FNIRSi 菲尼瑞斯

BTM-24

蓄电池检测仪产品说明书 V1.0

BATTERY TESTER MANUAL

BTM-24
Multi-functional Battery Tester
12V/24V

电池测量　启动测量　负载测量
充电测量　系统设置

OK
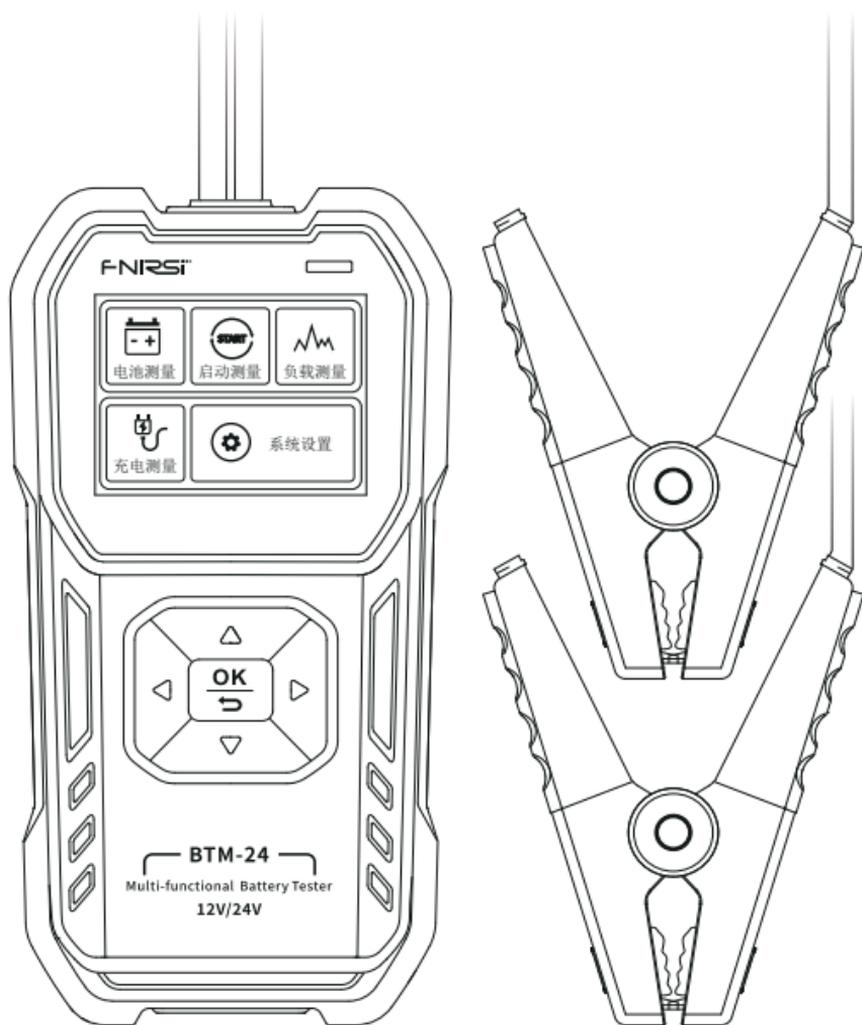
※使用产品前请仔细阅读本说明书,并妥善保管。

※Please read this instruction manual carefully before using the product and keep it properly.

目 录

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一、安全要求

1.1 环境要求

⚠ 注意事项

●避免高温、明火、腐蚀性气体、潮湿或多尘环境,以防设备故障。

●应在通风良好的场所进行检测,避免在封闭、狭小且空气不流通的空间使用,防止电池释放的氢气等可燃气体积聚,降低爆炸风险。

●避免在强电磁场、大型电机、变压器等附近使用,防止电磁干扰影响检测仪的正常工作和检测数据的准确性。

●检查测试线夹、电缆等是否绝缘层完好,无破损、无裸露及断线,确保连接牢固,接触良好,避免出现松动、虚接导致发热、打火现象。

●在测试汽车蓄电池等可能有危险的场景时,建议佩戴护目镜等防护用具,防止电池电解液溅出伤害眼睛,或防止引擎带起异物飞入眼睛。

●严禁在电池或检测仪带电的情况下插拔连接端子、更换电池等操作,必须先切断电源,待电压归零后再进行相应操作。

●使用前检查检测仪外观无损坏、显示屏显示正常、按键操作灵敏,内部电路无短路、断路等故障,定期对检测仪进行校准和维护,确保其测量精度和性能符合要求。

⚠ 远离以下物品

●加热器:避免过热或火灾风险。

●空调出风口、湿度过高的环境:避免设备在潮湿环境下工作。

●水源、化学品:溶剂泄漏可能损坏设备或引发火灾。
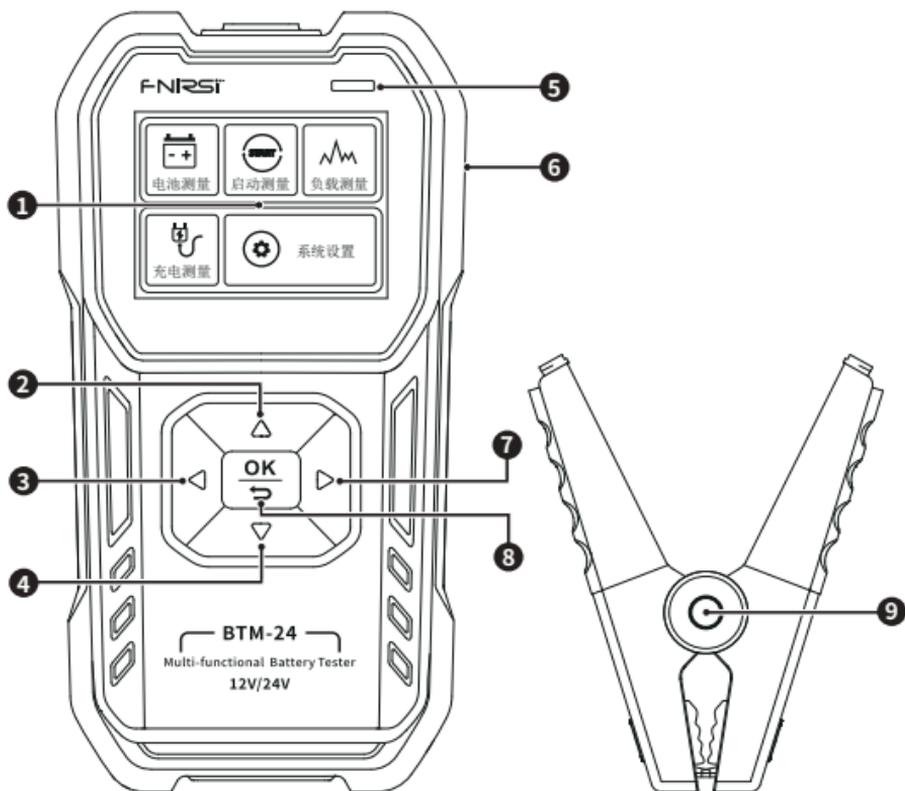
●强磁性设备:防止磁场干扰设备正常运行。

♻ 废旧处理

请勿随生活垃圾丢弃废旧电池或设备,应按国家或当地法规处理。

二、产品概览

2.1 产品简介

BTM-24是一款保障各类蓄电池稳定运行的蓄电池检测仪,是能精准检测蓄电池多项关键指标,为其健康状况提供科学判断依据的专业设备,主要用于汽车行业、电力行业、通信行业、工业设备、医疗设备等多种场合下应用。设备支持电池测量、启动测量、负载检测、充电测量等实时监测功能。

2.2 产品操作示意图

① **屏幕显示区域:** 此区域显示设备操作内容。
② **选择按键上键:** 按键操作上、功能界面长按退出。
③ **选择按键左键:** 按键操作左。
④ **选择按键下键:** 按键操作下。
⑤ **报警指示灯:** 当测值低于标准值,进行报警指示灯红灯闪烁。
⑥ **Type-c接口:** 用于固件升级使用。
⑦ **选择按键右键:** 按键操作右。
⑧ **确认返回键:** 确认操作按键、自动测量按键、返回操作按键。
⑨ **检测夹子:** 红黑检测夹子,用于连接检测蓄电池端口。

2.3 蓄电池检测仪主页面示意图

① **电池测量模块:** 检测蓄电池的蓄电池电压、检测标准支持6种标准、检测内阻。
② **启动测量模块:** 检测蓄电池的蓄电池动态电压、启动电压检测、参考表标准。
③ **负载测量模块:** 检测蓄电池的蓄电池动态电压、最小电压检测、参考表标准。
④ **充电测量模块:** 对蓄电池进行充电测量,测量数据有动态电压、最小电压、最大电压等。
⑤ **系统测量:** 功能包括"语言设置、主题模式切换、恢复出厂设置"等。

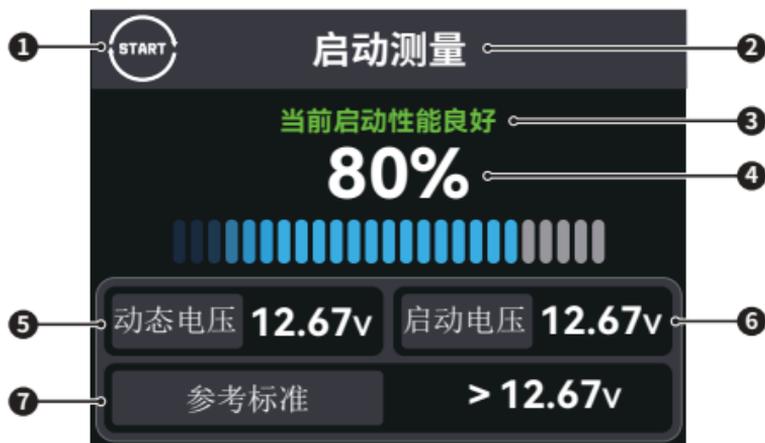| 按键	操作	功能描述
OK **⊃**	短按	确认操作键,在功能界面为测量按键
	长按	操作返回键
▲ ◄ ► ▼	短按	执行对应的按键操作,上下左右
	长按	长按操作上键,可退出对应功能模块

2.4 系统设置页面示意图

① **语言设置:**设备支持简体中文/English语言切换。

② **主题模式切换:**设备支持日间模式/夜间模式主题切换,方便用户根据
  环境更换显示主题。

③ **恢复出厂设置:**包含设备信息版本号、设备型号以及恢复出厂设置。

按键	操作	功能描述
OK **⊃**	短按	确认操作键
	长按	操作返回键
▲ ◄ ► ▼	短按	执行对应的按键操作,上下左右
	长按	长按操作上键,可退出对应功能模块

① **启动测量图标:**此区域表示设备进入启动测量功能。

② **启动测量指示区:**此区域显示当前设备所处功能状态。

③ **检测判断:**通过当前蓄电池检测值,进行对应的判断。

④ **测量百分比:**该区域显示测量百分比。

⑤ **动态电压:**设备实时测量的电压数据并显示。

⑥ **启动电压:**设备检测记录的电压数据。

⑦ **参考标配:**设备根据实际测量,进行标准匹配给出对应的标准值。

按键	操作	功能描述
OK ⏎	短按	测量按键
	长按	操作返回键
◀▲▶▼	长按	长按操作上键,可退出对应功能模块

① **负荷测量图标:** 此区域表示设备进入负荷测量功能。
② **负荷测量指示区:** 此区域显示当前设备所处功能状态。
③ **测量百分比:** 显示设备测量的百分比。
④ **动态电压:** 设备实时测量的电压数据并显示。
⑤ **最小电压:** 设备测时测量的最小电压记录并显示。
⑥ **参考标配:** 设备根据实际测量,进行标准匹配给出对应的标准值。
⑦ **曲线记录显示区:** 将测量数据以曲线表示,数据可视化。

按键	操作	功能描述
OK ⤴	短按	测量按键
	长按	操作返回键
▲◀▶▼	长按	长按操作上键,可退出对应功能模块
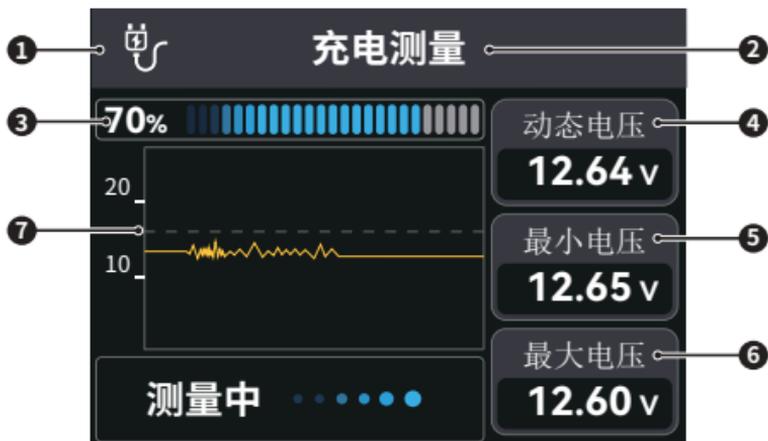
①**充电测量图标:**此区域表示设备进入充电测量功能。

②**负荷测量指示区:**此区域显示当前设备充电性能。

③**充电性能百分比:**显示设备测量的百分比。

④**动态电压:**设备实时测量的电压数据并显示。

⑤**最小电压:**设备测时测量的最小电压记录并显示。

⑥**最大电压:**设备测时测量的最大电压记录并显示。

⑦**曲线记录显示区:**将测量数据以曲线表示,数据可视化。

按键	操作	功能描述
OK ⤴	短按	测量按键
	长按	操作返回键
▲◀▶▼	长按	长按操作上键,可退出对应功能模块

① **电池测量指示区：**此区域显示当前设备所处功能状态，当前为设置电池类型。

② **电池电压设置：**可设置12V、24V与电动车等。

③ **参考标准选择：**可选择未知、CCA、IEC、EN、DIN、JIS#、GB等。

④ **电池参数：**CCA可选参数0~2000。

⑤ **电池测量图标：**此区域表示设备进入蓄电池测量功能。

⑥ **电池测量指示区：**此区域显示当前设备所处功能状态，当前为蓄电池测量。

⑦ **测量电压：**设备实时测量的电池电压。

⑧ **标准选择：**显示标准类型与测量标准值。

⑨ **测量内阻：**设备实时测量的电池内阻。

按键	操作	功能描述
OK ↩	短按	确认功能键,确认当前电池类型设置,再次短按为测量功能键
	长按	操作返回键
◀ ▲ ▶ ▼	短按	选择功能按键:上、下、左、右。在电池参数设置输入框中,可长按左右键进行快速设置参数
	长按	长按操作上键,可退出对应功能模块

三、技术规格

3.1 机型参数

参数	功能描述
屏幕材质	2.4寸彩屏
语言	中文, English
产品尺寸	80.52*155.76*28.15mm
裸机重量	≈479g

3.2 测量参数

蓄电池测试参数	
蓄电池寿命低	0-60%
蓄电池寿命一般	60%-80%
蓄电池寿命良好	80%-100%

※注:测试前准备,在车子发动中,先熄灭并将钥匙转至OFF位置

启动测试参数	
当前启动性能良好	启动电压10.2V以上
当前启动性能较差	启动电压9.6~10.2V
当前启动性能极差，请检查线路老化或充电	启动电压小于9.6V

※注：测试前准备，在车子发动中，先熄灭并将钥匙转至OFF位置

负荷测试参数	
负荷电压在正常范围内	最低电压大于13.4V（24V系统大于25.6V）
电池电压小于12.8V请检查发电机和电线	最低电压小于12.8V（24V系统小于25.6V），需要检查发电机皮带是否磨损，电线是否短路

※注：测试前准备，先将汽车点火，选择负荷测试模式，按下OK键，将转速提升至2000~2500之后，再按OK键获取测量结果

充电测试参数		
电池电压过大，请检查调压器		最大电压大于15.0V（对于24V系统大于30.0V），需要检查调压器
电池电压过小，请检查连接点，电线和发电机		最小电压小于13.3V（对于24V系统小于26.6V），检查连接点，电线和发电机
电池电压正常	发电机性能优秀	动态电压>13.9V（24V系统>27.8V）
	发电机性能良好	动态电压>13.7V（24V系统>27.4V）
	发电机性能正常	动态电压>13.5V（24V系统>27.0V）
	发电机需观察	动态电压>13.3V（24V系统>26.6V）

※注：测试前准备，先将汽车点火，选择负荷测试模式，按下OK键，将转速提升至2500~3000之后，再按OK键获取测量结果

标准选择举例:

电池标识	标准选择	电池参数	备注
12V/60Ah/CCA 500A	CCA	300	12V的电池, 容量60Ah, 冷启动电流500A
300A EN	EN	300	EN标准值为300A
12V 250A 60Ah DIN	DIN	250	12V的电池, 容量60Ah, DIN标准值为250A
26A 19RMF 12V 60Ah	JIS#	200	12V电池 容量60Ah 查JIS码转换26A19R对应的CCA为200
26A 19RMF 12V 60Ah	JIS#	200	12V电池 容量60Ah 查JIS码转换26A19R对应MF的CCA为220
12V 60Ah	容量	60Ah	根据电池容量估计CCA值, 此方法在找不到标准时使用

※注:用户也可根据汽车排量估计CCA数值

汽车排量	参考CCA值
1200~1600 CC	350
1600~2000 CC	500
2000~3000 CC	650
3000 CC以上	750

四、操作指南

4.1 设备通电

●将设备测试夹子接于蓄电池对应端子,连接好后,蓄电池测量仪通电启动进入功能主界面。

●或者将设备侧面接口接入Type-c电源线,连接好后,蓄电池检测仪通电。启动进入功能主界面。

4.2 语言设置

●设备不断电的情况下,在主界面,短按**按键选择区**选择系统测量, 短按**OK确认键**进入系统测量,再次短按**OK确认键**进行语言切换,设备支持简体中文、English共两种语言。

4.3 设置蓄电池类型

●进入蓄电池类型设置

设备不断电的情况下,在主界面,短按**按键选择区**选择电池测量,短按**OK确认键**进入电池测量,进入后当前界面为设置电池类型。

●设置电池类型

在进入设置电池类型界面后,可设置电池电压、标准选择、电池参数等,通过按键选择对应选项,**上下键**进行功能选项选择,**左右键**进行参数选择与设置。

五、快速入门

5.1 快速测量

●将设备红黑测试夹连接在待测蓄电池,设备启动。进入测试功能。

●选择对应功能进行,设备支持功能测试有电池测量、启动测量、负荷测量、充电测量等。进行电池相关测量。

●查看屏幕测量数据,便可了解当前测试的蓄电池状态。

5.2 固件升级

● 设备未通电,长按操作下键,再通电。此时设备会弹出固件更新update界面,插入USB Type-c数据线连接电脑,进入固件更新update界面进行固件升级。

● 进入固件更新update后,电脑识别出U盘,把固件文件直接拷贝到U盘即可。

● 在固件更新update界面长按下键可进行启动设备。

六、故障排查

6.1 无法开机

●可能原因:
• Type-c接口损坏或松动。
• 连接蓄电池未连接好或连接线老化。

●解决方法:
• 检查接口是否良好。
• 如果更换连接接口或连接测试夹,还是无法开启,则蓄电池存在电量耗尽,可尝试更换蓄电池。
• 以上操作后,设备还是未能启动,则设备可能损坏,建议维修或联系厂商。

6.2 屏幕无法显示

●可能原因:
• 设备未接通电源。
• 显示屏硬件故障。
• 系统软件异常。

●解决方法:
• 检查设备电源连接是否良好。
• 尝试断电后接通设备,确保系统恢复正常。
• 如果屏幕仍无法正常显示,可能需要维修或更换显示屏。

七、维护保养

清洁设备外部

● **频率：** 每月清洁一次，具体取决于使用环境。

● **方法：** 使用柔软的布轻轻擦拭设备表面。避免使用化学清洁剂，特别是含有酒精或强酸、强碱的清洁剂，以免损坏外壳或屏幕。

● **注意事项：**

　• 定期清理设备和按钮周围的灰尘，以保持设备良好状态。

　• 确保设备无任何液体、灰尘或杂物进入设备接口。

存放与携带

● **存放环境：** 仪器应存放在干燥、通风的环境中，避免高温、高湿或剧烈的温度变化。避免将其放置在阳光直射的地方。

● **携带：** 使用时应小心避免摔落，尤其是在携带过程中。

软件更新

● 定期检查设备是否有新的固件更新。最新的固件可以修复已知的BUG并提升设备性能。

● 更新时确保操作步骤正确，使用官方发布的固件文件，并避免断电或其他干扰。

恢复出厂设置

● 若设备出现异常或无法正常工作，可尝试恢复出厂设置。恢复设置后，设备将清除所有自定义配置，恢复到初始状态。

● 恢复出厂设置的方法可以参考用户手册或联系厂商客服。

八、生产信息

产品名称：蓄电池检测仪
品牌/型号：FNIRSI/BTM-24
生产商：深圳市菲尼瑞斯科技有限公司
地址：广东省深圳市龙华区大浪街道伟华达工业园C栋西侧8楼
服务热线：0755-28020752
服务邮箱：support@fnirsi.com
商务邮箱：business@fnirsi.com
官方网站：www.fnirsi.cn
执行标准：GB/T 31484

九、保修说明

※此页为保修卡基本凭证，请妥善保管

感谢您选择本公司产品，本产品自销售之日起计保修期。在产品保修期内，凡按照产品使用说明书安装使用于正常环境、条件使用之下，因原物料及加工过程中之瑕疵而导致故障，可依据本保修条款的内容享受无偿维修服务，本保修卡请用户妥善保存，以作保修凭证，丢失恕不补发。

以下情况将实施有偿维修服务：

●不能出示有效保修卡原件；
●产品安装不符合产品要求、标准和相关规范造成的损坏；
●产品安装环境中相关配件不符合产品要求、标准和相关规范造成的损坏；
●用户对产品使用不当、保管不妥或擅自拆机、私自维修等原因造成的损坏；
●超过保修期。

1.SAFETY REQUIREMENTS

1.1 Environmental Requirements

⊕ Precautions

● Avoid high temperatures, open flames, corrosive gases, humid or dusty environments to prevent equipment failure.

● Testing should be carried out in well-ventilated places, and avoid using in closed, narrow and airless spaces to prevent the accumulation of flammable gases such as hydrogen released by the battery and reduce the risk of explosion.

● Avoid using near strong electromagnetic fields, large motors, transformers, etc. to prevent electromagnetic interference from affecting the normal operation of the tester and the accuracy of the test data.

● Check whether the insulation layer of the test wire clamp, cable, etc. is intact, without damage, exposure or broken wires, ensure that the connection is firm and the contact is good, and avoid looseness and virtual connection that may cause heating and sparking.

● When testing car batteries and other potentially dangerous scenes, it is recommended to wear protective equipment such as goggles to prevent battery electrolyte from splashing and injuring the eyes, or to prevent foreign objects from flying into the eyes with the engine.

● It is strictly forbidden to plug and unplug the connection terminals, replace the battery, etc. when the battery or tester is powered. The power must be cut off first, and the corresponding operation can be performed after the voltage returns to zero.

● Before use, check that the appearance of the tester is not damaged, the display screen is normal, the button operation is

sensitive, and there is no short circuit, open circuit or other faults in the internal circuit. Calibrate and maintain the tester regularly to ensure that its measurement accuracy and performance meet the requirements.

⚠ Keep away from the following items:

●Heaters: Avoid overheating or fire risks.
●Air conditioning outlets, high humidity environments: Avoid equipment working in humid environments.
●Water sources, chemicals: Solvent leakage may damage the equipment or cause a fire.
●Strong magnetic equipment: Prevent magnetic fields from interfering with the normal operation of the equipment.

♻ Waste Disposal

Do not discard used batteries or meters with household waste. Dispose of in accordance with national or local regulations.

2.PRODUCT OVERVIEW

2.1 Product Introduction

BTM-24 is a battery tester that ensures the stable operation of various types of batteries. It is a professional device that can accurately detect multiple key indicators of batteries and provide a scientific basis for judging their health status. It is mainly used in the automotive industry, power industry, communications industry, industrial equipment, medical equipment and other occasions. The device supports real-time monitoring functions such as battery measurement, startup measurement, load detection, and charging measurement.

2.2 Product operation
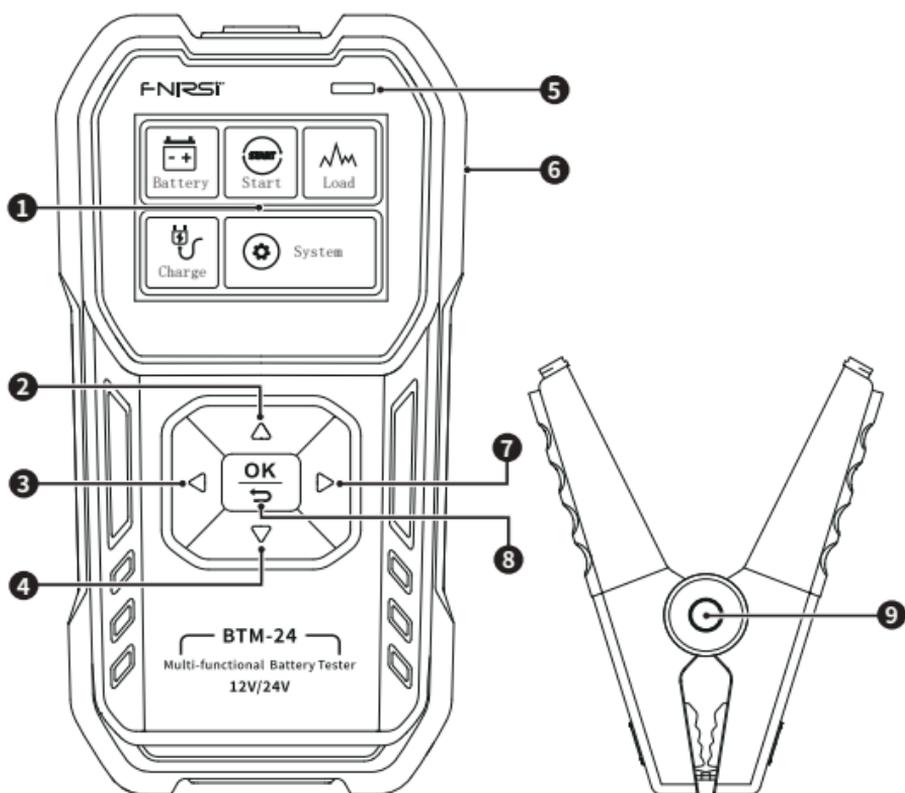
① **Screen Display Area:** This area displays the device operation content.

② **Select the upper button:** Press the upper button to operate, and long press the function interface to exit.

③ **Select the left button:** Press the left button to operate.

④ **Select the lower button:** Press the lower button to operate.

⑤ **Alarm indicator:** When the measured value is lower than the standard value, the alarm indicator flashes red.

⑥ **Type-c interface:** used for firmware upgrade.

⑦ **Select the right button:** Press the right button to operate.

⑧ **Confirm return button:** Confirm operation button, automatic measurement button, return operation button.

⑨ **Detection clip:** Red and black detection clip, used to connect the detection battery port.

2.3 Battery Tester Main Page
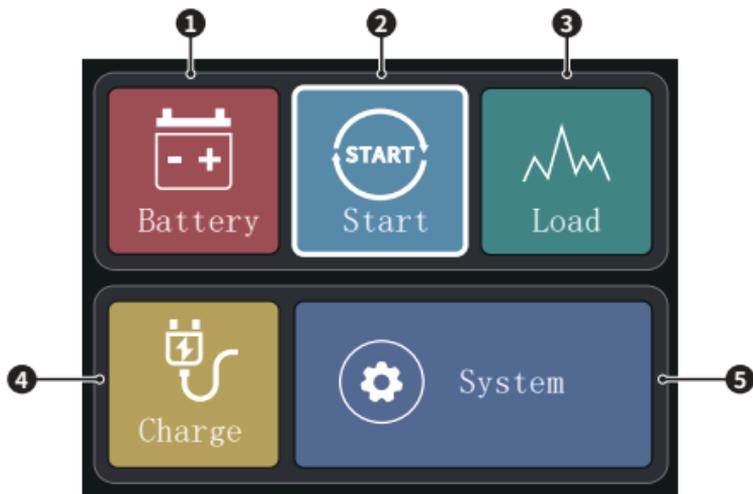
① **Battery Measurement Module:** Detect the battery voltage of the battery, support 6 standards for detection standards, and detect internal resistance.

② **Startup Measurement Module:** Detect the battery dynamic voltage, startup voltage detection, and reference table standards of the battery.

③**Load Measurement Module:** Detect the battery dynamic voltage, minimum voltage detection, and reference table standards of the battery.

④**Charging Measurement Module:** Measure the battery charging, and the measurement data include dynamic voltage, minimum voltage, maximum voltage, etc.

⑤**System Measurement:** Functions include "language settings, theme mode switching, factory reset", etc.

| BUTTON	OPERATION	FUNCTION
OK ⮌	Short press	Confirm the operation button, which is the measurement button in the function interface
	Long press	Operation return button
◀▲▶▼	Short press	Execute the corresponding button operation, up, down, left, and right
	Long press	Long press the operation up button to exit the corresponding function module

2.4 System Settings

①**Language Settings:** The device supports Simplified Chinese/English language switching.

②**Theme Mode Switching:** The device supports day mode/night mode theme switching, which is convenient for users to change the display theme according to the environment.

③**Factory Reset:** Contains device information version number, device model and factory reset.

BUTTON	OPERATION	FUNCTION
OK ⇆	Short press	Confirm operation button
	Long press	Operation return button
◀▲▼▶	Short press	Execute the corresponding button operation, up, down, left, and right
	Long press	Long press the operation up button to exit the corresponding function module

2.5 System Settings
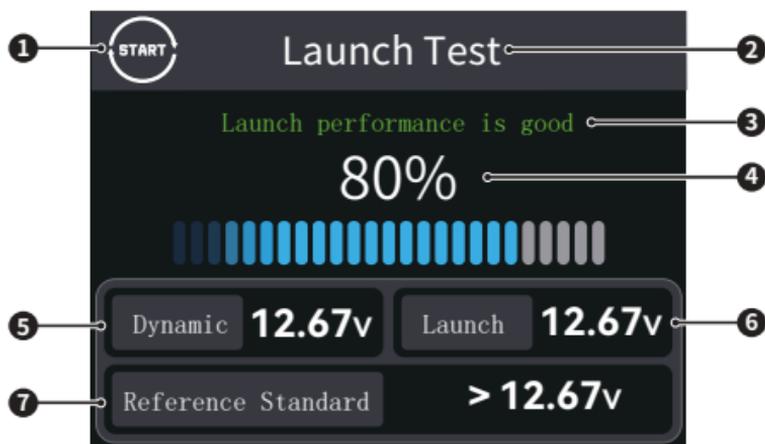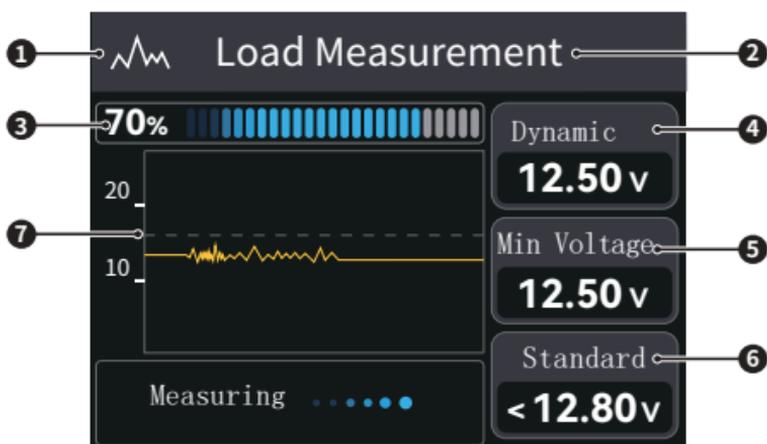

①**Start Measurement Icon:** This area indicates that the device enters the start measurement function.

②**Start Measurement Indicator Area:** This area displays the current functional status of the device.

③**Detection Judgment:** Make corresponding judgments based on the current battery detection value.

④**Measurement Percentage:** This area displays the measurement percentage.

⑤**Dynamic Voltage:** The voltage data measured by the device in real time and displayed.

⑥**Start Voltage:** The voltage data recorded by the device detection.

⑦**Reference Standard:** The device performs standard matching based on actual measurements and gives the corresponding standard value.

BUTTON	OPERATION	FUNCTION
$\dfrac{OK}{\rightleftharpoons}$	Short press	Measurement Button
	Long press	Operation Return Button
◀▲▶▼	Long press	Long press the upper button to exit the corresponding function module

2.6 Load Measurement

❶ ∿ Load Measurement ❷
❸ 70% |||||||||||||||||||||
❹ Dynamic 12.50 v
20
❼ ‹wwwwwwww›
10
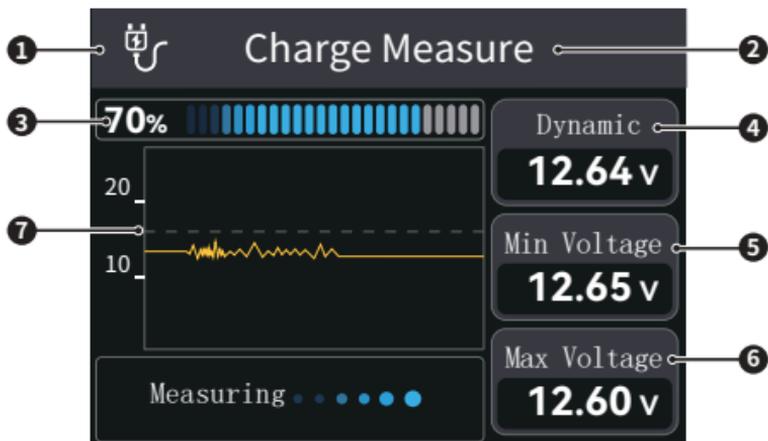❺ Min Voltage 12.50 v
Measuring • • • • •
❻ Standard < 12.80 v

①**Load Measurement Icon:** This area indicates that the device has entered the load measurement function.

22

②**Load Measurement Indicator Area:** This area displays the current functional status of the device.

③**Measurement Percentage:** Displays the percentage measured by the device.

④**Dynamic Voltage:** The voltage data measured by the device in real time is displayed.

⑤**Minimum Voltage:** The minimum voltage measured by the device is recorded and displayed.

⑥**Reference Standard:** The device matches the standard according to the actual measurement and gives the corresponding standard value.

⑦**Curve Recording and Display Area:** The measured data is represented by a curve for data visualization.

| BUTTON	OPERATION	FUNCTION
$\dfrac{OK}{\Large\backsim}$	Short press	Measurement Button
	Long press	Operation Return Button
◀▲▶▼	Long press	Long press the upper button to exit the corresponding function module

① **Charging Measurement Icon:** This area indicates that the device has entered the charging measurement function.

② **Load Measurement Indicator Area:** This area displays the current device charging performance.

③ **Charging Performance Percentage:** Displays the percentage measured by the device.

④ **Dynamic Voltage:** The voltage data measured by the device in real time is displayed.

⑤ **Minimum Voltage:** The minimum voltage measured during the device measurement is recorded and displayed.

⑥ **Maximum Voltage:** The maximum voltage measured during the device measurement is recorded and displayed.

⑦ **Curve Recording and Display Area:** The measured data is represented by a curve, and the data is visualized.

BUTTON	OPERATION	FUNCTION
OK ⮐	Short press	Measurement Button
	Long press	Operation Return Button

BUTTON	OPERATION	FUNCTION
▲ ◄ ► ▼	Long press	Long press the upper button to exit the corresponding function module

2.8 Battery Measurement
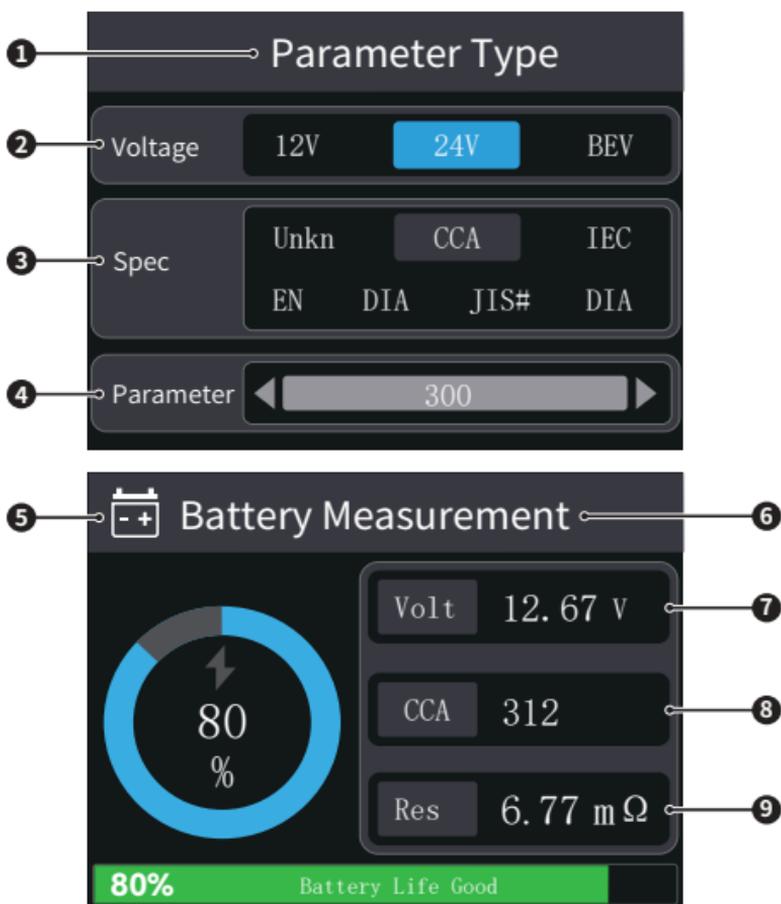
① **Battery Measurement Indicator Area:** This area displays the current functional status of the device, and the current setting is the battery type.

② **Battery Voltage Setting:** You can set 12V, 24V and electric vehicles, etc.

③**Reference Standard Selection:** You can choose unknown, CCA, IEC, EN, DIN, JIS#, GB, etc.

④**Battery Parameters:** CCA optional parameters 0~2000.

⑤**Battery Measurement Icon:** This area indicates that the device enters the battery measurement function.

⑥**Battery Measurement Indicator Area:** This area displays the current functional status of the device, and the current setting is battery measurement.

⑦**Measured Voltage:** The battery voltage measured by the device in real time.

⑧**Standard Selection:** Displays the standard type and measurement standard value.

⑨**Measured Internal Resistance:** The battery internal resistance measured by the device in real time.

BUTTON	OPERATION	FUNCTION
$\frac{OK}{\supset}$	Short press	Confirm the function button to confirm the current battery type setting, and short press it again to switch to the measurement function button
	Long press	Operation return button
◀▲▶▼	Short press	Select function buttons: up, down, left, right. In the battery parameter setting input box, you can long press the left and right buttons to quickly set parameters
	Long press	Long press the up button to exit the corresponding function module

3.TECHNICAL SPECIFICATIONS

3.1 Model Parameters

PARAMETERS	FUNCTION DESCRIPTION
Screen material	2.4-inch color screen
Language	Chinese, English
Product size	80.52*155.76*28.15mm
Bare weight	≈479g

3.2 Measurement Parameters

BATTERY TEST PARAMETERS	
Battery life is low	0-60%
Battery life is average	60%-80%
Battery life is good	80%-100%

※Note: Before testing, turn off the engine and turn the key to the OFF position while the car is running.

STARTUP TEST PARAMETERS	
Current startup performance is good	Startup voltage is above 10.2V
Current startup performance is poor	Startup voltage is 9.6~10.2V
Current startup performance is extremely poor, please check the circuit aging or charging	Startup voltage is less than 9.6V

※Note: Before testing, turn off the engine and turn the key to the OFF position while the car is running.

LOAD TEST PARAMETERS

Load voltage is within the normal range	Minimum voltage is greater than 13.4V (24V system is greater than 25.6V)
Battery voltage is less than 12.8V, please check the generator and wires	Minimum voltage is less than 12.8V (24V system is less than 25.6V), need to check whether the generator belt is worn and whether the wire is short-circuited

※Note: Before the test, start the car, select the load test mode, press the OK button, increase the speed to 2000~2500, and then press the OK button to obtain the measurement results.

CHARGING TEST PARAMETERS

Battery voltage is too high, please check the voltage regulator		Maximum voltage is greater than 15.0V (greater than 30.0V for 24V system), need to check the voltage regulator
Battery voltage is too low, please check the connection points, wires and generator		Minimum voltage is less than 13.3V (less than 26.6V for 24V system), check the connection points, wires and generator
Battery voltage is normal,	generator performance is excellent	Dynamic voltage>13.9V (24V system>27.8V)
	generator performance is good	Dynamic voltage>13.7V (24V system>27.4V)
	generator performance is normal	Dynamic voltage>13.5V (24V system>27.0V)
	generator needs to be observed	Dynamic voltage>13.3V (24V system>26.6V)

Example of Standard Selection:

BATTERY IDENTIFICATION	STANDARD SELECTION	BATTERY PARAMETERS	REMARKS
12V/60Ah/ CCA 500A	CCA	300	12V battery, capacity 60Ah, cold start current 500A
300A EN	EN	300	EN standard value is 300A
12V 250A 60Ah DIN	DIN	250	12V battery, capacity 60Ah, DIN standard value is 250A
26A 19RMF 12V 60Ah	JIS#	200	12V battery, capacity 60Ah, check JIS code conversion 26A19R corresponding CCA is 200
26A 19RMF 12V 60Ah	JIS#	200	12V battery capacity 60Ah check JIS code conversion 26A19R corresponding is 220 MF CCA is 220
12V 60Ah	Capacity	60Ah	Estimate the CCA value based on the battery capacity. This method is used when the standard cannot be found

※Note: Users can also estimate CCA value based on vehicle displacement

VEHICLE DISPLACEMENT	REFERENCE CCA VALUE
1200~1600 CC	350
1600~2000 CC	500
2000~3000 CC	650
3000cc and above	750

4、OPERATION GUIDE

4.1 Power on the device

● Connect the device test clip to the corresponding terminal of the battery. After the connection is completed, the battery tester is powered on. Start to enter the main function interface.

● Or connect the side interface of the device to the Type-c power cable. After the connection is completed, the battery tester is powered on. Start to enter the main function interface.

4.2 Language Setting

● When the device is powered on, in the main interface, short press the button selection area to select system measurement, short press the OK confirmation button to enter system measurement, and short press the OK confirmation button again to switch the language. The device supports two languages: Chinese and English.

4.3 Setting Battery Type

● **Entering Battery Type Setting**

When the device is powered on, on the main interface, short press the button selection area to select battery measurement, short press the OK confirmation button to enter the battery measurement, and the current interface after entering is the battery type setting interface.

● **Setting Battery Type**

After entering the battery type setting interface, you can set the battery voltage, standard selection, battery parameters, etc., select the corresponding option by pressing the button, select the function option by pressing the up and down buttons, and select and set the parameters by pressing the left and right buttons.

5.QUICK START

5.1 Quick Measurement

- Connect the red and black test clips of the device to the battery to be tested and start the device. Enter the test function.
- Select the corresponding function to perform. The functional tests supported by the device include battery measurement, startup measurement, load measurement, charging measurement, etc. Battery-related measurements can be performed.
- View the measurement data on the screen to understand the status of the battery currently being tested.

5.2 Firmware Upgrade

- If the device is not powered on, press and hold the down button and then power it on. At this time, the device will pop up the firmware update interface. Insert the USB Type-c data cable to connect to the computer and enter the firmware update interface to upgrade the firmware.
- After entering the firmware update interface, the computer recognizes the USB flash drive and directly copies the firmware file to the USB flash drive.
- In the firmware update interface, press and hold the down button to start the device.

6.TROUBLESHOOTING

6.1 Unable to boot

- **Possible reasons:**
  · The Type-C interface is damaged or loose.
  · The battery is not connected properly or the connection cable is aging.

●**Solution:**

· Check whether the interface is in good condition.

· If the device still cannot be turned on after changing the connection interface or connecting the test clip, the battery is exhausted. You can try to replace the battery.

· After the above operations, if the device still fails to start, the device may be damaged. It is recommended to repair it or contact the manufacturer.

6.2 Unable to display

●**Possible reasons:**

· The device is not powered on.

· The display hardware may be faulty.

· A system software error might be preventing proper display.

● **Solution:**

· Verify that the device is properly connected to a power supply.

· Try turning the device off and then on again to reset the system.

· If the problem persists, the display may need repair or replacement.

7.MAINTENANCE

Cleaning the outside of the device

●**Frequency:** Clean once a month, depending on the usage environment.

●**Method:** Gently wipe the surface of the device with a soft cloth. Avoid using chemical cleaners, especially those containing alcohol or strong acids or alkalis, to avoid damaging the casing or screen.

●**Note:**

· Regularly clean the dust around the device and buttons to keep the device in good condition.

· Ensure that no liquid, dust or debris enters the device interface.

Storage and Carrying
- **Storage environment:** The instrument should be stored in a dry and ventilated environment, avoiding high temperature, high humidity or drastic temperature changes. Avoid placing it in direct sunlight.
- **Carrying:** Be careful to avoid dropping it when using it, especially when carrying it.

Software Update
- Regularly check whether the device has new firmware updates. The latest firmware can fix known bugs and improve device performance.
- When updating, ensure that the operation steps are correct, use the officially released firmware files, and avoid power outages or other interference.

Restore factory settings
- If the device is abnormal or does not work properly, try to restore the factory settings. After restoring the settings, the device will clear all custom configurations and return to the initial state.
- For methods to restore factory settings, please refer to the user manual or contact the manufacturer's customer service.

8.CONTACT US

Product Name: Battery Tester
Brand/Model: FNIRSI / BTM-24
Manufacturer: Shenzhen Fnirsi Technology Co., Ltd.
Address: 8th Floor, West Side, Building C, Weihua Da Industrial Park, Dalang Street, Longhua District, Shenzhen, Guangdong
Service Hotline: 0755-28020752
Service Email: support@fnirsi.com
Business Email: business@fnirsi.com
Official Website: www.fnirsi.com
Execution Standard: GB/T 31484   http://www.fnirsi.com/

9.WARRANTY INFORMATION

※**This page is the basic warranty card. Please keep it.**

Thank you for choosing our company's products. The warranty period of this product starts from the date of sale. During the product warranty period, if the product is installed and used in accordance with the product manual and used in normal environment and conditions, and the fault is caused by defects in the original materials and processing, you can enjoy free repair services according to the content of this warranty clause. Please keep this warranty card properly as a warranty certificate. No reissue will be issued if it is lost.

The following situations will incur paid repair services:

● Unable to present the original valid warranty card.
● Damage caused by improper installation not meeting product requirements, standards, or relevant specifications.
● Damage caused by accessories in the installation environment not meeting product requirements, standards, or relevant specifications.
● Damage caused by improper use, improper storage, unauthorized disassembly, or unauthorized repairs by the user.
● Expiration of the warranty period.

保修卡 ✂

产品型号	BTM-24	数量	
渠道商名称 (购买商店)			
联系方式			
渠道商地址			
发票号 (订单号)			
购买时间	年　　　　月　　　　日		

客户姓名:	地址: 📍
联系方式: ☎	故障说明: ⓘ

Warranty Card ------------✄

Product Model	BTM-24	Qty.	
Distributor Name (where to buy)			
Contact			
Address			
Invoice Number (Order Number)			
Purchase Date (as per invoice)	Year	Month	Day

User Name:	Address:
	📍
Contact:	Fault Description:
☎	ⓘ

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