



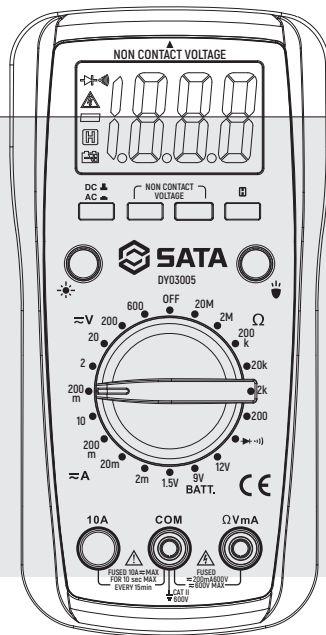
AC/DC Digital Multimeter

交直流数字万用表

DY03005

中文

EN



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简介


DY03005一款多功能手动量程数字万用表,可测量交直流电压、交直流电流、电阻、二极管、电路通断、电池、并具有非接触交流电压探测,火线判断,LCD背光及手电筒功能。全量程过载保护,是一款性能优越的电工仪表。

本仪器的设计符合IEC 61010,污染等级2级,测量种类II (CATII 600V)。

安全须知

为避免电击和人身伤害,请遵循以下操作要求:

- 使用前请检查外壳,尤其应注意连接器周围的绝缘。仪器存在破损时,请勿使用。
- 检查表笔的绝缘是否有损坏或暴露的金属。检查表笔是否导通。
如果表笔有损坏,请更换后再使用。
- 在测量电阻,通断,二极管或温度之前,先断开被测电路的电源,并对所有电容充分放电。
- 测量电流前,确认仪器的保险丝完好。在把仪器连到待测电路之前,切断待测电路的电源。
- 在旋转功能 / 量程开关以改变功能前,先把表笔从被测电路上移开。
- 若仪器工作失常,请勿使用。保护设施可能已遭破坏。若有疑问,应把仪器送去维修。
- 切勿在爆炸性的气体,蒸汽或灰尘附近使用本仪器。

- 切勿在端子之间或端子与地之间施加超过仪表上所标示的额定电压。
- 使用前,通过测量已知电压的方式确认仪器工作正常。
- 维修时,只使用指定的更换部件。
- 对于30Vac有效值、42Vac峰值或60Vdc以上的电压,工作时要小心,这类电压会有电击的危险。
- 使用表笔时,应把手指置于表笔上的护指装置之后。
- 连接时,先连接公共测试导线,而后才连接带电的测试导线。拆除接线时,先拆带电的测试导线,而后才拆除公共测试导线。
- 打开电池盖或仪器外壳之前,应先将表笔拆下。
- 仪器的电池盖或外壳的一部分被拆下或松开时,切勿使用仪器。
- 当出现低电池符号“”,应马上更换电池。电池电量不足会使仪器读数错误,从而导致电击或人身伤害。
- 为避免电击,使用者不要接触任何裸露的导体,并且应与地保持绝缘。
- 如果仪表、表笔或手潮湿,请勿使用仪表。
- 若未按照本手册的指示使用仪表,仪表提供的安全功能可能会失效。
- 遵守当地及国家的法规。在裸露的危险带电导体附近作业时,必须使用安全防护设备。
- 给一个输入端子接上一个危险的电压时,请注意,在其它所有端子上也可能出现此电压。
- CATII:通过电源线连接到室内插座的用电设备的一次电气线路。
不要把仪器用在属于CATIII和CATIV的测量范围。

电气符号

~ 交流电

≡ 直流电

≈ 交流或直流

⚠ 警惕!有危险. 使用前请参阅说明书

⏏ 地端子

□ 有双重绝缘或加强绝缘保护

⚡ 警惕!有电击危险

CE 符合欧盟指令

综合规范

显示屏:3 1/2位液晶显示屏, 最大读数1999

负极性指示:负号“—”自动显示在屏幕上


IP等级:IP20

采样速率:2 ~ 3次/秒(近似值)

操作温度:0°C ~ 40°C, 相对湿度:< 75%

存贮温度:-10°C ~ 50°C, 相对湿度:< 85%

电源:9V 6F22电池, 1节

电池低电压指示:“ ”示在屏幕上

尺寸:170 × 86 × 40mm

重量:约275克(含电池)

面板介绍

1 显示屏

3 1/2位液晶显示, 最大读数1999

2 “AC/DC”切换按钮

测量电压或电流时, 该按钮用于选择交流或直流测量功能。

3 交流电压探测按钮

4 背光按钮

按该按钮可开启或关闭背光功能。背光开启约30秒之后将自动关闭。

5 功能/量程开关

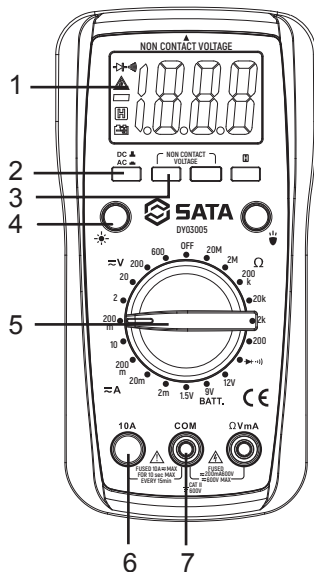
该开关用于选择所需的功能和档位, 也用于开启和关闭电源。不使用仪器时, 该开关应置于“OFF”位置。

6 “10A”插孔

测量电流(200mA~10A)时, 红色表笔的输入插孔。

7 “COM”插孔

黑色(负极性)表笔的输入插孔。



8 “ΩVmA”插孔

除了测量大于200mA的电流测量外, 进行其它测量时红色表笔的输入插孔。

9 照明按钮

按住该按钮不放可启动照明功能, 松开该按钮则关闭照明功能。

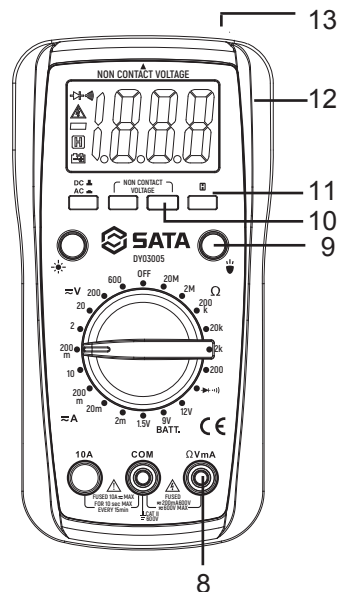
10 交流电压探测指示灯

11 “H”按钮

用于进入或退出数据保持模式。

12 护套

13 照明灯



技术指标

精度在校正后一年内指定, 温度18°C~28°C, 相对湿度:<75%。

精度指标采用的形式: \pm ([读数%] + [最低有效数位])

功 能	量 程	分辨率	精 度	过量程指示
<div><div><div><div></div></div><div><div></div></div></div><div><div></div></div><div>直流电压</div></div>	200mV	100μV	±(0.5%+5)	屏幕显示“OL”
	2V	1mV	±(0.8%+5)	
	20V	10mV		
	200V	100mV		
	600V	1V	±(1.0%+5)	见备注1

输入阻抗:10M Ω

最大输入电压:600Vdc

备注1:当仪表测量超过600V的信号时,是可以显示实际测量所得的数值,但可能引起危险。

功 能	量 程	分辨率	精 度	过量程指示
⎓ 交流电压	200mV	100μV	±(1.0%+5)	屏幕显示“OL”
	2V	1mV	±(1.2%+5)	
	20V	10mV		
	200V	100mV		
	600V	1V		

频率范围:40Hz ~ 400Hz

显示:正弦波有效值(平均值响应)

最大输入电压:600V ac rms

备注1:当仪表测量超过600V的信号时,是可以显示实际测量所得的数值,但可能引起危险。

功 能	量 程	分辨率	精 度	过量程指示
$\overline{\text{A}}$ 直流电流	2mA	1 μ A	$\pm(1.0\%+5)$	屏幕显示“OL”
	20mA	10 μ A	$\pm(1.0\%+5)$	
	200mA	100 μ A	$\pm(1.5\%+5)$	
	10A	10mA	$\pm(2.0\%+5)$	见备注1

过载保护：

“**ΩVmA**”插孔输入：250mA/250V快速熔断保险丝

“**10A**”插孔输入：10A/250V快速熔断保险丝

最大被测电流：10A(持续时间<10秒, 间隔>15分种)

备注1: 当仪表测量超过10A的电流时, 是可以显示实际测量所得的数值, 但可能引起危险。

功 能	量 程	分辨率	精 度	过量程指示
\tilde{A} 交流电流	2mA	1 μ A	$\pm(1.3\%+5)$	屏幕显示“OL”
	20mA	10 μ A	$\pm(1.3\%+5)$	
	200mA	100 μ A	$\pm(1.8\%+5)$	
	10A	10mA	$\pm(3.0\%+5)$	见备注1

过载保护：

“**250mA**”插孔输入：250mA/250V快速熔断保险丝

“**10A**”插孔输入：10A/250V快速熔断保险丝

最大被测电流：10A(持续时间<10秒，间隔>15分钟)

频率范围：40Hz ~ 400Hz



显示：正弦波有效值(平均值响应)

备注1：当仪表测量超过10A的电流时，是可以显示实际测量所得的数值，但可能引起危险。

功 能	量 程	描 述	测试电流
BATT. 电池测试	1.5V	屏幕将显示电池的工作电压, 从而可以判断电池的质量.	约20mA
	9V		约5mA
	12V		约4mA



功 能	量 程	分辨率	精 度	过量程指示
Ω 电 阻	200 Ω	0.1 Ω	$\pm(1.2\%+5)$	屏幕显示“OL”
	2k Ω	1 Ω		
	20k Ω	10 Ω		
	200k Ω	100 Ω		
	2M Ω	1k Ω		
	20M Ω	10k Ω	$\pm(1.5\%+7)$	

最大开路电压:约2.8V

功能	量 程	备 注
 二极管测试	液晶屏显示二极管的正向电压降的近似值。	开路电压:约2.8V 测试电流:约1mA
 通断测试	如果被测线路的电阻值小于约20Ω, 则内置蜂鸣器会发出响声。 如果被测线路的电阻值大于100Ω, 则蜂鸣器不响。 如果被测线路的电阻值在20Ω和100Ω之间, 则蜂鸣器可能响, 也可能不响。	开路电压:约2.8V

操作说明

数据保持模式

按一下“H”按钮, 则当前读数被保持在屏幕上, 同时屏幕出现“”符号。再按一下该按钮, 则取消数据保持功能, “”符号消失。

测量直流或交流电压

1. 把黑表笔接到“**COM**”插孔,红表笔接到“ **Ω VmA**”插孔。
2. 把量程开关设在所需的 **\approx V**档。如果待测电压的大小范围事先不知道,则先将量程开关置于最高档,然后逐渐往下调,直到获得满意的分辨力。
3. 按“**AC/DC**”切换按钮,根据按钮旁的图标提示选择直流或交流电压测量功能。
4. 将表笔跨接在待测电源或电路的两端。
5. 读取读数。当测量直流电压时,红表笔连接端的极性也将同时指示。

测量直流或交流电流

1. 把黑表笔连接到“**COM**”插孔。当待测电流的绝对值小于200mA时,红表笔接到“ **Ω VmA**”插孔。当电流的绝对值 $\geq 200\text{mA}$ (不能超过10A),红表笔接到“**10A**”插孔。
2. 将量程开关设到所需的 **\approx A**档。如果待测电流的大小范围事先不知道,则先将量程开关置于最高档,然后逐渐往下调,直到获得满意的分辨力。
3. 按“**AC/DC**”切换按钮,根据按钮旁的图标提示选择直流或交流电流测量功能。
4. 把表笔串接到待测电路。
5. 读取读数。当测量直流电流时,红表笔连接端的极性也将同时指示。


测量电阻

1. 将黑表笔接到“**COM**”插孔,红表笔接到“ **Ω VmA**”插孔。
2. 将量程开关设在所需的 Ω 档。
3. 将表笔跨接到待测电阻的两端。读取屏幕读数。


注意:

1. 当电阻的阻值大于 $1\text{M}\Omega$ 时,读数可能要数秒才会稳定。这对于高阻测量是正常的。
2. 当输入端子开路时,屏幕显示“OL”作为过量程指示。
3. 测量之前,断开待测电路的电源并对所有电容进行充分放电。

二极管测试

1. 把黑表笔接到“**COM**”插孔,红表笔接到“ **Ω VmA**”插孔。
2. 将量程开关设到  位置。
3. 将红表笔接到待测二极管的正极,黑表笔接到二极管的负极。
4. 从屏幕上读取二极管的正向电压降的近似值。若表笔接反,则屏幕显示“OL”。

通断测试

1. 把黑表笔接到“**COM**”插孔,红表笔接到“ **Ω VmA**”插孔。
2. 把量程开关设到  档。
3. 把表笔跨接到待测电路的两端。
4. 当电阻低于约20 Ω 时,蜂鸣器会产生蜂鸣。

注意:测量之前,断开被测电路的电源,并对所有电容进行充分放电。

测量电池

1. 将黑表笔接到“**COM**”插孔,红表笔接到“ **Ω VmA**”插孔。
2. 根据待测电池的额定电压,将量程开关设到相应的**BATT.**档。
3. 将表笔跨接到待测电池的两极。
4. 屏幕将显示电池的工作电压。

非接触交流电压探测

按住交流电压探测按钮不放,把仪表的顶部靠近待测物体。当仪器探测到交流电压时,仪器的内置蜂鸣器将发出不连续声音,同时交流电压探测指示灯将闪烁。

注意:

1. 由于仪器的探测范围所限,探测时,即使蜂鸣器不响,交流电压探测指示灯不亮,被测物体也可能带电,应避免电击危险。
2. 使用前,请探测一个已知电压以验证仪器功能正常。
3. 刚按下交流电压探测按钮时,蜂鸣器可能会响两声,交流电压探测指示灯会闪烁两次,这种情况是正常的,不影响探测。
4. 为避免电击,使用时不要用手或皮肤接触任何导体。

火线判断

将表笔的一端插入任一输入插孔,将表笔的探针直接接触待测电源插座的输出端子。按住交流电压探测按钮不放,当仪器探测到交流电压时,仪器的内置蜂鸣器将发出不连续声音,同时交流电压探测指示灯将闪烁。

注意:

1. 由于仪器的探测范围所限,测量时,即使蜂鸣器不响,交流电压探测指示灯不亮,被测物体也可能带电,应避免电击危险。
2. 使用前,请探测一个已知电压以验证仪器功能正常。
3. 刚按下交流电压探测按钮时,蜂鸣器可能会响两声,交流电压探测指示灯会闪烁两次,这种情况是正常的,不影响探测。
4. 为避免电击,使用时不要用手或皮肤接触任何导体。

维护保养


除更换电池和保险丝外,若非合格的专业技师并且拥有足够的校准、性能测试和维修仪表的相关说明,切勿尝试修理或保养仪表。建议校准周期为12个月。不使用时,仪表应存放于干燥、无强电磁场的场所。

定期用湿布和少许清洁剂擦拭外壳,切勿使用磨料或溶剂。端子若弄脏或潮湿可能会影响读数。要清洁端子:

1. 关闭仪表电源并且取下测试导线。
2. 把端子内可能存在的灰尘摇掉。
3. 取一个新棉棒并沾上酒精,清洁每个输入端子内部。

若仪表出现故障,首先检查电池和保险丝,然后查阅本手册以确定仪表的使用方法正确。

电池和保险丝的更换


1. 当屏幕上显示“ ”符号，表示电池的电量不足，必须立即更换。将护套取下，然后卸下电池盖的螺丝，打开电池盖。用新的同型号电池更换旧电池，确保电池极性正确。盖好电池盖，锁好螺丝，装好护套。
2. 如果保险丝需要更换，请将护套取下，然后卸下后盖上的螺丝。打开后盖，轻轻将其移到一旁。用相同规格的新保险丝更换烧坏的保险丝。重新装好后盖和螺丝，然后装好护套。

本机使用两个保险丝：

F1:250mA/250V快速熔断保险丝

F2:10A/250V快速熔断保险丝

警告

为避免因读数错误而导致电击或人身伤害，当电池低电压符号“ ”出现时应立即更换电池。
为防止仪表损坏或人身伤害，只使用指定的保险丝。
打开仪表电池盖或外壳之前，应先关闭仪表电源，并将把表笔从仪表上取下。

开箱检查

表笔:	1付
9V电池(6F22):	1节
说明书:	1本
保修卡:	1张

说明

1. 本公司保留对说明书内容修改的权利。
2. 本公司不负责任何由于使用时引起的其它损失。
3. 本说明书内容不能作为将产品用做特殊用途的理由。

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Introduction


This meter is a compact 3 1/2-digit digital multimeter for measuring DC and AC voltage, DC and AC current, resistance, continuity, diode, and battery. In addition, non-contact AC voltage detection, live ac wire detection and illumination functions are also provided. It features polarity indication, data hold, full-range overload protection, and etc. It is easy to operate and is a very useful test tool.

This meter has been designed according to IEC 61010 concerning electronic measuring instruments with a measurement category (CAT II 600V) and pollution degree 2.

Warning

To avoid possible electric shock or personal injury, follow these guidelines:

- Do not use the meter if it is damaged. Before you use the meter, inspect the case. Pay particular attention to the insulation surrounding the connectors.
- Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity. Replace damaged test leads before you use the meter.
- Do not use the meter if it operates abnormally.
Protection may be impaired. When in doubt, have the meter serviced.
- Do not operate the meter where explosive gas, vapor, or dust is present.
- Do not apply more than the rated voltage, as marked on the meter, between terminals or between any terminal and earth ground.
- Before use, verify the meter's operation by measuring a known voltage.
- When measuring current, turn off circuit power before connecting the meter in the circuit. Remember to place the meter in series with the circuit.

- When servicing the meter, use only specified replacement parts.
- Use caution when working with voltage above 30V ac rms, 42V peak, or 60V dc. Such voltages pose a shock hazard.
- When using the probes, keep your fingers behind the finger guards on the probes.
- Connect the common test lead before you connect the live test lead. When you disconnect test leads, disconnect the live test lead first.
- Remove the test leads from the meter before you open the battery cover or the case.
- Do not operate the meter with the battery cover or portions of the case removed or loosened.
- To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the low battery indicator () appears.
- Do not use the meter in a manner not specified by this manual or the safety features provided by the meter be impaired.
- Adhere to local and national safety codes. Individual protective equipment must be used to prevent shock and arc blast injury where hazardous live conductors are exposed.
- To void electric shock and personal injury, do not touch any naked conductor with hand or skin; and do not ground yourself while using this meter.
- Do not use the meter if the meter, a test lead or your hand is wet.
- Remaining endangerment:

When an input terminal is connected to dangerous live potential it is to be noted that this potential can occur at all other terminals!
- CAT II - Measurement Category II is for measurements performed on circuits directly connected to low voltage installation. (Examples are measurements on household appliances, portable tools and similar equipments.)


Do not use the meter for measurements within Measurement Categories III and IV.


Electrical Symbols

 Direct Current

 Alternating Current

 Both direct and alternating current


 Caution, risk of electric shock.

 Caution, risk of danger, refer to the operating manual before use.

 Earth (ground) Terminal

 Fuse

 Conforms to European Union directives

 The equipment is protected throughout by double insulation or reinforced insulation.

Screen Instruction

1. Display

3 1/2-digit LCD, with a max. reading of 1999

2. " AC/DC " Button

Used to switch between DC and AC functions.

3. AC Voltage Detection Button

4. Backlight Button

Press this button to turn on or off the backlight. The backlight will turn off automatically about 30 secs later after it is turned on.

5. Function/Range Switch

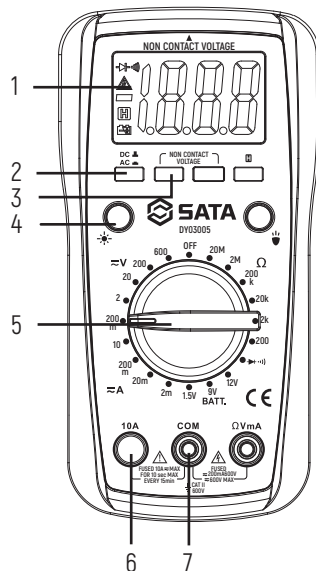
Used to select desired function or range as well as to turn on or off the meter. To preserve battery life, set this function/range switch in the " OFF " position when the meter is not in use.

6. " 10A " Terminal

Plug-in connector for the red test lead for current (200mA - 10A) measurements.

7. " COM " Terminal

This terminal is a plug-in connector for the black test lead. It is also a plug-in connector for the negative (-) plug of the K type thermocouple for temperature measurements.



8. "ΩVmA" Terminal

This terminal is a plug-in connector for the red test lead for all measurements except temperature measurements and the current measurements * 200mA. It is also a plug-in connector for the positive (+) plug of the K type thermocouple for temperature measurements.

9. Illumination Button

Press and hold down this button to turn on the illumination lamp. To turn off the illumination lamp, just release this button.

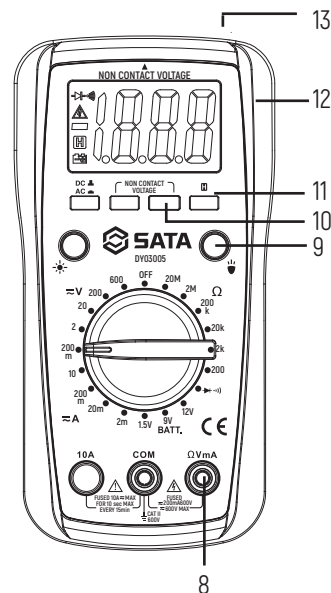
10. AC Voltage Detection Indicator

11. "H" Button


Used to enter/exit Data Hold mode.

12. Holster

13. Illumination Lamp



General Specification

Display:	3 1/2-digit LCD, with a max. reading of 1999
Negative Polarity Indication:	Negative sign " - " shown on the display automatically
Sampling Rate:	About 2 - 3 times/sec
IP Degree:	IP20
Battery:	9V battery, 6F22 or equivalent, 1 pieces
Low Battery Indication:	"  " shown on the display
Operation Environment:	Temperature: 0°C to 40°C, Relative Humidity: < 75%
Storage Temperature:	-10°C to 50°C, Relative Humidity: < 85%
Size:	170×86×40mm
Weight:	About 275g [including battery]

Technical Specification

Accuracy is specified for a period of 1 year after calibration and at 18°C - 28°C, with relative humidity up to 75%

Accuracy specifications take the form of:


± [(% of Reading) + (Number of Least Significant Digits)]

Functions	Range	Resolution	Accuracy	Overrange Indication
<div><div><div><div></div><div></div><div></div></div><div>V</div></div><div>DC Voltage</div></div>	200mV	100μV	±(0.5%+5)	" OL " shown on display
	2V	1mV	±(0.8%+5)	
	20V	10mV		
	200V	100mV		
	600V	1V	±(1.0%+5)	_____ [1]

Input Impedance: 10MΩ

Max. Allowable Input Voltage: 600V dc

[1] If the voltage being measured is >600V, the display may show the value of the voltage, but the measurement is dangerous.

Functions	Range	Resolution	Accuracy	Overrange Indication
<div></div> <div>AC Voltage</div>	200mV	100μV	±(1.0%+5)	" OL " shown on display
	2V	1mV	±(1.2%+5)	
	20V	10mV		
	200V	100mV		
	600V	1V		

Frequency Range: 40Hz - 400Hz

Response: Average, calibrated in rms of sine wave

Max. Allowable Input voltage: 600V ac rms

[1] If the voltage being measured is >600V, the display may show the value of the voltage, but the measurement is dangerous.

Functions	Range	Resolution	Accuracy	Overrange Indication
$\overline{\text{A}}$ DC Current	2mA	1 μ A	$\pm[1.0\%+5]$	" OL " shown on display
	20mA	10 μ A	$\pm[1.0\%+5]$	
	200mA	100 μ A	$\pm[1.5\%+5]$	
	10A	10mA	$\pm[2.0\%+5]$	_____ [1]

Overload Protection:

250mA/250V FAST Fuse (for "**ΩVmA**" terminal inputs)

10A/250V FAST Fuse (for "10A" terminal inputs)

Max. Allowable Input Current: 10A

[For inputs > 2A: measurement duration < 10 secs, and interval > 15 minutes]

[1] If the current being measured is >10A, the display may show the value of the voltage, but the measurement is dangerous.

Functions	Range	Resolution	Accuracy	Overrange Indication
\tilde{A} AC Current	2mA	1 μ A	$\pm(1.3\%+5)$	" OL " shown on display
	20mA	10 μ A	$\pm(1.3\%+5)$	
	200mA	100 μ A	$\pm(1.8\%+5)$	
	10A	10mA	$\pm(3.0\%+5)$	_____ [1]

Overload Protection:

250mA/250V FAST Fuse (for " **Ω VmA**" terminal inputs)

10A/250V FAST Fuse (for "10A" terminal inputs)

Max. Allowable Input Current: 10A

[For inputs > 2A: measurement duration < 10 secs, and interval > 15 minutes]

Frequency Range: 40Hz - 400Hz



Response: Average, calibrated in rms of sine wave

[1] If the current being measured is > 10A, the display may show the value of the current; but the measurement is dangerous.

Functions	Range	Resolution	Test Current
BATT. Battery Test	1.5V	The working voltage of the battery will be shown on the display so that the quality of the battery can be judged.	about 20mA
	9V		about 5mA
	12V		about 4mA

Functions	Range	Resolution	Accuracy	Overrange Indication
Ω Resistance	200 Ω	0.1 Ω	$\pm[1.2\%+5]$	" OL " shown on display
	2k Ω	1 Ω		
	20k Ω	10 Ω		
	200k Ω	100 Ω		
	2M Ω	1k Ω		
	20M Ω	10k Ω	$\pm[1.5\%+7]$	

Max.open circuit voltage:about 2.8V

Functions	Range	Remark
 Diode test	The approx. forward voltage drop of the diode will be displayed.	Open Circuit Voltage: about 2.8V Test Current: about 1mA
 Continuity test	The built-in buzzer will sound if the resistance is less than about 20 Ω . The buzzer may or may not sound if the resistance is between 20 Ω and 100 Ω . The buzzer will not sound if the resistance is more than 100 Ω .	Open Circuit Voltage: about 2.8V

Operating Instruction

Data Hold Mode

Press the "H" button to hold the present reading on the display. "H" appears on the display as an indicator. To exit the Data Hold mode, press the button again. "H" disappears.

Measuring DC or AC Voltage

1. Connect the black test lead to the "COM" terminal and the red test lead to the " Ω VmA" terminal.
2. Set the range switch to desired $\approx V$ range position.
If the magnitude of the voltage to be measured is not known beforehand, set the range switch to the highest range first and then reduce it range by range until satisfactory resolution is obtained.
3. Select dc or ac voltage measurement with the "AC/DC" button according to the marks beside this button.
4. Connect the test leads across the source or circuit to be tested.
5. Read the reading on the display. For dc voltage measurements, the polarity of the red test lead connection will be indicated as well.

Measuring DC or AC Current

1. Connect the black test lead to the "COM" terminal.
Connect the red test lead to the " Ω VmA" terminal if the current to be measured is less than 200mA. If the current is between 200mA and 10A, connect the red test lead to the "10A" terminal instead.
2. Set the range switch to desired **\approx A** range position.
3. Select dc or ac current measurement with the "AC/DC" button according to the marks beside this button.
4. Turn off power to the circuit to be tested. Then discharge all high-voltage capacitors.
5. Break the circuit path to be tested, then connect the test leads in series with the circuit.
6. Turn on power to the circuit, then read the reading on the display. For dc current measurements, the polarity of the red test lead connection will be indicated as well.

Note:

If the magnitude of the current to be measured is not known beforehand, set the range switch to the highest range first and then reduce it range by range until satisfactory resolution is obtained.

Measuring Resistance

1. Connect the black test lead to the "COM" terminal and the red test lead to the " Ω VmA" terminal.
2. Set the range switch to desired Ω range position.
3. Connect the test leads across the object to be tested.
4. Read the reading on the display.

Note:

1. For measurements $> 1M\Omega$, the meter may take a few seconds to stabilize reading. This is normal for high resistance measurements.
2. When the input is not connected, i.e. at open circuit, "OL" will be displayed as an overrange indication.
3. Before test, disconnect all power to the circuit to be tested and discharge all capacitors thoroughly.

Continuity Test

1. Connect the black test lead to the "COM" terminal and the red test lead to the " Ω VmA" terminal.
2. Set the range switch to $\bullet\Omega$ position.
3. Connect the test leads across the circuit to be tested.
4. If the resistance is less than about 20Ω , the built-in buzzer will sound.


Note:

Before test, disconnect all power to the circuit to be tested and discharge all capacitors thoroughly.

Battery Test

1. Connect the black test lead to the "COM" terminal and the red test lead to the " Ω VmA" terminal.
2. According to the rated voltage of the battery to be tested, set the range switch to the corresponding BATT. range position.
3. Connect the test leads to the two terminals of the battery to be tested.
4. The display shows the working voltage of this battery.

Diode Test

1. Connect the black test lead to the "COM" terminal and the red test lead to the " Ω VmA" terminal.
[Note: The polarity of the red lead is positive "+".]
2. Set the range switch to  position.
3. Connect the red test lead to the anode of the diode to be tested and the black test lead to the cathode of the diode.
4. The display will show the approximate forward voltage drop of the diode. If the connection is reversed, "OL" will be shown on the display.

Note: Before test, disconnect all power to the circuit to be tested and discharge all capacitors thoroughly.

Non-Contact AC Voltage Detection

Press and hold down the AC Voltage Detection Button and move the top of the meter close to the object to be tested.
When the meter detects AC voltage, the built-in buzzer will sound discontinuously and the AC Voltage Detection Indicator will flash.

Note:

1. To avoid electric shock, do not touch any naked conductor with hand or skin.

2. Because of the meter's detection limit, a line (or conductor) under test may be live even if the buzzer does not sound and the AC Voltage Detection Indicator does not light.
Before use, verify the meter's operation by detecting a known AC voltage.
4. When you just press and hold down the AC Voltage Detection Button, the buzzer may sound two beeps and the AC Voltage Detection Indicator may flash twice. This is normal and doesn't matter.
5. Don't use the meter in an environment with intense electromagnetic field.

Live AC Wire Detection

Connect the plug of a test lead to an input terminal of the meter, and connect the probe tip of this test lead to the line's conductor to be tested. Press and hold down the AC Voltage Detection Button. When the meter detects AC voltage, the built-in buzzer will sound discontinuously and the AC Voltage Detection Indicator will flash.

Note:

1. To avoid electric shock, do not touch any naked conductor with hand or skin.
2. Because of the meter's detection limit, a line (or conductor) under test may be live even if the buzzer does not sound and the AC Voltage Detection Indicator does not light.
3. Before use, verify the meter's operation by detecting a known live ac wire (or conductor).
4. When you just press and hold down the AC Voltage Detection Button, the buzzer may sound two beeps and the AC Voltage Detection Indicator may flash twice. This is normal and doesn't matter.
5. Don't use the meter in an environment with intense electromagnetic field.

Maintenance

Warning

Except replacing fuse and battery, never attempt to repair or service the meter unless you are qualified to do so and have the relevant calibration, performance test, and service instructions.

Store the meter in a dry place when not in use. Don't store it in an environment with intense electromagnetic field.

General Maintenance

Periodically wipe the case with damp cloth and a little mild detergent. Do not use abrasives or solvents.

Dirt or moisture in the terminals can affect readings.


Clean the terminals as follows:

1. Set the range switch to OFF position and remove all test leads from the meter.
2. Shake out any dirt which may exist in the terminals.
3. Soak a new swab with alcohol.
4. Work the swab around in each terminal.

If the meter fails, check and replace (as needed) the battery and fuses, and/or review this manual to verify proper use of the meter.


Battery and Fuse Replacement

Warning

To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the low battery indicator () appears.

To prevent damage or injury, use only replacement fuses specified.

Before opening the battery cover or the case, turn off the meter and remove the test leads.

When the symbol "  " appears on the display, the battery is low and must be replaced immediately. To replace the battery, remove the holster from the meter. Then remove the screw on the battery cover and remove the battery cover. Replace the exhausted battery with a new one of the same type, make sure that the polarity connections are correct. Reinstall the battery cover, the screw and the holster.

To replace the fuse, remove the holster from the meter. Remove the screws on the back cover, open the back cover and move it aside gently. Replace the damaged fuse with a new one of the same ratings. Reinstall the back cover, the screws and the holster properly.

This meter uses two fuses:

F1: 250mA/250V fuse, Fast action, Ø5×20mm

F2: 10A/250V fuse, Fast action, Ø5×20mm

Unpacking Inspection

Manual :	1pc
Test Lead :	1set
Warranty Card :	1pc
9V 6F22 :	1pc

Present

K Type Thermocouple: 1 piece

Note

1. This manual is subject to change without notice.
2. Our company will not take the other responsibilities.
3. The contents of this manual can not be used as the reason to use the meter for any special application.



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