

Operational power : 1.5Vx2 AAA battery.

Battery low voltage indication: LCD display  symbol.

Temperature coefficient : Less than 0.1 x Accuracy / °C

Operational temperature and humidity : 0 ~ 40 °C/32 ~ 104°F, 45%-80%RH

Storage temperature and humidity : -10 ~ 60 °C/-4 ~ 140°F, 45%-80%RH

Boundary dimension : 181×28×31mm

Weight: ~87g

Technical index

Accuracy

Accuracy applies within one year of calibration.

Reference conditions: environmental temperature 18 °C to 28 °C,
relative humidity is not greater than 80.

1. Voltage DC

Range	Resolution	Accuracy
500V	0.1V	$\pm(0.8\%+3\text{counts})$

Sensitivity: minimum 0.5V DC voltage

Input impedance: 1M Ω

Maximum input voltage : 500V DC&AC (RMS)

2. Voltage AC

Range	Resolution	Accuracy
500V	0.1V	$\pm(1.2\%+5\text{counts})$

Sensitivity: minimum 1V DC voltage

Input impedance: 1M Ω

Maximum input voltage : 500V DC&AC (RMS)

Frequency range: 50Hz~60Hz, true RMS response.

3. Resistance

Range	Resolution	Accuracy
6000 Ω	1 Ω	$\pm(1.2\%+3\text{counts})$

Overload protection : 500V DC or AC (RMS)

4. Frequency

Range	Resolution	Accuracy
1000Hz	0.1Hz	$\pm(1.0\%+5\text{counts})$

Frequency range: 40Hz~1000Hz.

5. Measure Continuity

Function	Accuracy
	If the resistance is <30 Ω , the continuity beeper sounds.

Overload protection : 500V DC or AC (RMS)

6. V~Alert

Range	Explanation
Low-range	Green voltage signal indicator.The screen displays 1/3 analog bar,the buzzer sounds a slow alarm.
Mid-range	Yellow voltage signal indicator.The screen displays 2/3 analog bar,the buzzer sounds a quick alarm.
High-range	Red voltage signal indicator.The screen displays full analog bar,the buzzer sounds a very loud alarm.

Voltage range:90V~1000V AC

7. High sensitivity mode

Range	Resolution	Accuracy
0°C~380°C	0.1°C	$\pm(2.5\% \text{ counts} + 2^\circ\text{C})$
32°F~716°F	0.1°F	$\pm(2.5\% \text{ counts} + 35.6^\circ\text{F})$
-20°C~0°C	0.1°C	$\pm(2.5\% \text{ counts} + 3^\circ\text{C})$
-4°F~32°F	0.1°F	$\pm(2.5\% \text{ counts} + 37.4^\circ\text{F})$

Temperature range: -20°C~380°C (-4~716°F)

Emissivity: 0.95

Spectral range : 8-14um

Response time : ~1s

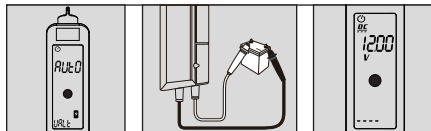
D:S= 6:1

4. Operation Instructions

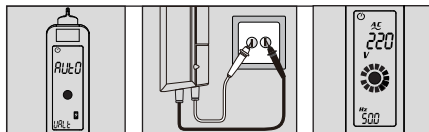
1. Voltage DC or AC/Frequency/Resistance/Measure Continuity

1. Insert the red test lead into the "INPUT" terminal, black test lead into the "COM" terminal.
2. Connect the test leads in parallel to the circuit, power supply, tested resistor. The meter automatically identifies whether it is AC voltage, DC voltage or resistance, and shows the frequency on the screen.
3. When resistance is less than 30Ω, the buzzer sounds.
4. When measuring DC voltage, it can also show the voltage polarity of the red test lead.
5. Read the measurement results from the display.

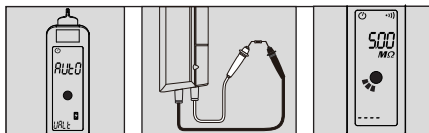
Voltage DC



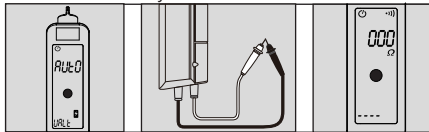
Voltage AC Frequency



Resistance



Measure Continuity



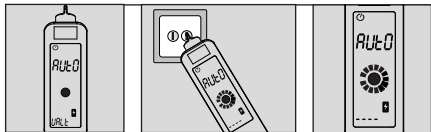
Warning:

- Do not input voltages higher than 500V, showing higher voltage are possible, but it may destroy the meter.
- When measuring high voltage, be careful to avoid electric shock.
- Disconnect the test leads from the circuit when completed measurement.

2. Non-contact AC voltage detection

1. Press the power button.
2. Put the sensor head into the power outlet or near the electrified lead wire, and when the tester detects the AC voltage signal, the voltage signal flicks the signal, the bar value of the meter screen lights up, and the test is based on the intensity of the signal detected, lighting the corresponding signal strength indicator lights (high, medium, low), and the buzzer emits different frequencies of alarm sound.
3. Push the inductive head of the tester close to the wire, plug the probe into the jack. The tester detects that one of the strong induced signal is live wire, and the weak or non-sensing signal of the induction signal is neutral wire.

Non-contact AC voltage detection



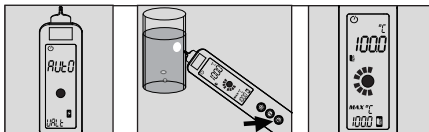
Warning:

- Non-contact AC voltage and live wire detection operations may be influenced by the socket design, insulation thickness and class.. Even without indication, the voltage may still exist. Do not use non-contact voltage detector to determine whether the voltage existence.
- When input voltage, the non-contact voltage sensing indicator may light on because of the existence of induced voltage
- Outside environment (such as flash, motor, etc.) may influence the non-contact voltage detection.

3. Infrared Temperature-Testing

1. Press the power button.
2. Press and hold  to keep infrared temperature-testing.
3. The tester infrared temperature sensing area close to the object 5-10cm (recommended distance).
4. Read the measurement result from the display screen, and view the dynamic change of the value through the analog bar.

- You can turn on the flashlight to assist in observing the test range area, and the lighting range area is basically the same as the infrared temperature sensing range area.



5.

Maintenance

△ Warning

To avoid shock hazard, users should remove pen from the testing circuit before opening the battery cover of the meter.

1. General Maintenance

- 1) Do not operate the product around hot, wet, flammable, explosive or magnetic environments.
- 2) Clean the product with damp cloth and mild detergent; do not use abrasives or solvents.
- 3) Remove the input signals before you clean the product.
- 4) Remove the batteries if you will not use the product for a long time to prevent possible battery leak.

2. Replace Battery

- 1) If  symbol appears, it means the battery shall be replaced.
- 2) Remove the test leads from the terminals.
- 3) Loosen the battery door fastener and remove the door from the case bottom.
- 4) Remove the batteries.
- 5) Replace the batteries with two new AAA batteries.
- 6) Reattach the battery door to the case bottom and tighten the fastener.

Note:

Do not violate the battery polarity.