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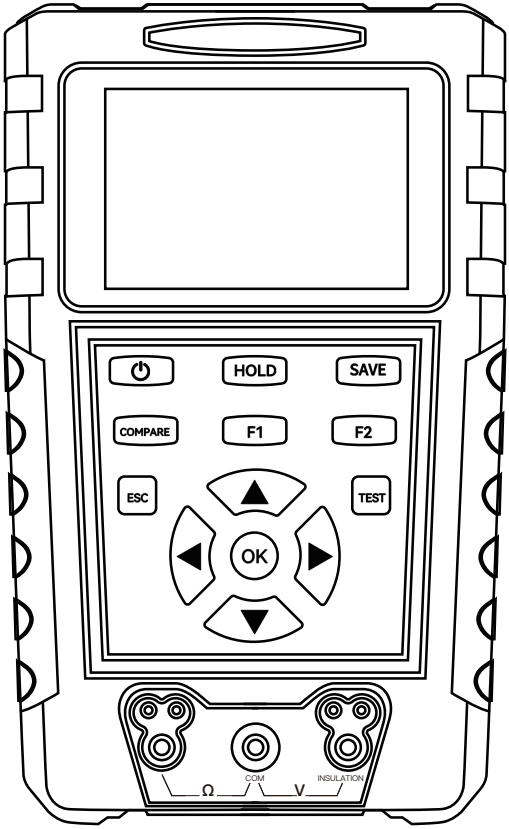
Made In China

JDiag

USER'S MANUAL

Megohmmeter



EN:1-10P CN:11-20P

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1.Safety Precautions

To prevent possible electric shock, fire, or personal injury:

- Before using this product, read all safety information thoroughly.
- Do not touch any circuits where the AC voltage exceeds 30V RMS, 42V peak, or DC voltage exceeds 60V.
- Never use damaged test leads. Inspect leads for insulation breaks, exposed metal, or wear. Verify lead continuity before use.
- Always use the correct terminals, function settings, and measurement ranges when taking readings.
- Do not operate this product in explosive atmospheres, near flammable vapors, or in wet/damp environments.

2.Product Introduction

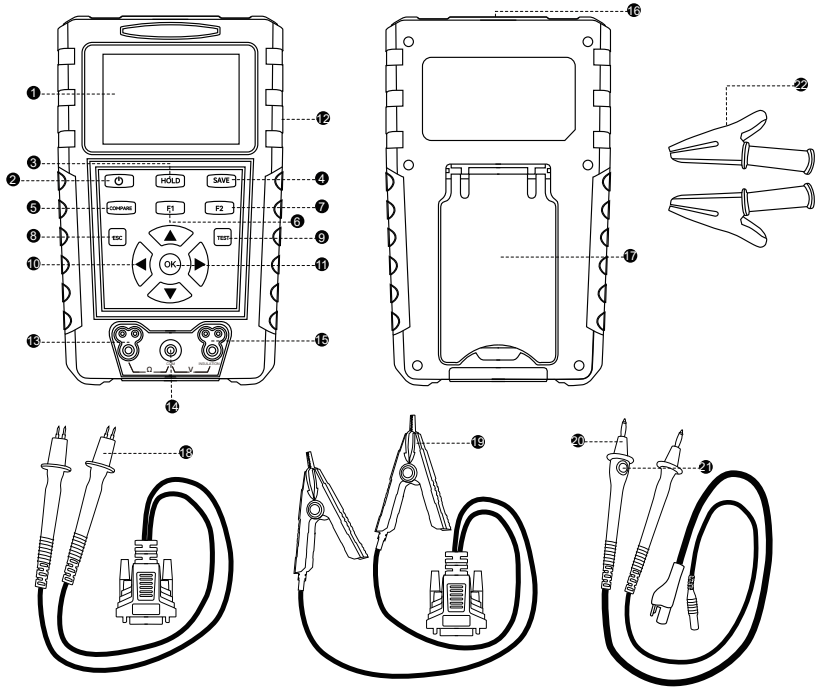
2.1 Product Description

The content of this manual is edited based on the product(EV001_V0.0.3).

EV001 is a testing tool for new energy vehicles, a technical means to detect and evaluate the insulation performance of electrical equipment, circuits, or materials in energy vehicles. By measuring parameters such as insulation resistance, battery internal resistance, polarization index, and dielectric absorption ratio, it determines whether the insulation is good, whether there are problems as insulation aging, damage, and dampness, so as to ensure the safe and reliable operation of the electrical system. Its main application is in maintenance:

- Large equipment such as generators and transformers in power systems, as well as transmission lines.
- Electric motors and electrical control cabinets in the industrial field.
- Building electrical power supply systems and smart home systems in architecture.
- Electric vehicles and rail transit in transportation.
- New energy vehicle batteries, lead-acid batteries, batteries, etc.

2.2 Appearance Introduction



❶ LCD display: Display test results

❷ ⏻ : Long press the key to turn on/off

❸ HOLD: Insulation test or internal resistance test, press the button to pause/continue the test

❹ SAVE: Save insulation test data

❺ COMPARE: Short press to toggle between test, compare, PI, DAR mode under insulation test; or enter compare mode under internal resistance test

❻ F1: Quickly delete the comparative preset value

❼ F2: Quick delete storage records

❽ ESC: Return to the previous menu

❾ TEST: Long press the key to start/stop the test.

❿ ▲▼◀▶: Navigation button

⓫ OK: Perform the selected option

⑫ TYPE-C: Charge or upgrade

⑬ Ω: For measuring resistance, insert the red probe into this interface.

⑭ COM: Insert the black pen into this interface

⑮ INSULATION: Red probe inserted into this interface

⑯ DB15 Connector: For connecting test clips or test pins

⑰ Back Stand: Allows the instrument to be tilted and securely positioned

⑱ Test Probe: Used for measuring battery internal resistance

⑲ Test Clip: Used for measuring battery internal resistance

⑳ Test Leads: Used for insulation testing, voltage, and resistance measurements

㉑ Test Button: Press and hold to perform insulation resistance testing; release to stop the test

㉒ Auxiliary Test Clip: Connects to the test leads to enable hands-free testing by securing them in place

2.3 Display Indicator

Indicator	Explanation
PI	Polarization index test
DAR	Dielectric absorption ratio test
COMP	Comparison mode
	High pressure warning
Ω, MΩ, KΩ, GΩ, V	Measurement unit
DC	Direct current voltage test
AC	AC voltage test
HOLD	Indicates that the insulation test and internal resistance test results are locked
TEST	The instrument is performing insulation test
Storage successfully	Insulation test data storage successfully
WARNING!	High voltage warning in the circuit
>	A value greater than the range range

3.Product Parameters

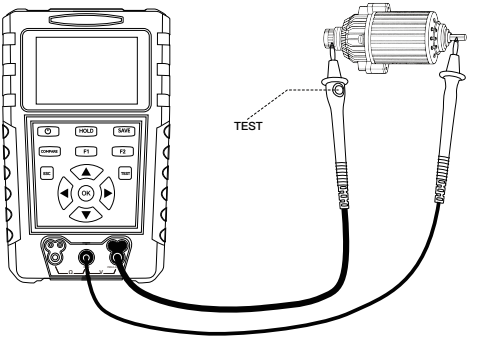
Display: 3.5-inch TFF color display
Insulation Resistance Measurement Range: 0.01 MΩ ~ 10 GΩ
Insulation Voltage Output Position: 50 V, 100 V, 250 V, 500 V, 1000 V
Attery Internal Resistance Measurement Range: 0.1 mΩ ~ 199.99 Ω
Resistance Measurement Range: 20.00 Ω ~20.00 kΩ
DC Measurement Range: 1 V ~ 1000 V
AC Measurement Range: 1 V ~ 750 V
CCA Measurement Range: 20 CCA ~ 2000 CCA
AH Measurement Range: 10 AH ~ 300 AH
Test Standard: CCA, JIS, GB, SAE, MCA, CA, DIN, IEC, EN, BCI
TYPE-C Input Voltage: 5 V⎓2 A
Built-In Battery: 3.7 V⎓4000 mA

4.Product Function

4.1 Insulation Test

***Measure Insulation Resistance**

Insulation testing can only be performed on de-energized circuits. To measure insulation resistance, first navigate to the insulation resistance measurement page, then connect the tester as shown in the diagram below, and finally follow these steps:



a. Insert the test probe into the INSULATION and COM interfaces.
b. Press [▲] [▼] to adjust to required test voltage.
c. Connect the probe to the circuit to be tested, and the meter will automatically detect if the circuit is energized. If there is an AC or voltage of over 30 V, the high voltage symbol "⚠" will appear, and a warning box will pop up. In this case, the measurement will be prohibited. Before, disconnect the test meter and turn off the power.
d. Press and hold the (TEST) button to start the test. The display will show the test voltage applied to circuit under test. The high voltage symbol "⚠" will appear, and the resistance value will be displayed in MΩ or GΩ. The test icon appears at the right end of display until the (TEST) button is released. When the resistance exceeds the maximum display range, the tester displays the ">" symbol and the maximum resistance of the current range.
e. Keep the probe in contact with the test point, and after releasing the (TEST) button, the tester will automatically discharge the circuit, and the display will continue show the resistance value. This value will remain until: ① starting a new test ② switching functions/ranges ③ detecting a voltage of >30.

*Comparison

Use the compare function to set the pass/fail comparison value for insulation measurement.

a. Press[COMPARE]to enter the comparison function.
b. Press[◀] [▶]to select the required comparison value. You can the comparison value from 100kΩ, 200kΩ, 500kΩ, 1MΩ, 2MΩ, 5MΩ,10MΩ, 20MΩ, 50MΩ, 100MΩ, 200MΩ,500MΩ.
c. Operate according to the method described in the front of this manual for measuring insulation resistance.
d. If the measured value is than the selected value, green "pass" appears in the upper left corner, and red "fail" appears if it is less than the selected value.

*Measurement Of The Polarization Index And Dielectric Absorption Ratio

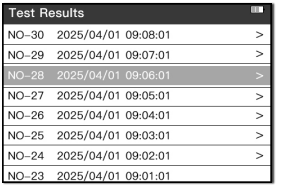
The Polarization Index (PI) is the ratio of 10 - minute to 1 - minute insulation resistance values. The Dielectric Absorption Ratio (DAR) is the ratio of 1 - minute to 3 - second insulation resistance values.
Insulation tests require de - energized circuits. To measure PI or DAR:

a. Press【COMPARE】to enter PI/DAR function.
b. Operate in accordance with the method described in this manual for measuring insulation as stated in the front. (As PI and DAR tests take time to perform, it is recommended to use the auxiliary test clamp).
c. When the test is completed the PI or DAR value will be displayed on the display. The tested circuit will be automatically discharged by the tester.
   ·When the resistance exceeds the maximum display range, instrument will display the ">" symbol along with the maximum resistance of the range.
   ·If you wish to interrupt the test before the PI or DAR test is, press and hold the (TEST) button for a moment. When the (TEST) button is released, the tested circuit will be automatically discharged by the tester.

·PI≥2 is a good insulation state, 1≤PI＜2 requires further inspection, PI<1 is a serious insulation deterioration and requires immediate maintenance or replacement; DAR>1.6 is a good state, 1.3≤DAR≤1.6 requires further inspection, DAR<1.3 requires maintenance or replacement.

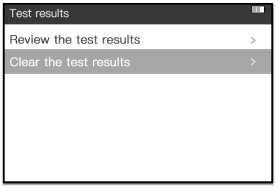
***Review Test Results**

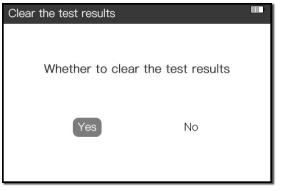
During the test process, press [SAVE] to save the measurement results. A "Storage successfully" window will pop up if the save is successful. window has information such as the save number, time, etc., which is convenient for subsequent search. You can find the test results by entering the test result page. The test are sorted in chronological order.



***Clear the test results**

Enter the test result interface, select clear test results, press [OK] will pop up a window, press [◀] [▶] to select whether to clear test results, press [OK].

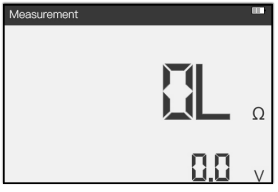


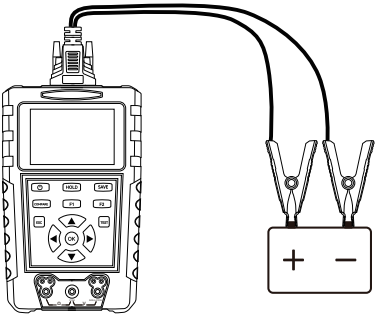


4.2 Internal Resistance Test

***Measure**

Enter the internal resistance test measurement interface, connect the device DB15 interface with the red and black test clips or test needles as shown in the figure below, connect the red battery clip to the positive terminal of the vehicle battery, and the black battery clip to the negative terminal,the meter will automatically display the test results.

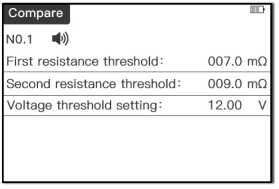




*Comparison

Use the compare function to set the pass/fail comparison value for insulation measurement.

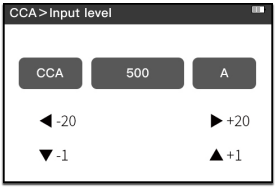
a. Enter the internal resistance test measurement interface, press [COMPARE] to call out the parameter preset table.
b. Press [▲] [▼] to select the original preset comparison parameters.
c. Press [COMPARE] to set the preset parameters. When the first or second resistance threshold is selected press [◀] [▶] to adjust the resistance unit.
d. Select a parameter and press [OK] to set it in detail. Press [▲] [▼] increase or decrease the parameter, press[◀] [▶]to select the number of digits to set, and finally press [OK] to complete the setting.
e. all the parameters are set, press [▲] [▼] to select the SAVE option and press [OK] to save the data. Press [OK] again to return the measurement page, and then perform the comparative measurement.
f. Built-in large capacity storage, can save 30 preset comparison values.

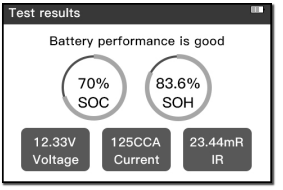


*SOH

a. Enter the battery health test interface, select the battery type and input standard according to the demand.
b. Turn off the engine and all car electrical components according the prompt, and then press [OK].
c. Press [▲] [▼] [◀] [▶] to output battery parameters according to the screen prompts.
d. Input completed, press [OK] to wait for the measurement results.

Note: Battery health detection is applicable to all 12V automotive starting lead-acid batteries, AGM flat batteries, AGM spiral batteries and gel batteries.



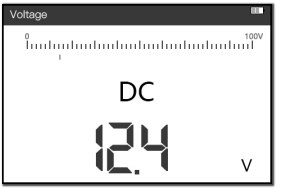


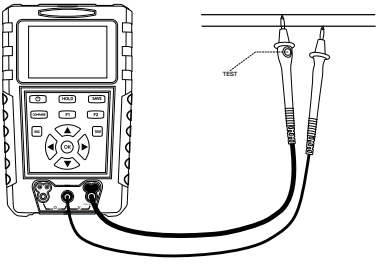
4.3 Voltage

***Measure**

Enter the voltage/resistance page, connect as shown in the figure below, the red probe is connected to the positive pole of the power supply, the black probe connected to the negative pole, and the meter will automatically display the test results.

Press [▲] [▼] to switch between AC/DC voltage test.

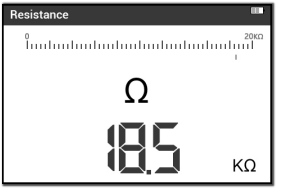


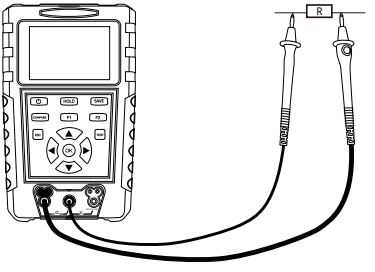


4.4 Resistance

***Measure**

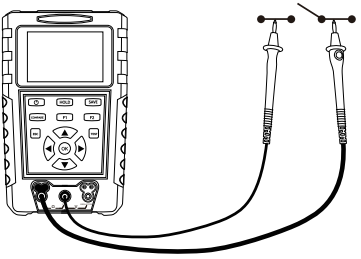
Resistance measurement, connect as shown in the following figure, connect the red and black test leads to the two ends of the resistor, and the meter will automatically the test results.





***Continuity Test**

Continuity test can quickly detect whether the cable in the car circuit system and various electrical equipment, power lines is in a conductive or disconnected state. The measurement of 0.00Ω indicates that the conductor continuity test is passed.



4.4 Settings

***Sound**

Enter the settings page,select the sound option, press [▲] [▼] to select the on/off option, press [OK] to complete the sound.

***Language**

Enter the settings page,select the language option, press [▲] [▼] to select the language to be set, press [OK] to complete the language.

***Key Test**

Enter the settings page,select the key test option to test the keys in turn, press the [ESC] key twice in a row to exit the key test.

***Upgrade**

Enter the settings page,select the upgrade option, connect the device via USB to perform a software upgrade.

***Time Setting**

Enter the settings page, select time setting. Press [◀] [▶] to pick parameter, [OK] to start setting.[◀] [▶] changes value by 10 each time, [▲] [▼] by 1. Press [OK] to confirm setting, [ESC] to exit when done.

***About**

Enter the settings page,select the About option, press the [OK] key to enter the About page, you can view the software version number, website address.

*Energy–Saving Mode

- The device will automatically shut down and enter power-saving mode when it detects that the user has not performed any operations within 15 minutes.
- When the device that the battery is too low, the buzzer will emit 3 consecutive warning sounds, and the device should be charged in a timely manner.

5.Warranty And Service

One Year Warranty

Our company promises to provide warranty service for 1 year from the date of original purchase, if the product is purchased from an official source, the following conditions must be met:

1) The warranty is limited to repair or replacement of new equipment at no additional cost,provided that the official sales invoice or a copy of the invoice is provided.

2) The warranty does not cover the unauthorized disassembly of this product due to flooding lightning strikes, or outside repair shops not authorized by the company， the personnel have repaired it and considered damage caused by improper use.

3) Our company is not responsible for any damages caused by use, misuse or installation and testing. Some countries limitations on the duration of implied warranties are not allowed,so the above limitations may not apply to you.

4) All information in this manual is based on the latest and effective information at the time ofpublication, and there is no guarantee of its accuracy or completeness, our company reserves the right to make changes at any time without notice.

Service Process

If you have any questions in the process of using this product, please contact your local authorized distributor directly, or visit our official website for consultation.

For repairs or returns, please contact the dealer or contact your sales representative directly.

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1.安全事项

为了防止可能发生的触电、火灾或人身伤害：

- 在使用本产品前，请先阅读所有安全须知。
- 交流电压有效值高于 30V、交流电压峰值高于 42V 或直流电压高于 60V 时，请勿触摸。
- 请勿使用已损坏的测试导线。检查测试导线绝缘层是否破损、是否有裸露金属或有磨损迹象。检查测试线的通断性。
- 测量时、必须使用正确的端子、功能档和量程档。
- 请勿在爆炸性气体、蒸汽周围或在潮湿环境中使用该产品。

2.产品介绍

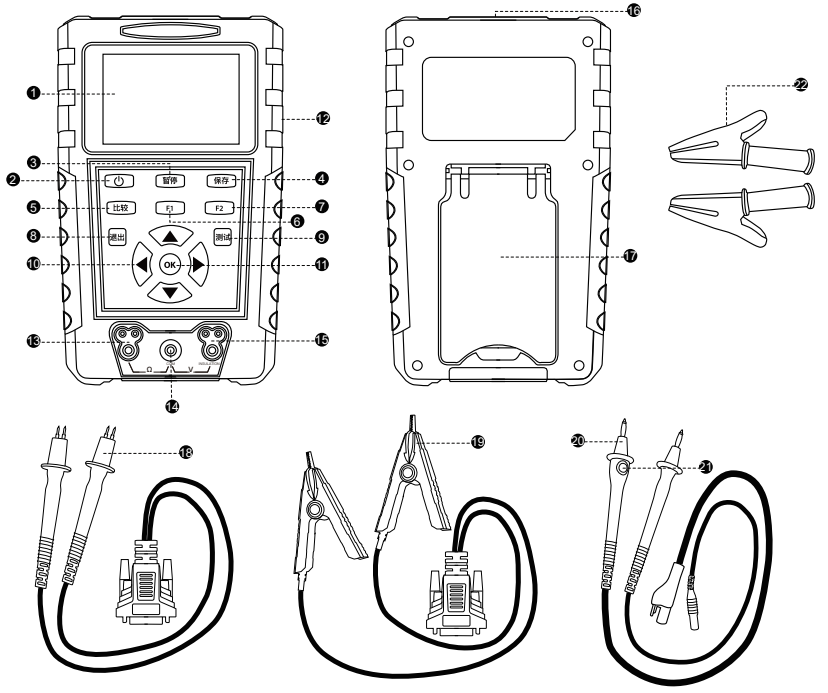
2.1产品说明

此说明书内容基于产品(EV001_V0.0.3)编辑。

EV001是一款新能源车的检测工具，对新能源车电气设备、线路或材料等的绝缘性能进行检测和评估的技术手段。通过测量绝缘电阻、电池内阻、极化指数、介电吸收比等参数，来判断绝缘是否良好，是否存在绝缘老化、损坏、受潮等问题，以确保电气系统的安全可靠运行。其主要应用于检修：

- 电力系统中发电机、变压器等大型设备以及输电线路。
- 工业领域电动机以及电气控制柜。
- 建筑电气中建筑物供电系统和智能家居系统。
- 交通运输中电动汽车和轨道交通。
- 新能汽车电池、铅酸电池、锂电池等。

2.2外观介绍



❶ LCD显示屏: 显示测试结果

❷ ⏻：长按按键开/关机

❸ 暂停: 绝缘测试或者内阻测试下按键暂停/继续测试

❹ 保存: 保存绝缘测试数据

❺ 比较: 绝缘测试下短按来回切换测试、比较、PI、DAR模式
或者内阻测试下进入比较模式

❻ F1：快捷删除比较预设值

❼ F2：快捷删除存储记录

❽ 退出：返回上一级菜单

❾ 测试：长按按键开始/停止测试

❿ ▲▼◀▶：导航按钮

⓫ OK：执行所选选项

⑫ TYPE-C：充电或者升级

⑬ Ω：测量电阻时，红表笔插入此接口

⑭ COM：黑表笔插入此接口

⑮ INSULATION：红表笔插入此接口

⑯ DB15连接座：用于连接测试夹或者测试针

⑰ 背部支架：让仪器可以倾斜摆放，固定站立

⑱ 测试针：进行电池内阻测量时使用

⑲ 测试夹：进行电池内阻测量时使用

⑳ 表笔：绝缘测试、电压电阻测试时使用

㉑ 测试按钮：按住不松开进行绝缘电阻测试，松开测试停止

㉒ 辅助测试夹：与测试表笔连接，这样就可以固定住进行测试

2.3显示屏指示符

符号	说明
PI	极化指数测试
DAR	介电吸收比测试
比较	比较模式
	高压警告
Ω，MΩ，KΩ，GΩ，V	测量单位
DC	直流电压测试
AC	交流电压测试
暂停	表示绝缘测试和内阻测试结果被锁定
测试	仪器在进行绝缘测试
储存成功	绝缘测试数据保存成功
警告!	电路中存在高电压警告
>	一个大于量程范围的值

3.产品参数

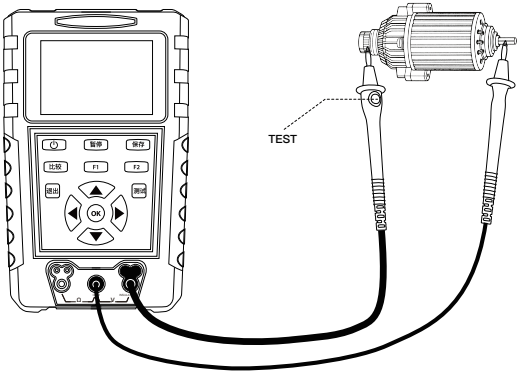
显示屏：3.5 英寸 TFF 彩色显示屏
绝缘电阻测量范围：0.01MΩ ~ 10GΩ
绝缘电压输出档位：50V、100V、250V、500V、1000V
电池内阻测量范围：0.1mΩ ~ 199.99Ω
电阻测量范围：20.00Ω ~ 20.00kΩ
DC 测量范围：1V ~ 1000V
AC 测量范围：1V ~ 750V
CCA 测量范围：20 CCA ~ 2000 CCA
AH 测量范围：10 AH ~ 300 AH
测试标准：CCA、JIS、GB、SAE、MCA、CA、DIN、IEC、EN、BCI
TYPE-C 输入电压：5V⎓2A
内置电池：3.7V⎓4000mA

4.产品功能

4.1绝缘测试

***测量绝缘电阻**

只能对断电电路执行绝缘测试。要测量绝缘电阻，请先进入绝缘电阻测量页面然后按照下图所示连接测试仪，最后遵照下列步骤操作:



a.将测试探头插入INSULATION和COM接口。

b.按【▲】【▼】调整至所需要的测试电压。

c.将探头连接到待测的电路，测量仪会自动检测电路是否通电。如果存在超过30V的交流或直流电压，将出现高压符号“⚠”，并且弹出警告框。在这种情况下，将禁止进行测量。在继续操作前，先断开测试仪的连接并关闭电源。

d.按下并保持(TEST)按钮开始测试。显示屏会显示被测电路中施加的测试电压。高压符号“⚠”将出现，并且将显示以MΩ或GΩ为单位的电阻值。显示屏的右端出现测试图标，直到释放(TEST)按钮。当电阻超过最大显示量程时，测试仪显示“＞”符号以及当前量程的最大电阻。

e.保持探头接触测试点，释放(TEST)按钮后，测试仪将自动对电路放电，此时显示屏持续显示电阻值。该数值将保持直至：①启动新测试 ②切换功能/量程 ③检测到＞30V电压”。

*比较

使用比较功能来给绝缘测量设定通过/失败比较值。

a.按【比较】进入比较功能

b.按【◀】【▶】选择所需要的比较值。您可以从100kΩ、200kΩ、500kΩ、1MΩ、2MΩ、5MΩ、10MΩ、20MΩ、50MΩ、100MΩ、200MΩ及500MΩ中选择比较值。

c.依照本手册前面测量绝缘电阻的所述方法进行操作。

d.如果测得的值大于所选的值，则左上角出现绿色“pass”，小于所选的值，则出现红色“fail”。

*测量极化指数和介电吸收比

极化指数(PI)是测量开始10分钟后的绝缘电阻与1分钟后的绝缘电阻之间的比率。介电吸收比(DAR)是测量开始1分钟后的绝缘电阻与30秒后的绝缘电阻之间比率。只能对断电电路执行绝缘测试。测量极化指数或介电吸收比:

a.按【比较】进入PI/DAR功能。

b.依照本手册前面测量绝缘电阻的所述方法进行操作。（由于执行PI和DAR测试需要时间，建议使用辅助测试夹）

c.测试完成后，PI或DAR值会显示在显示屏。被测电路将自动通过测试仪放电。

・当电阻超出最大显示量程时，仪表将显示“>”符号以及量程的最大电阻。

・如想在PI或DAR测试完成之前中断测试，请按住 (TEST)按钮片刻。当释放(TEST)按钮时测试，被测电路将自动通过测试仪放电。

・PI≥2为绝缘状态良好，1≤PI＜2需要进一步检查，PI<1为绝缘严重劣化，需立即维修或更换；DAR>1.6为状态良好，1.3≤DAR≤1.6需要进一步检查，DAR<1.3需要检修或更换。

***查看测试结果**

在测试过程中按【保存】保存测量结果，保存成功会弹出保存成功窗口，窗口上面有保存序号时间等信息方便后续查找，进去查看测试结果页面即可查找测试结果，测试结果按照时间顺序依次排序。

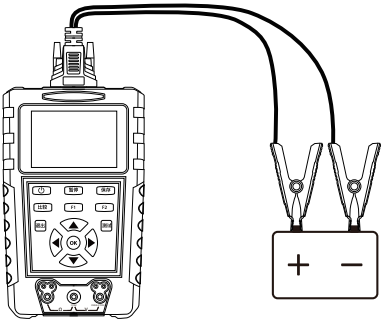
***清空测试结果**

进入测试结果界面选择清空测试结果按【OK】会弹出窗口，按【◀】【▶】可以选择是否清空测试结果，按【OK】。

4.2内阻测试

***测量**

进入内阻测试测量界面，按照下图方式使用红黑测试夹或者测试针连接设备DB15接口，然后将红色电池夹接到车辆电池的正极，黑色电池夹连接到负极，测量仪将自动显示测试结果。



***内阻比较**

使用比较功能来给内阻测量设定通过/失败比较值。

a.进入内阻测试测量界面，按【比较】调出参数预设表。

b.按【▲】【▼】选择原预设好的比较参数。

c.按【比较】可对预设参数进行设置，选中第一或者第二电阻阈值时，直接按【◀】【▶】可以调整电阻单位。

d.选中某一参数按【OK】对参数进行详细设置，按【▲】【▼】增大减小参数，按【◀】【▶】选择设置位数，最后按【OK】完成设置。

e.参数全部设置完成后，按【▲】【▼】选中SAVE选项按【OK】保存数据，再次按【OK】回到测量页面，然后进行比较测量。

f.内置大容量储存器，可保存30个预设比较值

***电池健康测试**

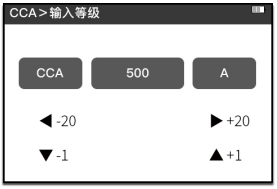
a.进入电池健康测试界面，根据需求选择电池类型和输入标准。

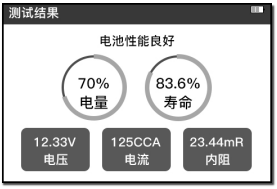
b.按照弹窗提示关闭发动机和所以汽车电气元件后按【OK】。

c.根据屏幕提示按【▲】【▼】【◀】【▶】输出蓄电池参数。

d.输入完成后按【OK】等待测量结果。

注意：电池健康检测适用于所有12V汽车启动式铅酸电池、AGM平板电池、AGM螺旋电池和胶体电池。



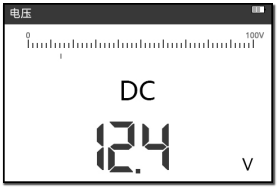


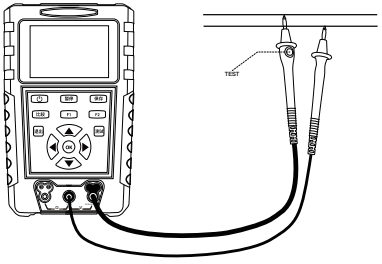
4.3电压

***测量**

进入电压/电阻页面，按照下图方式连接，红色表笔接到电源正极，黑色表笔连接到负极，测量仪将自动显示测试结果。

按【▲】【▼】可以切换交/直流电压测试。

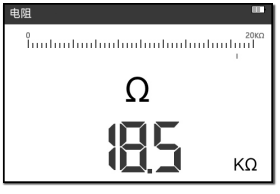


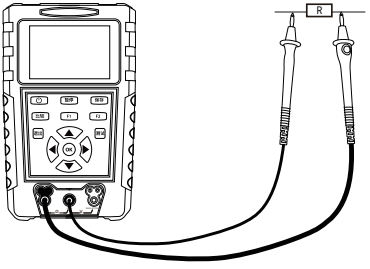


4.4电阻

***测量**

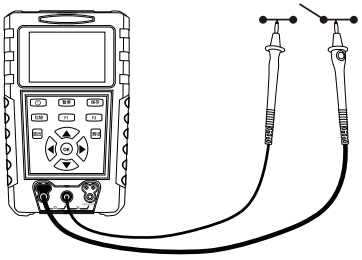
电阻测量，按照下图方式连接，将红黑表笔连接电阻的两端，测量仪将自动显示测试结果。





***连续性测试**

连续性测试可以快速检测汽车电路系统以及各种电气设备、电力线路中的电缆是处于导通或者断开状态。测量结果显示0.00Ω说明导线连续性测试通过。



4.5设置

***声音**

进入设置页面再选择声音选项，按【▲】【▼】选中开启/关闭选项，按【OK】完成声音设置。

***语言**

进入设置页面再选择语言选项，按【▲】【▼】选中需要设置的语言，按【OK】完成语言设置。

***按键测试**

进入设置页面再选择按键测试选项，依次对按键进行测试，连续按两次【退出】即可退出按键测试。

***升级**

进入设置页面再选择升级选项，通过USB连接设备进行软件升级。

***时间设置**

进入设置页面再选择时间设置选项，按【◀】【▶】选择需要设置的参数，然后再按【OK】进入参数设置，按【◀】【▶】数值每次增加减小10，按【▲】【▼】数值每次增加减小1，设置完成按【OK】确定，全部设置完成后按【退出】即可退出时间设置。

***关于**

进入设置页面再选择关于选项，按【OK】按键进入关于页面，可以查看软件版本号、网址。

***节能模式**

·当设备监测到15分钟内用户未进行任何操作时将会自动关机，进入省电模式。

·当设备监测到电量过低时蜂鸣器会连续发出3次提示音，此时应及时给设备充电。

5.保修和服务

一年保修

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服务流程

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