

产品简介及安全说明


一.介绍

此系列仪表是我公司新开发的手持式LCD显示的数字万用表,其显示字高26mm,读数清晰;单位符号显示,背光显示及过载保护功能。

此系列仪表功能齐全完备:交直流电压、交直流电流、电阻、电容、电感、二极管、三极管通断测试、温度及频率。该仪表结构既坚固又安全,操作容易,携带方便。是一台性能优越的工具仪表。是工业、电气和电子技师及家庭的理想测量工具。


二.安全说明

此系列仪表在设计上符合IEC1010条款,绝缘、环境污染度2级,使用前,请先阅读安全说明

1. 在使用电表前,请检查机壳。切勿使用机壳损坏的电表。查看是否有裂痕或缺少塑胶件。请特别注意接头的绝缘层。
2. 检查测试导线绝缘层是否有损坏或裸露的金属。检查测试导线的通断性。若导线有损坏,请把它更换后再使用电表。
3. 用电表测量以知的电压,确定电表操作正常。若电表工作异常,请勿使用。保护设施可能已遭损坏,若有疑问,应把电表送去维修。
4. 36V以下为安全电压,在测高于36V直流、25V交流电压时,要检查表笔是否可靠接触,是否绝缘良好等,以避免电击。
5. 测量电压时,请勿输入超过直流1000V或交流750V有效值的极限电压
6. 为安全起见,作测量时,必须用正确的功能和量程档。换功能和量程时,表笔应离开测试点。若未按照手册的指示使用电表,电表提供的安全功能可能失效。
7. 测量电流时,请勿输入超过20A的电流。
8. 电池指示符“”显示时请立即更换电池。当电池电量不足时,电表可能会产生错误读数而导致电击及人员伤害。
9. 打开机壳或电池盖时,必须先把测试导线从电表上拆下。
10. 安全符号说明。

 安全说明

 存在危险电压

 低电压符号

 双重绝缘

 接地

三.仪器特性

1.一般特性

显示方式:液晶显示。
最大显示:1999即(31/2)或19999即(41/2)位(仅限LD9806A型)自动极性显示。
测量原理:双积分A/D转换。
采样速率:每秒钟2~3次。
过量程显示:仅最高位显示“1”或“-1”
电池低电压显示:显示“白”符号。
工作环境:(0~40)°C,相对湿度<85%。
储存环境:温度-10~50°C,相对湿度<85%。
电源:一只9V电池(NEDA1604/6F22)或同等型号。
外形尺寸:193mmX95mmX48mm(包括保护套)。
重量:约410g(含9V电池)
附件:使用说明书一本、合格证一张、防震套、测试表笔一对、TP01热电偶一支(仅限带温度测试功能的型号)及9V电池一只。

- 2-1. 准确度表达式:±(读数的%+最低有效数字),校准保证期为出厂日起一年,保证准确度环境温度:(23±5)°C,相对湿度<75%。

2-2. 功能(注“√”表示该表有此功能,“-”表示无此功能)

功能	型号	LD9801A	LD9802A	LD9805A	LD9806A	LD9808A
二极管/通断		√	√	√	√	√
频率		-	-	√	√	√
电阻		√	√	√	√	√
交流电压ACV		√	√	√	√	√
直流电压DCV		√	√	√	√	√
交流电流ACA		√	√	√	√	√
直流电流DCA		√	√	-	-	√
火线识别TEST		√	√	√	√	√
电容		-	-	√	-	-
电感		-	-	√	-	√
温度		√	√	√	√	√
三极管 hFE		√	√	√	√	√
背光显示		√	√	√	√	√
自动关机		√	√	√	-	√
读数保持		√	√	√	√	√
单位符号显示		-	-	√	√	-

技术特性

2-3 技术指标:(注“*”表示该表无此量程)

2-3-1. 直流电压(DCV)

准确度 量程	LD9081A	LD9802A	LD9805A	LD9808A	分辨率	LD9806A	分辨率
200mV	±(0.5%+3)				100uV	±(0.5%+3)	10uV
2V					1mV		100uV
20V					10mV		1mV
200V					100mV		10mV
1000V	±(1.0%+5)				1V	±(0.2%+5)	100mV

输入阻抗: 所以量程10MΩ

过载保护: 200mV量程250V直流或交流峰值; 其余1000V直流或交流峰值。

2-3-2交流电压(ACV)

准确度 量程	LD9081A	LD9802A	LD9805A	LD9808A	分辨率	LD9806A	分辨率
200mV	*	*	+(1.2%+3)	*	100uV	*	10uV
2V	±(0.8%+5)				1mV	±(0.8%+25)	100uV
20V					10mV		1V
200V					100mV		10mV
700V/750V	±(1.2%+5)				1V	±(1.0%+25)	100mV

2-3-3直流电流(DCA)

输入阻抗: 输入量程在200mV,2V为1MΩ,其余量为10MΩ。: 过载保护:200mV量程为直流或交流峰值250V,其余为1000V直流或交流峰值
显示:正弦波有效值(平均值响应)。

准确度 量程	LD9801A	LD9802A	LD9805A	LD9808A	分辨率	LD9806A	分辨率
20uA	±(0.8%+3)	*	*	*	0.01uA	*	*
200uA		0.1uA					
2mA		±(0.8%+3)	1uA		±(0.5%+4)		
20mA		±(0.8%+3)	10uA		1uA		
200mA	±(1.2%+4)			100uA	±(0.8%+6)	10uA	
2A	±(1.5%+5)	*		1mA	*	*	
20A	±(2.0%+5)			10mA	±(2.0%+15)	1mA	

最大测量压降:200mV

最大输入电流:20A 不超过10

过载保护:0.2A/250V(LD9801A为2A/250V)保险丝 20A量程无保险

准确度 量程	LD9801A	LD9802A	LD9805A	LD9808A	分辨率	LD9806A	分辨率
2mA	*	±(1.0%+5)		*	0.1uA	±(1.5%+25)	0.1uA
20mA	±(1.0%+5)				10uA		1uA
200mA	±(2.0%+5)				100uA		10uA
2A	±(3.0%+5)	*			1mA	*	*
20A	±(3.0%+10)				10mA	±(2.5%+35)	1mA

2-3-5.频率 (f)

准确度 量程	LD9805A	LD9808A	分辨率	分辨率	分辨率
2kHz	*	±(3.0%+15)	1Hz	*	*
20kHz	*		*	±(1.5%+25)	1Hz
200kHz	±(3.0%+15)		100Hz		10Hz

输入阻抗: 1V有效值

过载保护: 250V直流或交流峰值(不超过15秒)。

2-3-6.电阻 (Ω)

准确度 量程	LD9801A	LD9802A	LD9808A	LD9805A	分辨率	LD9806A	分辨率
200Ω	±(0.8%+5)				0.1Ω	±(0.4%+10)	0.01Ω
2kΩ	±(0.8%+3)				1Ω	±(0.4%+5)	0.1Ω
20kΩ					10Ω		1Ω
200kΩ					100Ω		10Ω
2MΩ					1kΩ		100Ω
20MΩ	*	*	±(1.0%+15)	10kΩ	±(0.8%+15)	1kΩ	
200MΩ	±[5.0%(读数-10)+20]			*	100kΩ	*	100kΩ

开路电压: 小于3V 过载保护:250V直流或交流峰值:

注意事项

- a. 在使用200MΩ量程时,应先将要表笔短路,测得引线阻值然后在实测中减去。
- b. 比如在使用200MΩ量程时,将要表笔短路,仪表将显示1.0MΩ,这是正常现象,不影响测量准确度,实测时应减去。例:被测电阻为100MΩ读数应为101.0MΩ,则正确值应从显示读数减去1.0,即:101.0-1.0=100.0MΩ。

2-3-7.电容 (C)

准确度 量程	LD9801A	LD9802A	LD9808A	LD9805A	分辨率	LD9806A	分辨率
2nF	*				*	±(3.5%+10)	0.1pF
20nF	*	±(2.5%+20)	±(2.5%+20)	10pF	1pF		
200nF				100pF	10pF		
2uF				1nF	100pF		
20uF	*		±(2.5%+20)	10nF	*	1nF	
200uF	±(2.5%+20)			±(5.0%+5)	100nF	±(3.8%+20)	10nF
测试频率	50Hz	400Hz	150Hz	100Hz		400Hz	


过载保护: 36V直流或交流峰值。

2-3-7.温度 (C)

准确度 量程	LD9805A	LD9808A	分辨率
(-40~1000)°C	±(0.8%+4)<400°C±(1.5%+15)≥400°C	±(1.0%+3)<400°C±(1.5%+15)≥400°C	1°C

K型热电偶(镍铬-镍硅)标准型插头。

2-3-9.二极管通断测试

量程	显示值	测试条件
	二极管正向压降	正向直流电流1mA, 反向电压约3V
	蜂鸣器发声长响, 测试两点阻值小于(70+20)Ω	开路电压约3V

过载保护:250V直流或交流峰值:

警告:为了安全在此量程禁止输入电压值

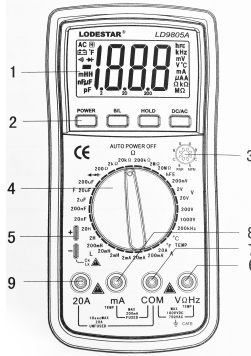
2-3-10.三极管测试

量程	显示值	测试条件
hFE NPN或PNP	0~1000	基极电流约10uA, Vce约为3V

2-3-11.电感

准确度 量程	LD9805A	分辨率
2mH	±(2.5%+20)	1 uH
20mH		10uH
200mH		100uH
2H		1 mH
20H		10mH

测试频率:100Hz;
过载保护:36V直流或交流峰值。



图一

技术特性

四.使用方法

4-1.面板介绍(参见图1.)

1.LCD显示(各型号显示内容可能不同, 详见页4.)

2.功能键:

“POWER”键:电源开关;

“DC/AC”键:选择DC和AC工作方式。

“HOLD”键:按下此功能键, 仪表当前所测数值保持在液晶显示器上并出现“H”符号,再次按下“H”符号消失, 退出保持功能状态;

“B/L”背光开关, 开启及关闭背光灯。

3.hFE测试插座:测量晶体管三极管的hFE数值的大小。

4.旋钮开关:用于改变测量功能及量程。

5.电容(Cx)或电感(Lx)插座。

6.电压、电阻及频率插座。

7.公共地。

8.200mA电流测试插座。

9.20A电流测试插座。

电压测量

4-2.电压测量

1.将黑色表笔插入“COM”插孔, 红表笔插入“VΩHz”插孔;

2.将功能开关转至“V”档, 如果被测电压大小未知, 应该选择最大量程, 再逐步减小, 直至获得分辨率最高的读数;

3.测量直流电压时, 使“DC/AC”键弹起置DC测量方式;测量交流电压时, 使“DC/AC”键按下置AC测量方式;(仅限LD9805A)

4.将测试表笔与测试点可靠地接触, 屏幕即显示被测电压值;测量直流电压显示时, 为红表笔所接的该点电压与极性。

△注意:

1.如显示:“1”, 表明已超过量程范围, 须将量程开关转至高一档。

2.测量电压不应超过直流1000V和交流750V, 转换功能和量程时, 表笔要离开测试点;

3.当测量高电压时, 千万注意避免触及高压电路。

4-3.电流测量

1.将黑表笔插入“COM”插孔, 红表笔插入“mA”或“20A”插孔中;

2.将功能开关转至“A”档, 如果被测电流大小未知, 应选择最大量程, 再逐步减小, 直至获得分辨率最高的读数;

3.测量直流电流时, 使“DA/AC”键弹起置DC测量方式;测量交流电流时,

使“DC/AC”键按下置AC测量方式;(仅限LD9805A),

4.将仪表的表笔串联接入被测电路上, 屏幕即显示被测电流值;测量直流电流显示时, 为红表笔所接的该点电流与极性。

△注意:

1.如显示:“1”或“OL”, 表明已超过量程范围, 须将量程开关转至高一档;

2.测量电流时, “mA”孔不应超过200mA, “20A”孔不应超过20A(测试时间小于于10秒);转换功能和量程时, 表笔要离开测试点。

电阻测量

4-3.电阻测量

1.将黑表笔插入“COM”插孔, 红表笔插入“VΩ/Hz”插孔;

2.将量程开关转至相应的电阻量程上, 将两表笔跨接在被测电阻上

△注意:

1.如果电阻值超过所选的量程, 则会显“1”或“OL”, 这时应将开关转高一档;

2.当输入端开路时, 则显示过载情形;

3.测量在线电阻时, 要确认被测电路所有电源已关断而所有电容都已完全放电时, 才可进行;

4.请勿在电阻两端输入电压!

5.当被测量点阻值超过1MΩ以上时, 读数需几秒时间才能稳定, 这在测量高电阻时是正常的。

4-5.电容测量

1.将量程开关置于相应的电容量程上, 将测试电容插入“Cx”插孔;

2.将测试表笔跨接在电容两端进行测量, 必要时注意极性。

△注意:

1.如被测电容超过所选量程之最大值, 显示器将只显示“1”或“OL”, 此时则应将开关转高一档;

2.在测试电容之前, 应对电容充分地放电, 以防止损坏仪表。

电感测量

4-6.电感测量

将量程开关置于相应电感量程上, 被测电感插入“Lx”插口。

△注意:

1.如被测电感超过所选量程之最大值, 显示器将只显示“1”或“OL”, 此时则应将开关转高一档;同一电感量存在不同阻抗时测得的电感值不同。

2.在使用2mH量程时, 应先将将标笔短路, 测得引线电感值, 然后在实测中减去;

4-7.温度测量

将量程开关置于“°C”或“下”量程上, 将热电偶传感器的冷端(自由端)负极(黑色插头)插入“mA”插孔中, 正极(红色插头)插入“VΩ/Hz”插孔, 热电偶的工作端(测温端)置于待测物上面或内部, 可直接从显示器上读取温度值, 读数为摄氏度或华氏度。(仅限有华氏度功能的型号)。

△注意:

1.当输入端开路时, 操作环境高于18°C时则显示环境温度, 低于18°C时则显示非正常温度、

2.请勿随意更换测温传感器, 否则将不能保证测量准确度。

3.严禁在温度档输入电压。

4-8.频率测量

1.将表笔或屏蔽电缆接入“COM”和“VΩ/Hz”输入端。

2.将量程开关转到频率档上, 将表笔或屏蔽电缆跨接在信号源或被测负载上。

△注意:

1.输入超过10Vrms时, 可以读数, 但不保证准确度。

2.在噪声环境下, 测量小信号时最好使用屏蔽电缆。

3.在测量高压电压电路时, 千万不要触及高压电路。

4.禁止输入超过250V直流或交流峰值的电压, 以免损坏仪表。

4-9.三极管hFE

1.将量程开关置于“hFE”档。

2.决定所测晶体管为NPN型或PNP型、将发射极、基极、集电极分别插入相应插孔。

4-10.二极管及通断测试1.将黑表笔插入“COM”插孔, 红表笔插入“VΩ/Hz”插孔(注意红表笔极性为“+”)

2.将量程开关置“»+”档, 并将表笔连接到待测试二极管, 红表笔接二极管正极, 读数为二极管正向压降的近似值。

3.将表笔连接到待测线路的两点, 如果内置蜂鸣器发声, 则两点之间电阻值低于约(70±20)Ω

4-11.火线识别TEST

交流标准市电火线识别;报警方式:声、光;显示“000”或“1”

4-12.数据保持

按下保持开关, 当前数据就会保持在显示器上, 再按一次, 保持取消。

4-13.自动断电

当仪表停止使用或开机使用约(20±10)分钟后, 仪表便自动断电进入休眠状态, 若要重新启动电源, 再按两次“POWER”键就可重新接通电源。

4-14.背光显示

按下“B/L”键, 背光灯亮, 约20秒后自动关闭背光功能。

△注意:

背光灯亮时, 工作电流增大, 会缩短电池使用寿命及个别功能测量时误差增大

电感测量

1.若电表出现故障, 首先检查电池和保险丝, 然后查阅本手册以确定电表的使用方法正确

2.当液晶显示器上显示“的”符号时说明电池工作电压低, 应及时更换。

3.为防止触电危险, 在打开仪表机壳后盖前应将表笔离开被测电路, 并切断电源。

4.更换电池方法:

旋出紧固电池盖的螺钉, 打开电池盖, 取出旧电池;

装入同型号的9V新电池, 注意极性正确;

盖上电池盖并用螺钉紧固。

本说明书如有改动,恕不通知。

本说明书的内容被认为是正确的, 若用户发现有错误、遗漏等, 请与厂家联系。

Product introduction and safety instructions







1.introduce

This series of meters is a handheld LCD display digital multimeter newly developed by our company. Its display word height 26mm, clear reading; Unit symbol display, backlight display and overload protection function.

This series of meters has complete functions: AC and DC voltage, AC and DC current, resistance, capacitance, inductance, Diode, transistor on/off test, temperature and frequency. The instrument construction is both robust and safe to operate Easy to carry. It is a tool instrument with superior performance. Industrial, electrical and electronics technician And the ideal measuring tool for the home.

2.Safety statement

This series of instruments are designed in accordance with IEC1010 provisions, insulation, environmental pollution level 2, please read the safety instructions before use

1. Please check the case before using the meter. Do not use a meter with a damaged case. Check for cracks or missing plastic parts. please Pay special attention to the insulation of the joint.
2. Check the insulation layer of the test wire for damaged or exposed metal. Check the continuity of the test wire. If the wire is damaged, please Replace it before using the meter.
3. Measure the known voltage with an electric meter to make sure that the meter is operating normally. If the meter works abnormally, do not use it. Protective facilities may have been If in doubt, the meter should be repaired.
4. Below 36V is a safe voltage, when measuring higher than 36V DC, 25V AC voltage, to check whether the pen is reliable contact, yes No Never. Edge good, etc., to avoid electric shocks.
5. When measuring voltage, do not enter a voltage that exceeds 1000V DC or 750V AC RMS limit
6. For safety reasons, measurements must be made with the correct function and range file. When changing the function and range, the marker should leave the test point. If the meter is not used according to the instructions in the manual, the safety features provided by the meter may fail.
7. When measuring the current, do not input a current exceeding 20A.
8. Replace the battery immediately when the battery indicator  is displayed. When the battery is low, the meter may produce an incorrect reading Resulting in electric shock and personal injury.
9. When opening the case or battery cover, you must first remove the test lead from the meter.
10. Security symbol description.
 -  Safety statement
 -  Presence of dangerous voltage
 -  Low voltage symbol
 -  Double insulation
 -  Ground connection

3.Instrument characteristic

1.General characteristic

Display mode: LCD display.
 Maximum display :1999 i.e. (31/2) or 19999 i.e. (41/2) bits (LD9806A type only) automatic polarity display.
 Measurement principle: Double integral A/D conversion.
 Sampling rate: 2~3 times per second.
 Overrange display: Only the highest bit shows "1" or "-1"
 Battery low voltage display: The White symbol is displayed.
 Working environment : (0~40)°C, relative humidity <85%.
 Storage environment: temperature -10~50°C, relative humidity <85%.
 Power supply: one 9V battery (NEDA1604/6F22) or equivalent.
 Dimensions :193mmX95mmX48mm(including protective case).
 Weight: Approx. 410g(including 9V battery)
 Accessories: one manual, one certificate, shock-proof cover, a pair of test markers, One TP01 thermocouple (model with temperature test function only) and one 9V battery.

- 2-1. Accuracy expression :±(% of the reading + the least significant digit), the calibration guarantee period is one year from the factory date, to ensure accuracy Ambient temperature : (23±5)°C, relative degree <75%.
- 2-2. Function (Note "✓" indicates that the table has this function, "-" indicates that the table does not have this function)

Feature	Model Number	LD9801A	LD9802A	LD9805A	LD9806A	LD9808A
Diode/on-off		✓	✓	✓	✓	✓
frequency		-	-	✓	✓	✓
resistance		✓	✓	✓	✓	✓
Ac voltage ACV		✓	✓	✓	✓	✓
Dc voltage DCV		✓	✓	✓	✓	✓
Ac current ACA		✓	✓	✓	✓	✓
Dc current DCA		✓	✓	-	-	✓
Fireline identification TEST		✓	✓	✓	✓	✓
capacitance		-	-	✓	-	-
inductance		-	-	✓	-	✓
temperature		✓	✓	✓	✓	✓
triode hFE		✓	✓	✓	✓	✓
Backlight		✓	✓	✓	✓	✓
Automatic		✓	✓	✓	-	✓
Reading hold		✓	✓	✓	✓	✓
Unit symbol		-	-	✓	✓	-

Technical characteristics

2-3 Technical specifications: (Note "*" indicates that the table does not have this range)
 2-3-1. Dc voltage (DCV)

accuracy range	LD9801A	LD9802A	LD9805A	LD9808A	Resolving power	LD9806A	Resolving power
200mV	±(0.5%+3)				100uV	±(0.5%+3)	10uV
2V					1mV		100uV
20V					10mV		1mV
200V					100mV		10mV
1000V	±(1.0%+5)				1V	±(0.2%+5)	100mV

Input impedance: so the range is 10MΩ
 Overload protection: 200mV range 250V DC or AC peak: remaining 1000V DC or AC peak.

2-3-2 AC Voltage (ACV)

accuracy range	LD9801A	LD9802A	LD9805A	LD9808A	Resolving power	LD9806A	Resolving power
200mV	*	*	+(1.2%+3)	*	100uV	*	10uV
2V	±(0.8%+5)				1mV	±(0.8%+25)	100uV
20V					10mV		1V
200V					100mV		10mV
700V/750V	±(1.2%+5)				1V	±(1.0%+25)	100mV

2-3-3 DC Current (DCA)

Input resistance: The input range is 200mV, 2V is 1MΩ, and the rest is 10MΩ in mass production. : Overload protection :200mV range is DC Or AC peak 250V, the rest is 1000V DC or AC peak Display: sine wave RMS (mean response).

accuracy range	LD9801A	LD9802A	LD9805A	LD9808A	Resolving power	LD9806A	Resolving power
20uA		*	*	*	0.01uA	*	*
200uA	±(0.8%+3)	±(0.8%+3)	±(0.8%+3)	±(0.8%+3)	0.1uA	±(0.5%+4)	0.1uA
2mA					1uA		
20mA					10uA		
200mA	±(1.2%+4)				100uA	±(0.8%+6)	10uA
2A	±(1.5%+5)	*			1mA	*	*
20A	±(2.0%+5)				10mA	±(2.0%+15)	1mA

Maximum measured pressure drop :200mV
 Maximum input current :20A (up to 10)
 Overload protection :0.2A/250V(LD9801A is 2A/250V) fuse, 20A range without insurance.

accuracy range	LD9801A	LD9802A	LD9805A	LD9808A	Resolving power	LD9806A	Resolving power
2mA	*		±(1.0%+5)	*	0.1uA	±(1.5%+25)	0.1uA
20mA	±(1.0%+5)				10uA		1uA
200mA	±(2.0%+5)				100uA		10uA
2A	±(3.0%+5)	*			1mA	*	*
20A	±(3.0%+10)				10mA	±(2.5%+35)	1mA

2-3-5.frequency (f)

accuracy range	LD9805A	LD9808A	Resolving power	Resolving power	Resolving power
2kHz	*	±(3.0%+15)	1Hz	*	*
20kHz	*		*	±(1.5%+25)	1Hz
200kHz	±(3.0%+15)		100Hz		10Hz

Input impedance: 1V RMS
 Overload protection: 250 DC or AC peak (no more than 15 seconds).

2-3-6.resistance (Ω)

accuracy range	LD9801A	LD9802A	LD9808A	LD9805A	Resolving power	LD9806A	Resolving power
200Ω	±(0.8%+5)				0.1Ω	±(0.4%+10)	0.01Ω
2kΩ	±(0.8%+3)				1Ω	±(0.4%+5)	0.1Ω
20kΩ					10Ω		1Ω
200kΩ					100Ω		10Ω
2MΩ					1kΩ		100Ω
20MΩ	*	*	±(1.0%+15)	10kΩ	±(0.8%+15)	1kΩ	
200MΩ	±[5.0%(reading -10)+20]				100kΩ	*	100kΩ

Open circuit voltage: less than 3V Overload protection :250V DC or AC peak: Matters needing attention
 a. When using the 200MΩ range, the pen should be short-circuited first, the lead resistance value measured and then subtracted in the measurement.
 b. For example, when using the 200MΩ range, short circuit the pen, the instrument will display 1.0MΩ, which is a normal phenomenon, does not affect the accuracy of measurement
 The degree should be subtracted when measured. Example: The measured resistance is 100MΩ and the reading should be 101.0MΩ, then the correct value should be subtracted 1.0 from the displayed reading, That is, 101.0-1.0=100.0MΩ.

2-3-7.capacitance (C)

accuracy range	LD9801A	LD9802A	LD9808A	LD9805A	Resolving power	LD9806A	Resolving power
2nF		*	*	*	*		0.1pF
20nF			±(2.5%+20)		10pF	±(3.5%+10)	1 pF
200nF		±(2.5%+20)	*	±(2.5%+20)	100pF		10pF
2uF	*		±(2.5%+20)		1nF		100pF
20uF		*			10nF	*	1nF
200uF		±(2.5%+20)		±(5.0%+5)	100nF	±(3.8%+20)	10nF
Test frequency	50Hz	400Hz	150Hz	100Hz		400Hz	

Overload protection: 36V DC or AC peak.

2-3-7. Capacitance©

range	accuracy	LD9805A	LD9808A	Resolving power
(-40~1000)°C		±(0.8%+4)<400°C±(1.5%+15)≥400°C	±(1.0%+3)<400°C±(1.5%+15)>400°C	1°C

Type K thermocouple (nickel-chromium-nickel-silicon) standard plug.

2-3-9. Diode on-off test

range	Display value	Test condition
	Diode forward voltage drop	The forward DC current is 1mA, and the reverse voltage is about 3V
	The buzzer makes a long sound, and the resistance value of the test two points is less than (70±20)Ω	The open circuit voltage is about 3V

Overload protection :250V DC or AC peak:

Warning: For safety reasons, do not input voltage values in this range

2-3-10. Triode test

range	Display value	Test condition
hFE NPN or PNP	0~1000	The base current is about 10uA, and the Vce is about 3V

2-3-11. Inductance

accuracy range	LD9805A	Resolving power
2mH	±(2.5%+20)	1 uH
20mH		10uH
200mH		100uH
2H		1 mH
20H		10mH

Test frequency :100Hz;
Overload protection :36V DC or AC peak.

Technical characteristics

4.Usage method

4-1.Panel introduction (see Figure 1.)
LCD display (Each model may display different content, see page 4.)

2.Function key:

"POWER" key: power switch;
DC/AC key: Select the DC and AC working modes.
"HOLD" key: Press this function key to keep the current value measured by the meter

The symbol appears on the LCD, press again The symbol disappears, exit to maintain the function state;
B/L backlight switch to turn on and off the backlight.

3.HFE test socket: Measure the hFE value of the transistor.

4. Knob switch: used to change the measuring function and range.

5. Capacitive (Cx) or inductive (Lx) socket.

6. Voltage, resistance and frequency sockets.

7. Public places.

8.200mA current test socket.

9.20A current test socket.

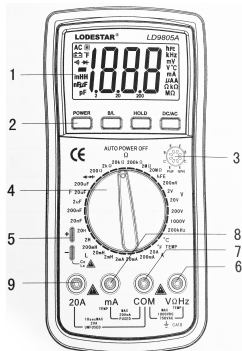


Figure 1

Voltage measurement

4-2. Voltage measurement

- 1.Insert the black watch pen into the COM jack and the red watch pen into the VΩHz jack.
- 2.Turn the function switch to "V", if the measured voltage is unknown, the maximum range should be selected, and then gradually reduce until it is obtained Obtain the highest resolution reading;
- 3.When measuring DC voltage, make the "DC/AC" key to set the DC measurement mode; When measuring AC voltage, press the DC/AC key Lower AC measuring mode; (LD9805A only)
- 4.The test pen is reliably contacted with the test point, and the measured voltage is displayed on the screen; When measuring DC voltage display, it is a red marker Voltage and polarity of the connected point.

⚠ Attention:

1. If "1" is displayed, it indicates that the range has been exceeded, and the range switch must be turned to a higher gear.
2. The measuring voltage should not exceed DC 1000V and AC 750V, and the pen should leave the test point when converting the function and range;
3. When measuring high voltage, be careful to avoid touching the high voltage circuit.

4-3. Current measurement

1. Insert the black marker into the COM jack, and the red marker into the mA or 20A jack.
- 2.Turn the function switch to "A", if the measured current size is unknown, the maximum range should be selected, and then gradually reduce until it is obtained Obtain the highest resolution reading;
- 3.When measuring DC current, make the "DA/AC" key to set the DC measurement mode; When measuring AC current, Make the "DC/AC" key press to set the AC measurement mode : (LD9805A only),
- 4.Connect the pen of the instrument in series to the measured circuit, and the screen will display the measured current value; When measuring DC current display, red table The current and polarity of the point connected to the pen.

⚠ Attention:

1. If "1" or "0L" is displayed, it indicates that the range has exceeded the range range, and the range switch must be turned to a higher gear;
2. When measuring the current, the "mA" hole should not exceed 200mA and the "20A" hole should not exceed 20A(the test time is less than 10 seconds); convert Function and range when the marker is to leave the test point.

Resistance measurement

4-3. Resistance measurement

1. Insert the black pen into the COM jack, and the red pen into the VΩHz jack.
2. Turn the range switch to the corresponding resistance range, and connect the two markers to the measured resistance

⚠ Attention:

1. If the resistance value exceeds the selected range, "1" or "0L" will be displayed, then the switch should be turned up one gear;
2. When the input is open, the overload condition is displayed.
3. When measuring online resistance, it is necessary to confirm that all power supplies of the circuit under test have been turned off and all capacitors have been fully discharged before;
4. Do not input voltage at both ends of the resistor!
5. When the resistance value of the measured point exceeds 1 MΩ, the reading takes a few seconds to stabilize, which is normal when measuring high resistance.

4-5. Capacitance measurement

1. Place the range switch on the corresponding capacitance range, and insert the test capacitor into the "Cx" jack;
2. Connect the test pen to both ends of the capacitor for measurement, paying attention to polarity if necessary.

⚠ Attention:

1. If the measured capacitance exceeds the maximum value of the selected range, the display will only display "1" or "0L", then the switch should be turned higher Files;
 2. Before testing the capacitor, the capacitor should be fully discharged to prevent damage to the meter.
- 4-6. Inductance measurement
Place the range switch on the corresponding inductance range and insert the measured inductance into the "Lx" jack.

Inductance measurement

⚠ Look out:

1. If the measured inductance exceeds the maximum value of the selected range, the display will only display "1" or "0L", and the switch should be turned higher Files; When the same inductance quantity has different impedance, the inductance value is different.
 2. When using the 2mH range, the marker should be shorted first, the inductance value of the lead is measured, and then subtracted from the actual measurement;
- 4-7. Temperature measurement
Place the range switch on the "°C" or "down" range and insert the cold (free) negative electrode (black plug) of the thermocouple sensor into the "mA"
In the jack, the positive pole (red plug) is inserted into the "VΩ/Hz" jack, and the working end (temperature measuring end) of the thermocouple is placed on or inside the object to be measured.

The temperature value can be read directly from the display in degrees Celsius or Fahrenheit. (Fahrenheit models only).

⚠ Look out:

1. When the input end is open, the ambient temperature is displayed when the operating environment is higher than 18 °C, and the abnormal temperature is displayed when the operating environment is lower than 18 °C.
2. Do not replace the temperature sensor at will; otherwise, the measurement accuracy cannot be guaranteed.
3. Do not input voltage in the temperature range.

4-8. Frequency measurement

1. Connect the watch pen or shielded cable to the COM and VΩ/Hz input terminals.
2. Turn the range switch to the frequency, and connect the marker or shielded cable to the signal source or the measured load.

⚠ Look out:

1. When the input exceeds 10 VRMS, it can read, but the accuracy is not guaranteed.
2. In a noisy environment, it is best to use shielded cables when measuring small signals.
3. When measuring the high voltage circuit, do not touch the high voltage circuit.
4. Do not input voltage exceeding 250V DC or AC peak value to avoid damage to the instrument.

4-9. Triode hFE

1. Set the range switch to "hFE".
 2. Determine whether the measured product tube is NPN or PNP type, and insert the emitter, base and collector into the corresponding jack respectively.
- 4-10. Diode and on-off test 1. Insert the black pen into the "COM" jack and the red pen into the "VΩ/Hz" jack (note the red pen pole)Sex is "+"

2. Set the range switch to "+", and connect the marker to the diode to be tested. Connect the red marker to the positive electrode of the diode and read
The number is an approximation of the forward voltage drop of the diode.

3. Connect the marker to two points of the line to be tested. If the built-in buzzer sounds, the resistance value between the two points is less than about (70±20)Ω

4-11. Fireline identification TEST

Ac standard mains line identification; Alarm mode: sound, light; Display "000" or "1"

4-12. Data retention

Press the Hold switch and the current data will remain on the display. Press it again to hold cancel.

4-13. Automatic power off

When the instrument is stopped or turned on for about (20 ~ 10) minutes, the instrument will automatically power off and enter hibernation state.

To restart the POWER supply, press the "power" key twice more to reconnect the power supply.

4-14. Backlight display

Press the B/L key. The backlight will turn on and automatically turn off the backlight function after about 20 seconds.

⚠ Attention:

When the backlight is on, the working current increases, which will shorten the battery life and increase the error in the measurement of individual functions

Inductance measurement

1. If the meter fails, first check the battery and fuse, and then consult this manual to make sure the meter is being used correctly
2. If the "(" symbol is displayed on the LCD, it indicates that the battery operating voltage is low and should be replaced in time.
3. In order to prevent the risk of electric shock, the pen should be removed from the measured circuit and the power supply should be cut off before opening the back cover of the instrument housing.
4. Replace the battery:

Unscrew the screw fastening the battery cover, open the battery cover, and take out the old battery;

Load the new 9V battery of the same model, pay attention to the correct polarity;

Close the battery cover and fasten with screws.

This manual is subject to change without notice.

The content of this manual is considered to be correct, if the user finds any errors, omissions, etc., please contact the manufacturer.