九号智能检测仪二代规格书

Smart Diagnosis Device 2 instructions

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《九号智能检测仪二代规格书》 **Smart Diagnosis Device 2 instructions**	版 本 号: Version No.	V-2.2
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1	V-1.0	拟定	2021.12.29	张龙云
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1. 产品清单

1、Product List

序号 No.	名称 Name	数量 Quantity	说明 Instruction
1	九号智能诊断仪主体	1	
2	国标三孔电源线	1	
可选线束			
4	短交通转接盒线束	1	
5	铅酸电池放电线束	1	
6	ebike 运动胖胎电池线束	1	
7	新国标 2+4 电池线束	1	
8	老款国标 2+5 电池线束	1	
9	电摩电池线束	1	
10	三代滑板电池线束	1	
11		1	
12		1	

2. 机械

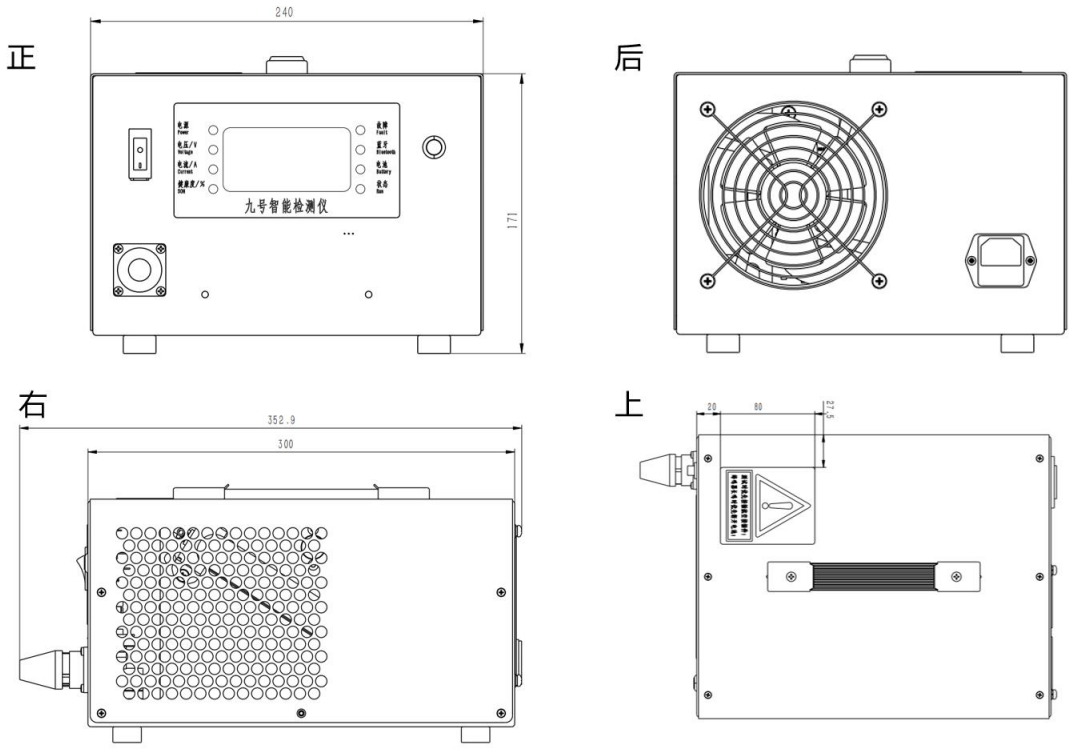
2.Machine

2.1 检测仪外观:

2.1 Appearance of the detector

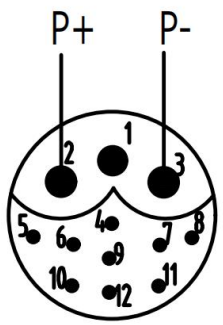
2.2 检测仪尺寸

2.2 Size of the detector



2.3 接口定义

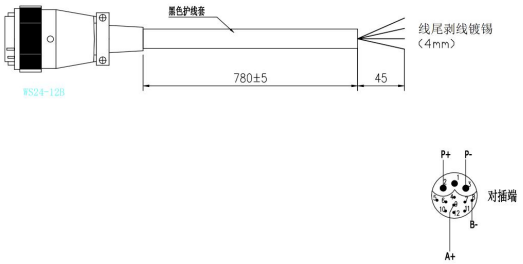
2.3 Interface definition

序号 Serial number	属性 attribute	颜色 color	图示 icon
1	NC	NC	
2	P+	红 red	
3	P-	黑 black	
4	CHG_SIG	棕 brown	
5	ONE	灰 grey	
6	CANH	紫 purple	
7	CANL	白 white	
8	B-	蓝 blue	
9	A+	绿 green	
10	TX	黄 yellow	
11	RX	黑 black	
12	GND	红 red	

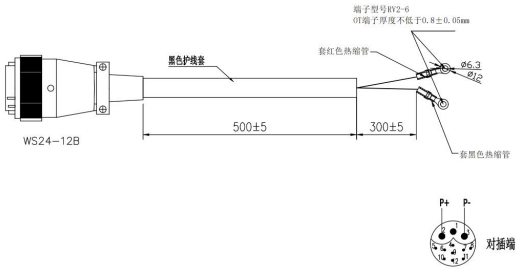
2.4 配套线束图示

2.4 Illustration of accessories

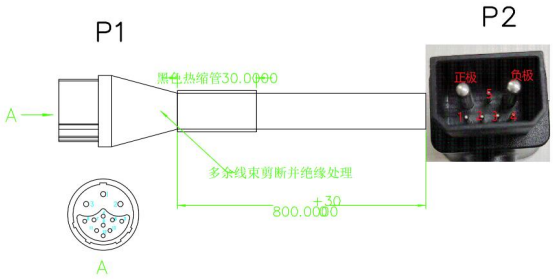
(1) G&F&F2&ES 系列滑板电池检测连接盒
G&F&F2&ES Series skateboard battery detection connection box



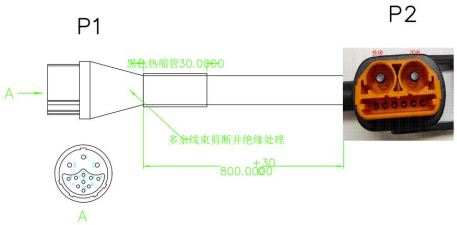
(2) 智能铅酸电池智能检测仪连接线
(2) Intelligent lead-acid battery intelligent detector cable



(3) A&B 电池检测线束
(3)A&B battery detection harness

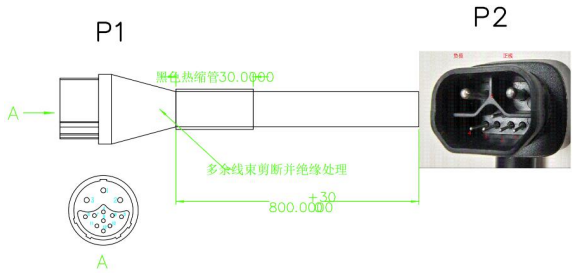


(4) B110P 系列电池智能检测仪连接线线束
(4)B110P series battery intelligent detector wiring harness



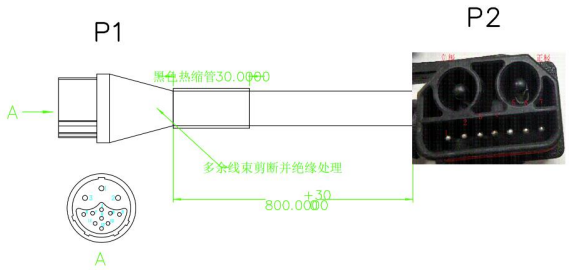
(5) C 系列电池智能检测仪连接线

C series battery intelligent detector connection cable



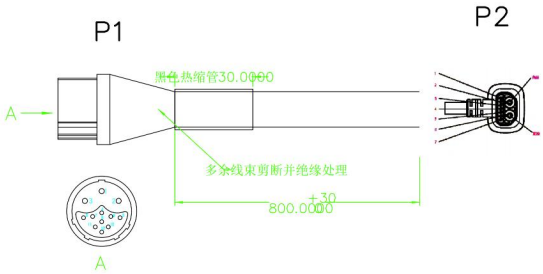
(6) E100 系列电池智能检测仪连接线

E100 series battery intelligent detector connection cable



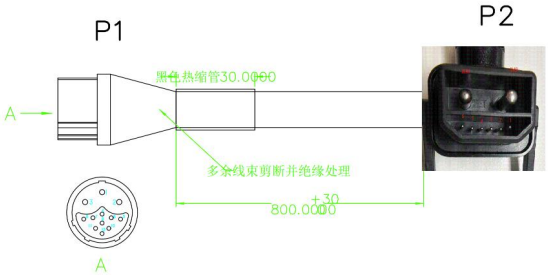
(7) E125&N 系列电池智能检测仪连接线

E125&N series battery intelligent detector connection cable



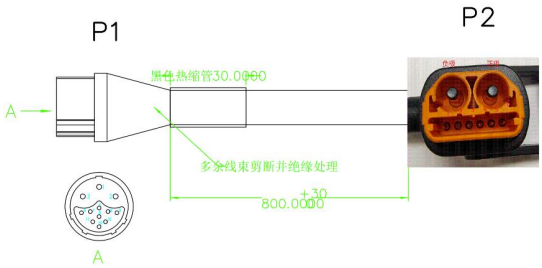
(8) E80 系列 60V 电池智能检测仪连接线

E80 series 60V battery intelligent detector cable



(9) 海外电摩 E 系列电池智能检测仪连接线

Overseas electric motorcycle E series battery intelligent detector connection line



*注意：转接线束为可选配件，可根据需要自行选择购买。
Note: The adapter harness is optional and can be purchased as required.

3. 规格参数

3.Specifications

关键参数

Key Parameters

名称型号 Name and Model	产品名称 Product Name	九号智能检测仪二代 Smart Diagnosis Device 2	
	版本号 Version No.	V2	
	产品型号 Product Model	BX1101	
尺寸规格 Size and Specification	产品尺寸 Size	30*24*17.1	Lx BxH (cm)
	产品净重 Weight	5.32kg	
工作环境 Operating environments	工作温度 Operating Temperature	0～45℃	
	工作湿度 Operating Humidity	10～90%	
	储存温度 Storage Temperature	-20～70℃	
	防护等级 Protection Level	IP20	
AC 输入 AC Input	额定功率 Rated Power	＜35W	

	额定电压 Rated voltage	100～240VAC / 50～60Hz	
DC 输入 DC Input	负载电压 Load Voltage	0～85V	
	负载电流 Load Current	0～15A	
	负载最大功率 Maximum Load Power	1000W	
测量精度 Measurement Accuracy	容量精度 Capacity Accuracy	通讯锂电：≤±2% 铅酸或无通讯锂电：≤±3%	
	电压精度 Voltage Accuracy	≤1% FS	
	电流精度 Current Accuracy	≤1% FS	
	时间精度 Time Accuracy	≤0.1%	
电池通讯 Battery Interface	USART USART	115200 bps	
	一线通 ISDN	9600 bps	
	CAN CAN	500000 bps	
	485 485	57600/115200 bps	
APP 通讯 App Interface	蓝牙 Bluetooth	BLE5.0	安卓

性能参数

Performance Parameters

项目 Item	单位 Unit	最小值 Minimum value	标称值 Nominal value	最大值 Maximum value	备注 Remarks
工作电压 Operating Voltage	V	100	220	240	AC 端
工作频率 Operating Frequency	HZ	/	50	60	
工作电流 Operating Current	A	/	/	0.74	
输入电压 Input Voltage	V	/	/	103	DC 端
输入电流 Input Current	A	/	10	15	有效值
电池放电功率 Battery Discharge Power	W	/	800	1000	
噪音 Noise Level	dB	/	55.6	/	
相关保护 Related Protection					
过温保护 Over-Temperature Protection	℃	/	55	65	壳体/隔板温度
过流保护 Over-Current Protection	A	/	35	/	10S

4. 快速入门

4.Quick Start

4.1 开机自检

4.1 Power-On Self-Test

4.1.1 简介

4.1.1 Introduction

九号智能电池检测仪二代属于自动化负载设备，主要通过放电方式检测九号电池容量健康度。检测仪支持九号电动、九号电摩全系列产品电池以及滑板车电池、储能电池，为适配更多电池还额外支持了铅酸电池、无通讯锂电检测。支持最大 84V/10A 或者 48V/15A 放电，放电过程中箱体上盖的最大温度不超过 55℃，支持 CAN-500kbps、RS485-115200bps、USART-115200 bps、一线通-9600 bps、蓝牙 5.0 通信，最大放电功率 1000W 或 15A-CC 放电，基本全系 2h 时间完成放电检测。

Smart Diagnosis Device 2 is an automated load device primarily designed to test the health and capacity of Ninebot batteries through discharge methods. The tester is compatible with the full range of Ninebot Electric and Ninebot Electric Motorcycle batteries, as well as scooter batteries and energy storage batteries. To accommodate a wider range of batteries, it also supports lead-acid batteries and lithium batteries without communication capabilities. It supports a maximum discharge of 84V/10A or 48V/15A, with the maximum temperature of the upper cover not exceeding 55° C during the discharge process. It features communication protocols such as CAN-500kbps, RS485-115200bps, USART-115200bps, One-line Communication-9600bps, and Bluetooth 5.0. With a maximum discharge power of 1000W or 15A-CC discharge, it can generally complete the discharge test within 2 hours for most batteries.

主要功能：

Main Functions

- 高亮数码管显示；
- High-Brightness LED Digital Display
- 按键切换信息；
- Button to Switch Information
- 支持手机 APP 操控；
- Supports mobile APP control;

- 蓝牙 5.0 通讯；
- Bluetooth 5.0 communication;
- 支持 UART/CAN/RS485/一线通 通讯协议；
- Supports UART/CAN/RS485/ISDN Communication protocols;
- 支持风扇无极调速；
- Supports stepless fan speed adjustment;
- 支持容量检测功能；
- Supports capacity detection function;
- 支持电芯压差/电池温度/电池保护等信息查看；
- Allows viewing of information such as cell voltage differences, battery temperature, and battery protection status;
- 支持报告检索和下载；
- Supports report retrieval and download;
- 电池反接保护功能；
- Battery reverse connection protection function;
- 过温/过流保护功能；
- Over-temperature and over-current protection functions;
- 风扇堵转保护功能；
- Fan stall protection function;
- 支持 OTA 固件升级；
- Supports OTA firmware upgrades;
- 电池直流内阻测量；
- Measures battery DC internal resistance;
- 支持九号电自电池/电摩电池/储能电池/滑板车电池/铅酸电池/无通讯锂电池容量检测；
- Supports capacity detection for Ninebot Electric Bike batteries, Electric Motorcycle batteries, Energy Storage batteries, Scooter batteries, Lead-acid batteries, and Lithium batteries without communication capabilities.

4.1.2 开机

4.1.2 Power On

用户确保交流 110V/220V 电源接入正确之后，按下电源开关按钮。此时电源指示灯和数码管亮起显示‘000’，并风扇正常转动，即设备正常进入待机状态。

After ensuring that the AC 110V/220V power supply is connected correctly, the user presses the power switch button. At this point, the power indicator light and digital display will light up showing '000', and the fan will rotate normally, indicating that the device has entered the standby mode

successfully.

4.1.3 设备开机异常

4.1.3 Abnormal Device Startup

用下面的方法可以帮助来解决在打开负载时您可能遇到的问题。

The following methods can help resolve any issues you may encounter when turning on or operating the load.

- 检查交流电压输入范围，应与供电 110/220VAC 电压规格一致。
- Check the AC voltage input range to ensure it matches the specified 110/220VAC voltage requirements for power supply.
- 检查电源线是否接好，负载是否已经被供电，电源开关是否被打开。
- Check if the power cord is properly connected, if the load is receiving power, and if the power switch is turned on.
- 检查负载的保险丝是否烧坏，若保险丝烧坏，请您使用正确的保险丝规格来替换，保险丝规格为 250VAC /2A，保险丝的更换方法：打开电源插座下方的小塑料盖打开，就可以看见保险丝，请使用上述规格相符的保险丝更换。
- Check if the fuse of the load is blown. If the fuse is blown, please replace it with the correct fuse specification, which is 250VAC / 2A. To replace the fuse, open the small plastic cover located below the power socket, where you will find the fuse. Please use a fuse that matches the above specifications for replacement.

警告：设备出厂时配备一根三芯电源线，使用时应确保接地良好。

Warning: The device is equipped with a three-core power cord at the factory. Ensure proper grounding when using the device.

4.2 前面板介绍

4.2 Introduction to the Front Panel

序号 No.	名称 Name	描述 Description
1	电源开关 Power Switch	设备供电开关，带交流源指示灯 The power supply switch for the device, with an AC power indicator light
2	电池接口 Battery Interface	配套线束航空插头接口，使用时请旋紧 The mating harness aviation plug interface, please tighten it when in use
3	信息切换 Information Switch	电压/电流/健康度 显示切换按钮 Button for switching between voltage, current, and health status displays
4	数码管显示 Digital Display	三位红色高亮数码管显示，分辨率 0.1V，0.1A，1% Three-digit red high-brightness LED display with a resolution of 0.1V, 0.1A, and 1% for voltage, current, and health status respectively
5	电源 Power	主板电源供电知识灯 Power supply indicator light for the mainboard
6	电压 Voltage	红色电压状态指示灯 Red voltage status indicator light
7	电流 Current	红色电流状态指示灯 Red current status indicator light
8	健康度 Health (SOH)	红色健康度 SOH 状态指示灯 Red State of Health (SOH) status indicator light
9	故障 Fault	设备故障时亮起，并伴随蜂鸣报警，需排除故障后重启设备清楚故障状态 （手机 APP 同步故障装态） Lights up when the device encounters a fault, accompanied by a buzzer alarm. The fault status needs to be cleared after troubleshooting, and the device needs to be restarted. (Fault status is synchronized with the mobile app.)
10	蓝牙 Bluetooth	当手机与设备建立蓝牙通讯时亮起 Lights up when Bluetooth communication is established between the mobile phone and the device
11	电池 Battery	正确接入电池，并识别电压后指示灯亮起 Lights up when the battery is correctly connected and the voltage is recognized
12	状态 Status	待机为绿色，运行时转为红色 Green for standby mode, turns red during operation

4.3 使用说明

4.3 Operating Instructions

4. 3. 1 通讯锂电检测

4.3.1 Communication Lithium Battery Testing

1）如下图所示，准备待测的电池和放电线束，以及检测仪和市电连接线；（这里以九号电自 4825 电池举例）

1)As shown in the following figure, prepare the battery and discharge harness to be tested, along with the tester and AC power cord for connection; (Here, we use the Ninebot Electric Bike 4825 battery as an example)

2）将电源线接入后再连接电池（注意连接到位并锁紧），连接完毕后打开电源开关，待屏幕电源指示灯亮起，数码管线束电池当前电压；

2) Connect the power cord first, then connect the battery (make sure the connection is secure and locked in place). After connection, turn on the power switch. Wait for the power indicator light on the screen to light up, and the digital display will show the current voltage of the battery.

3）打开手机【九号售后】APP→点击【中国大区】→点击【登录】需要打开蓝牙和位置才能进行搜索，点击在线设备等待【连接成功】；

3)Open the "Ninebot After-Sales" app on your phone → Tap on "China Region" → Tap on "Login". Bluetooth and location services need to be enabled for searching. Tap on "Online Devices" and wait for the "Connection Successful" message.

4）点击【一键检测】即可开始测量，检测仪会自动根据电池容量以 0.5C 进行放电（MAX 15A），根据电流积分计算 SOH 并在手机和设备端实时显示，如需容量信息可在完成后的报告中查看相应数据；

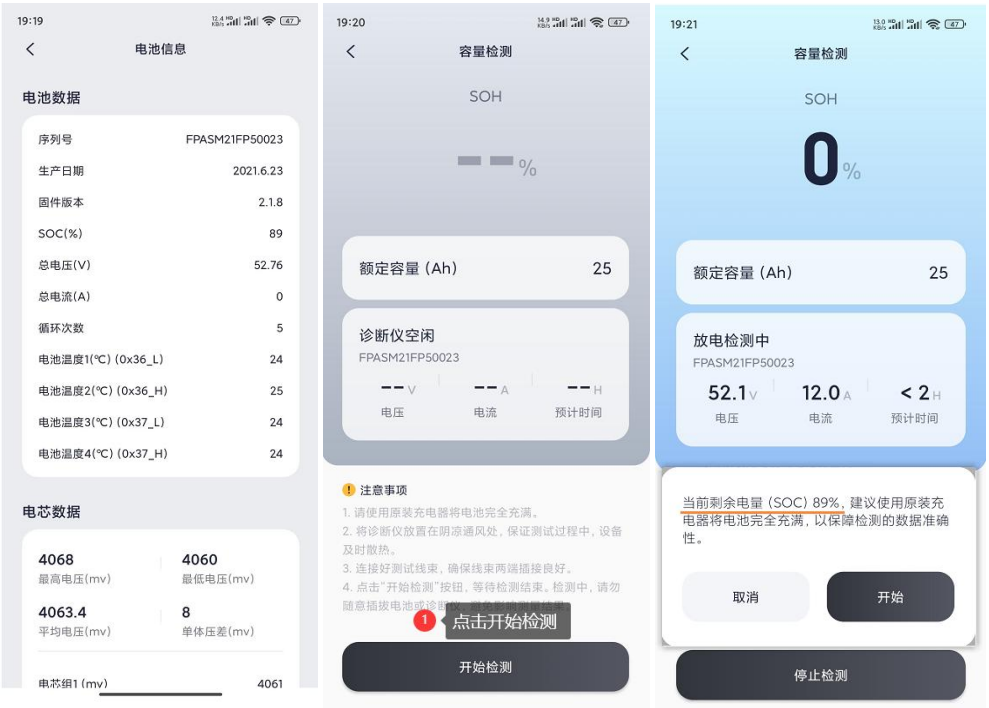
4)Tap on "One-Click Test" to start the measurement. The tester will automatically discharge the battery at 0.5C based on its capacity (MAX 15A), calculate the SOH (State of Health) based on current integration, and display it in real-time on both the phone and the device. For capacity information, you can view the corresponding data in the report after completion

需要注意的是完整的 SOH 需要以 100%SOC 电量测试，并且初始电量低于 50%SOC 是不能开启放电检测的；

It is important to note that a complete SOH test requires the battery to be at 100% SOC, and the discharge test cannot be initiated if the initial battery level is below 50% SOC.

5）检测完成后即可查询报告，放电过程中无需手机保持连接，可在放电完成后重新连接进入界面查看信息，也可记录 SN 号搜索历史报告。

5)After the test is completed, you can view the report. The phone does not need to remain connected during the discharge process. You can reconnect to the interface to view the information after the discharge is complete, or you can record the SN number to search for historical reports.



4.3.1 无通讯锂电池

4.3.1 Non-communicative Lithium Battery

若要为无通讯锂电池进行放电可以在电池类型中选择【通用电池】→【锂电容量检测】选择相应电压和标称容量→输入车架号（11 位以上，不能纯数字）→输入环境测试温度（注意：低温会影响放电容量，推荐在室温及以上环境中测试）→【开始检测】即可。

To discharge a non-communicative lithium battery, you can select "General Battery" from the battery type options, then choose "Lithium Battery Capacity Test". Select the appropriate voltage and nominal capacity, enter the frame number (more than 11 digits, cannot be pure numbers), enter the ambient test temperature (note: low temperature can affect discharge capacity, it is recommended to test at room temperature or above), and then click "Start Test".

4. 3. 2 铅酸电池

4. 3. 2 Lead-acid Battery

铅酸电池放电我们配备了专用的放电线束，需要安装到铅酸电池总正和总负位置，并连接到诊断仪上，在电池类型中选择【通用电池】→【铅酸电池容量检测】选择相应电压和标称容量→输入车架号→输入环境温度→【开始检测】即可。

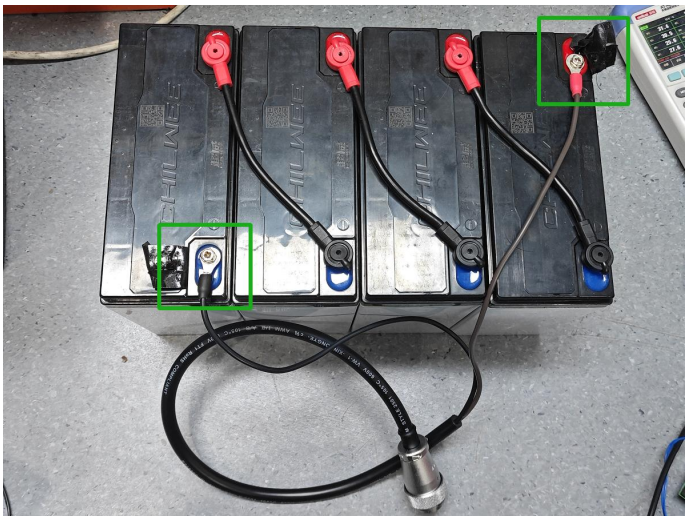
For discharging a lead-acid battery, we provide a dedicated discharge harness that needs to be installed at the total positive and negative terminals of the lead-acid battery and connected to the diagnostic tester. In the battery type selection, choose "General Battery" → "Lead-acid Battery Capacity Test", select the appropriate voltage and nominal capacity, enter the frame number, enter the ambient temperature, and then click "Start Test".

部分初次使用【铅酸电池放电】功能可能会提示校准信息，准备万用表按照 APP 提示步骤执行即可，下次即可正常使用。

For some users who are using the "Lead-acid Battery Discharge" function for the first time, there may be a calibration prompt. Prepare a multimeter and follow the steps prompted in the app to perform the calibration. After that, the function can be used normally the next time.

注意：铅酸电池线束禁止延长、更换鳄鱼夹等操作，否则可能降低电池精度。

Note: It is prohibited to extend the lead-acid battery harness or replace the alligator clips, as this may reduce the accuracy of the battery testing.



4.4 注意事项

4.4 Precautions

- 容量 SOH 测试确保电池已充满再进行放电；
- Ensure that the battery is fully charged before performing the capacity SOH test and discharging.
- 电池线束联系确保航空插头连接到位并旋紧，防止接触不良导致的过热或者异常中断；
- Ensure that the battery harness connector is properly inserted and tightened into the aviation plug to prevent overheating or abnormal interruption due to poor contact.

- 设备侧面进风孔和风扇出风后不要有物品遮挡，导致散热不良；
- Do not block the air intake vents on the side of the device or the fan outlet, as this may cause poor heat dissipation.
- 设备故障报警时请先排除故障后再重启设备继续使用；
- If the device faults and alarms, please troubleshoot the issue before restarting the device for continued use.
- 如需下载报告请在设备断电前完成蓝牙连接并下载，断电后设备会清除本次测试数据；
- To download the report, please complete the Bluetooth connection and download before powering off the device, as the device will clear the current test data after power off.
- 如有其他异常问题请连接九号技术人员。
- For any other abnormal issues, please contact Ninebot technical support.

5. 标签

5.Tag

5.1 铭牌

5.1 Nameplate

5.2 条形码尺寸及编码规则

5.2 Barcode dimensions and coding rule

图 5-1 贴纸（2023 年 3 月 6 日版本）

技术要求：

Technical requirements:

- 表面不允许有污点、皱折、毛刺、毛边，字体不得歪斜。
- The surface shall be free of stains, folds and burrs, and the character shall be upright.
- 编码规则：
- Coding rules:

① ----产品代码（指定产品代码为 BX11）；

① ----Product code (Designated product code of the FJAF5120K battery is SR);

② ----版本代码（初始版本统一定为 A，8 月份量产的电池版本为 B）；
② ---- Version code (initial version is determined to be A， the battery version produced in August is B);
③ ----厂商代码；U7
③ ----Manufacturer code ; U7
④ ----生产年份；
④ ----Manufacturing year;
⑤ ----生产月份；
⑤ ----Manufacturing month;
⑥ ----生产日期；
⑥ ----Date of Manufacture;
⑦ ----产线代码；
⑦ ----Production line code;
⑧ ----生产流水号；
⑧ ----Production serial number;

6. 安规

6.Safety regulations

6.1 认证信息

6.1 Credentials

BX1101九号智能检测仪需要满足以下安规及可靠性要求：

BX1101 Smart Diagnosis Device shall conform to the following safety regulations and reliability requirements:

表6-1 安规及可靠性要求

Table 6-1 Safety Regulations and Reliability Requirements

项目 Item	执行标准及要求 Applicable Standards and Requirements	设计符合	是否出具检测报告
CE RED	/	YES	YES
FCC	/	YES	YES
REACH/POPs/TSCA/CA6/TPCH /MOAH&MOSH/RoHS2.0	/	YES	YES

6.2 安全规则

6.2 Safety Rules

请勿自行在仪器上安装替代零件，或执行任何未经授权的修改。请将仪器送到本公司指定的维修部门进行维修，以确保其安全特性。

Do not install replacement parts on the instrument yourself or perform any unauthorized modifications. Please send the instrument to our designated maintenance department for repairs to ensure its safety features.

请参考本手册中特定的警告或注意事项信息，以避免造成人体伤害或仪器损坏。仪器内部并无操作人员可维修的部件，如需维修服务，请联络受过训练的维修人员。

Please refer to the specific warning or precautionary information in this manual to avoid causing injury to persons or damage to the instrument. There are no components inside the instrument that can be serviced by the operator. For repair services, please contact trained repair personnel.

为防止触电，非本公司授权人员，严禁拆开机器。严禁将本设备使用于生命维持系统或其他任何有安全要求的设备上。我们对于使用本产品时可能发生的直接或间接财务损失，不承担责任。

To prevent electric shock, do not disassemble the machine by unauthorized personnel. Do not use this equipment in life-support systems or any other devices with safety requirements. We are not responsible for any direct or indirect financial losses that may occur during the use of this product.

7. 包装与运输

7.Packaging and transportation

产品包装符合 GB/T 3873 的有关要求。包装上有中文标识，内容包括制造厂名、产品型号、产品名称、包装箱号、毛重、装箱日期等，包装时附有产品的合格证书。

Packaging of the product shall conform to GB/T 3873 standard. Identifications in Chinese shall be attached on the packaging, specifying manufacturer, product model, product description, packaging carton number, gross weight, packing date, etc. In addition, the Quality Compliance Certificate shall be attached.

产品运输中应防雨淋、水浸，不应有剧烈震动。

During production transportation, pay attention to protect the product from rain, damp and severe impact and vibration.

FCC STATEMENT :

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

English: "

This device complies with Innovation, Science and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

1.this device may not cause interference, and

2.this device must accept any interference, including interference that may cause undesired operation of the device."

French:"

Cet appareil est conforme aux normes RSS d'Innovation, Sciences et Développement économique Canada en matière d'e xempti on de licence. Son fonc tionnement est sou mis aux deux conditions suivantes:

(1) Cet appareil n e doit pas pro voquer d'interfér ences; et

(2) Cet appareil doit accepter toute interférence, y compris celles qui peuvent entraîner unfonctionnement indésirable de l'appareil.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numér iq ue de la cla sse B est conf orm e à la norm e NMB-00 3 du Canada .

The device has be en evalua ted to meet general RF exp osur e requirem ent.

The device can be used in portable exposure condition without restriction.

L'appareil a été évalué pour répondre aux exigences générales d'exposition aux RF. L'appareil peut être utilisé sans restriction dans des conditions d'exposition portables.

Model: BX1101
Contains FCC ID:2BD7T-IF0002
IC:31821-IF0002

Radio Equipment Directive
Ninebot (Changzhou) Tech Co., Ltd. hereby declares that the product listed in this section comply with the essential
requirements and other relevant provisions of the Radio Equipment Directive 2014/53/EU.

Bluetooth	Frequency Band(s)	2.4000-2.4835GHz
	Max. RF Power	20mW