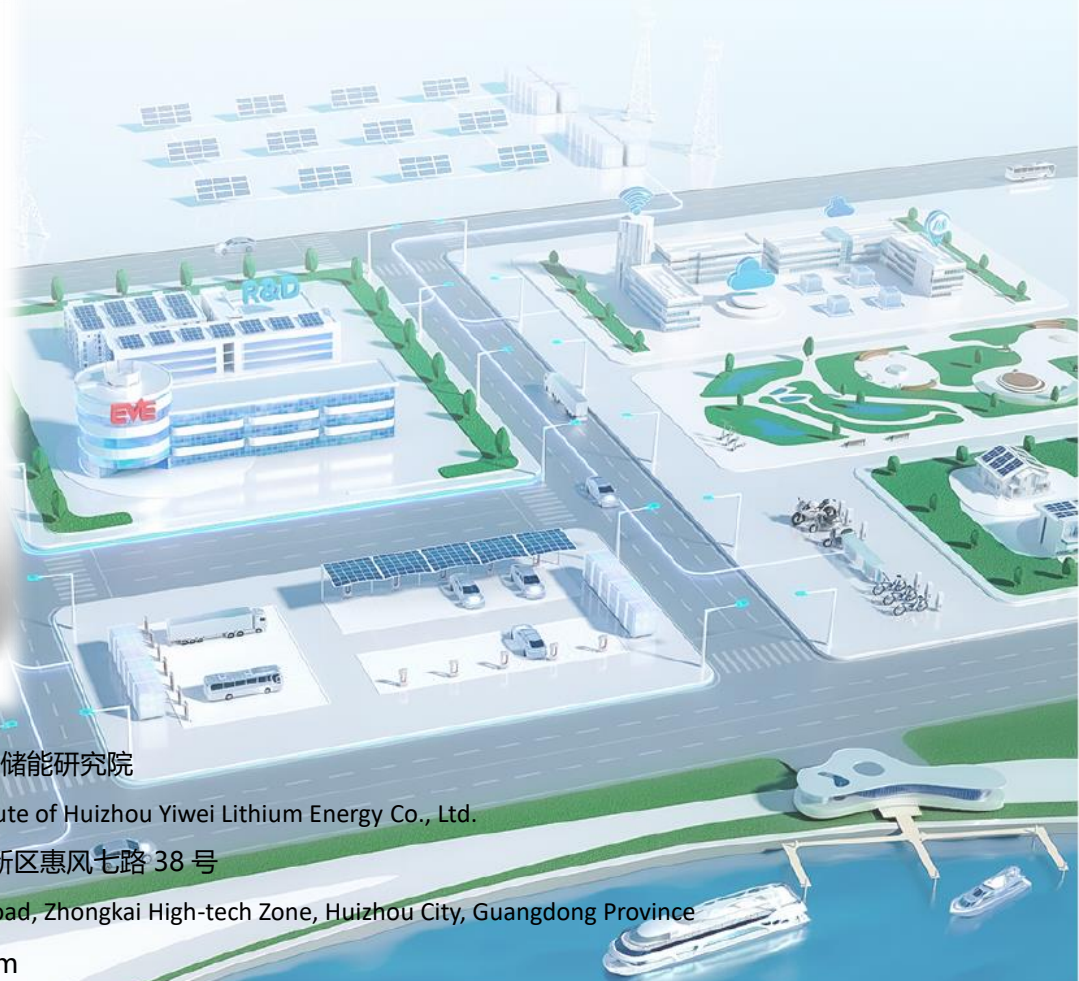
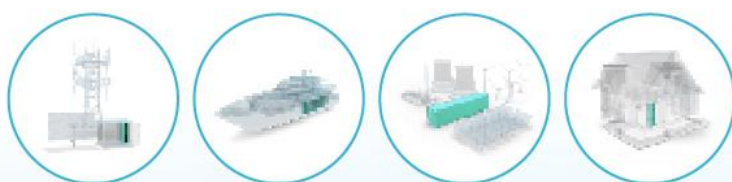


户用储能电池系统

用户手册

Battery System for Residential ESS User Manual

SR(008~048)D-314



惠州亿纬锂能股份有限公司 储能研究院

Energy Storage Research Institute of Huizhou Yiwei Lithium Energy Co., Ltd.

地址: 广东省惠州市仲恺高新区惠风七路 38 号

Address: No.38, Huifeng 7th Road, Zhongkai High-tech Zone, Huizhou City, Guangdong Province

网站: www.evebattery.com

Website: www.evebattery.com

版本 Version V1.0

◆ 前言 Foreword

📖 概述 Overview

本文档主要介绍 **SR (008~048) D-314** 储能系统的产品介绍、组网、系统运行与维护等。

This document mainly introduces the product introduction, networking, system operation and maintenance of SR (008 ~ 048) D-314 energy storage system.

📖 读者对象 Audience

本文档适用于以下人员：

This document is intended for:

- 受过专业培训、拥有资质的安装人员。
Professionally trained and qualified installers.
- 技术支持工程师。
Technical Support Engineer.

📖 图标定义 Icon definition

文档中可能用到以下图标以提示安全注意事项或关键信息。在安装与操作之前，请熟悉并掌握图标及对应定义。

The following icons may be used in documents to indicate security considerations or critical information. Familiarize yourself with the icons and their definitions before installation and operation.

符号 Symbol	说明 Explain
	表示如不可避免，则将会导致死亡或严重伤害的具有高等级风险的危害。 Indicates a hazard with a high level of risk that, if not avoided, will result in death or serious injury.
	表示如不可避免，则将会导致死亡或严重伤害的具有中等级风险的危害。 Indicates a hazard with a medium level of risk that, if not avoided, will result in death or serious injury.

 注意  Notice	表示如不可避免，则可能导致轻微或中度伤害的具有低等级风险的危害。 Indicates a hazard with a low level of risk that may result in minor or moderate injury if not avoided.
 须知 Need to know	用于传递设备或环境安全警示信息。如不可避免则可能会导致设备损坏、数据丢失、设备性能降低或其它不可预知的结果。“须知”不涉及人身伤害 It is used to transmit equipment or environmental safety warning information. Failure to do so may result in equipment damage, data loss, equipment degradation, or other unpredictable results. The Notice does not cover personal injury.
 说明 Explain	表示对正文重点信息的补充说明，不是安全警示信息，不涉及人身、设备及环境伤害信息。 It refers to the supplementary explanation of the key information in the text, not the safety warning information, not involving personal, equipment and environmental injury information.

目录 Catalog

◆ 前言 FOREWORD	1
1. 安全注意事项 SAFETY PRECAUTIONS	6
1.1 通用要求 GENERAL REQUIREMENTS	6
1.2 人员要求 1.2 PERSONNEL REQUIREMENTS	9
2. 存储运输要求 STORAGE AND TRANSPORTATION REQUIREMENTS	10
2.1 常规要求 GENERAL REQUIREMENTS	10
2.2 装卸运输要求 REQUIREMENTS FOR HANDLING AND TRANSPORTATION	11
2.3 存储要求 STORAGE REQUIREMENTS	14
3. 操作要求 OPERATIONAL REQUIREMENTS	17
3.1 安全要求 SAFETY REQUIREMENTS	19
3.2 设备安装 EQUIPMENT INSTALLATION	21
3.3 线缆连接 CABLE CONNECTION	24
3.4 高空作业要求 REQUIREMENTS FOR WORKING AT HEIGHT	26
3.5 设备维护 EQUIPMENT MAINTENANCE	28
4. 产品介绍 PRODUCT INTRODUCTION	30
4.1 产品简介 PRODUCT INTRODUCTION	30
4.2 型号说明 MODEL DESCRIPTION	33
4.3 储能容量说明 DESCRIPTION OF ENERGY STORAGE CAPACITY	36
4.4 产品外观 PRODUCT APPEARANCE	38

4.5 标签说明 LABELING INSTRUCTIONS	41
5. 产品安装 PRODUCT INSTALLATION.....	43
5.1 安装前检查 INSPECTION BEFORE INSTALLATION	43
5.2 安装环境要求 REQUIREMENTS FOR INSTALLATION ENVIRONMENT	47
5.3 安装空间要求 INSTALLATION SPACE REQUIREMENTS	49
5.4 安装位置要求 REQUIREMENTS FOR INSTALLATION POSITION	49
5.5 安装载体要求 REQUIREMENTS FOR INSTALLATION CARRIER.....	50
5.6 电池系统安装 INSTALLATION OF BATTERY SYSTEM	51
6. 电气连接 ELECTRICAL CONNECTION	54
6.1 准备线缆 CABLE PREPARATION	54
6.2 安装保护接地线 INSTALLATION OF PROTECTIVE GROUNDING WIRE	56
6.3 安装直流输入线 INSTALLATION OF DC INPUT LINE	57
6.4 安装信号线 INSTALLATION OF SIGNAL WIRE	59
7. 系统运行维护 SYSTEM OPERATION AND MAINTENANCE	61
7.1 上电前检查 INSPECTION BEFORE POWER-ON	61
7.2 系统上下电 SYSTEM POWER-ON AND POWER-OFF	62
7.3 人机交互界面 HUMAN-COMPUTER INTERACTION INTERFACE	63
7.5 低电量使用 LOW BATTERY USAGE.....	71
7.6 应急处理 EMERGENCY TREATMENT	72
8. 产品使用说明 INSTRUCTIONS FOR PRODUCT USE.....	76
9. 附录 APPENDIX	
9.1 系统参数表 SYSTEM PARAMETER TABLE	78

9.2 系统功率降容曲线 9.2 SYSTEM POWER DERATING CURVE	79
9.3 系统故障处理表 SYSTEM FAULT HANDLING TABLE	79



1. 安全注意事项 Safety precautions

1.1 通用要求 General requirements

在安装、操作和维护设备前，请熟悉与掌握本手册内容，严格按照手册内容操作，并遵循设备上标识和手册中所有安全注意事项。

Before installing, operating and maintaining the equipment, please be familiar with and master the contents of this manual, operate strictly according to the contents of the manual, and follow all the safety precautions marked on the equipment and in the manual.

手册所描述的“危险”、“警告”和“注意”事项，只作为所有注意事项的补充。

The "Danger", "Warning" and "Caution" items described in the manual are only supplementary to all precautions.

因违反安全操作要求或违反设计、生产和使用设备安全标准而造成设备损坏或财产损失，本公司不承担责任，包括但不限于以下情况：

The Company shall not be liable for equipment damage or property loss caused by violation of safety operation requirements or violation of safety standards for design, production and use of equipment, including but not limited to the following:

- 安装的环境不符合国际、国家或地区的相关标准。

The installation environment does not meet the relevant international, national or regional standards.

- 运输、安装、操作、维护设备时不遵守当地法律法规和规范。

Failure to comply with local laws, regulations and codes when transporting, installing, operating and maintaining the equipment.

- 安装的区域不符合设备要求。

The installed area does not meet the requirements of the equipment.

- 使用的线缆、工具等不符合国际、国家或地区的相关标准。

The cables and tools used do not conform to the relevant international, national or regional standards.

- 未获得所在国家、地区电力部门许可，并网运行。

It is connected to the grid without the permission of the power department of the country

or region where it is located.

- 存储条件不满足设备要求引起的损坏。

Damage caused by storage conditions that do not meet equipment requirements.

- 未按文档中的操作指导及注意事项操作。

Operation instructions and precautions in the document are not followed.

- 未按照文档的步骤顺序来进行安装、操作和维护，擅自更改安装顺序，擅自改造、加装和变更设备等。

Installation, operation and maintenance are not carried out according to the sequence of steps in the document, the installation sequence is changed without authorization, and the equipment is modified, installed and changed without authorization.

- 因配电线缆安装或走线不符合要求导致光伏组串正极或负极对地短路，在设备运行过程中可能会引起交直流短路，导致设备损坏。由此引起的设备损坏不在设备质保范围内。

If the installation or wiring of the distribution cable does not meet the requirements, the positive or negative pole of the photovoltaic string will be short-circuited to ground, which may cause AC and DC short circuit during the operation of the equipment, resulting in damage to the equipment. The resulting equipment damage is not covered by the equipment warranty.

- 未经本公司评估，在设备顶部安装其它设备。

Installation of other equipment on top of the equipment without evaluation by the Company.

- 未轻拿轻放设备，暴力安装导致设备破裂、漏液、着火或爆炸等。

The equipment is not handled with care, and the violent installation causes the equipment to break, leak, catch fire or explode.

- 未按照设备或工具上警示标签要求进行操作。

Failure to comply with warning labels on equipment or tools.

- 疏忽、不当操作或故意损坏。

Negligence, improper operation or intentional damage.

- 您或您委托的第三方运输导致的损坏。

Damage caused by transportation by you or a third party commissioned by you.

- 因客户或第三方公司，自行更换本公司设备使用的场景而造成的损坏。

The damage caused by the customer or the third party company replacing the equipment used by the company.

- 因客户或第三方公司，既未使用随箱配发附件也未购买使用同型号附件造成设备损害。

The equipment is damaged because the customer or the third party company neither uses the accessories supplied with the box nor purchases the accessories of the same type.

- 未经授权擅自拆卸、更换设备或者修改软件代码等不当操作导致设备损坏。

Unauthorized disassembly, replacement of equipment or modification of software code and other improper operations lead to equipment damage.

- 因不可抗力（如战争、地震、火灾、暴风、雷电、洪水、泥石流等）引起的设备损坏。

Equipment damage caused by force majeure (such as war, earthquake, fire, storm, lightning, flood, debris flow, etc.).

- 因设备实际运行时，自然环境或外部电力参数无法满足设备运行时的标准要求而造成的损坏（如设备实际运行温度过高或过低等）。

When the equipment is in actual operation, the natural environment or external power parameters can not meet the standard requirements of the equipment operation, resulting in damage (such as the actual operating temperature of the equipment is too high or too low).

- 设备被偷盗。

The equipment was stolen.

- 超过质保期限后，设备损坏。

The equipment is damaged beyond the warranty period.

- 严禁手指、部件、螺钉、工具或单板等接触运行中的风扇，以免伤手或损坏设备。

Do not touch the operating fan with fingers, parts, screws, tools or single boards to avoid hand injury or damage to the equipment.

- 某些负载会有比较大的启动功率和启动电流，客户需要检查负载启动功率是否大于铭牌标称的峰值输出功率，否则客户应减小负载或配置变频器。

Some loads will have relatively large starting power and starting current. The customer needs to check whether the starting power of the load is greater than the nominal peak output power on the nameplate. Otherwise, the customer should reduce the load or

configure the frequency converter.

1.2 人员要求

1.2 Personnel requirements

- 负责安装、操作、维护设备的人员，必须为专业人员或经过严格培训人员。人员操作时，禁止非相关人员靠近。

The personnel responsible for the installation, operation and maintenance of the equipment must be professionals or those who have received strict training. During the operation of personnel, it is forbidden for non-related personnel to approach.

△ **专业人员**：熟悉系统或设备构成、工作原理，参加过培训或操作过设备，熟知安装、操作、维护设备时可能产生危险的因素和危险等级的人员。

△ **Professionals**: the personnel who are familiar with the composition and working principle of the system or equipment, have participated in the training or operated the equipment, and are familiar with the factors and levels of hazards that may occur during the installation, operation and maintenance of the equipment.

△ **经过严格培训人员**：参加过相应的技术、安全培训，并拥有相关经验，能识别到操作风险，并能出具相关措施降低风险影响的人员。

△ **Personnel who have received strict training**: those who have participated in corresponding technical and safety training, have relevant experience, can identify operational risks, and can provide relevant measures to reduce the impact of risks.

- 特殊操作（如登高、对高电压设备电气操作等）时，操作人员必须有当地国家/地区要求的特种操作资质。

For special operations (such as climbing, electrical operation on high voltage equipment, etc.), the operator must have the special operation qualification required by the local country/region.

- 更换设备或部件（含软件），拆除安全设施或检修设备，必须由经过授权的专业人员操作。

The replacement of equipment or parts (including software), the removal of safety facilities or the maintenance of equipment must be operated by authorized professionals.

2. 存储运输要求 Storage and transportation requirements



注意



Notice

若设备发生跌落、机械撞击、落入水中、被水浸泡，禁止使用。

Do not use the equipment in case of falling, mechanical impact, falling into water, or being soaked in water.

若设备遭受雨雪淋袭，请经过专业人员评估后再使用。

If the equipment is hit by rain and snow, please use it after professional evaluation.

须知

Need to know

设备属于第九类危险品，已通过 UN38.3 (UN38.3: Section 38.3 of the sixth Revised Edition of the Recommendations on the Transport of Dangerous Goods: Manual of Tests and Criteria) 和 SN/T 0370.2-2009 《出口危险货物包装检验规程第 2 部分性能检验》的认证。

The equipment belongs to the ninth category of dangerous goods. Approved UN38.3 (UN38.3: Section 38.3 of the sixth Revised Edition of the Recommendations on the Transport of Dangerous Goods: Manual of Tests and Criteria) and SN/T 0370.2-2009 Rules for the Inspection of Packaging for Export Dangerous Goods Part 2: Performance Test.

2.1 常规要求 General requirements

- 搬运设备时，请穿戴好个人防护用具（如防护手套、安全鞋等）。

When handling equipment, please wear personal protective equipment (such as protective gloves, safety shoes, etc.).

- 请根据设备的重量选择合适的搬运方式。

Please select the appropriate handling method according to the weight of the equipment.

- 请按照包装上要求的方向搬运设备，禁止倒置、倾覆。

Please handle the equipment according to the direction required on the package. Do not turn it upside down or overturn it.

- 设备带包装倾斜角度 $\leq 15^\circ$ ，拆除包装后倾斜角度 $\leq 10^\circ$ 。多人搬运时，请考虑搬运人员的身高，确保搬运时设备平稳。

The inclination angle of the equipment with package is $\leq 15^\circ$, and the inclination angle after removing the package is $\leq 10^\circ$. When handling by more than one person, please consider the height of the handling personnel to ensure that the equipment is stable during handling.

- 搬运设备时，请缓慢提起或移动，以免受伤。

When handling the equipment, lift or move it slowly to avoid injury.

- 使用叉车搬运时，叉刀应放置在设备中间位置，并根据实际情况进行绑扎。移动时，需专人看护。叉刀下方禁止人员活动。

When the forklift is used for handling, the fork knife shall be placed in the middle of the equipment and shall be bound according to the actual situation. When moving, a special person should be assigned to take care of it. Personnel are prohibited to move under the fork knife.

- 请按照包装上的堆叠要求放置设备。

Place the equipment according to the stacking requirements on the package.

- 设备要放置平稳，禁止运输过程中倒置、倾斜。

The equipment shall be placed stably, and it is forbidden to invert or tilt during transportation.

- 推荐采用有防护的工具进行运输，禁止设备遭受雨淋、浸水等。

It is recommended to use protective tools for transportation, and the equipment shall not be exposed to rain, water, etc.

2.2 装卸运输要求 Requirements for handling and transportation

请按照当地的法律法规和行业标准装卸设备，禁止暴力装卸，需要轻拿轻放，否则可能导致设备破裂、漏液、着火或爆炸等。

Please load and unload the equipment according to local laws and regulations and industry standards. Violent loading and unloading is prohibited. Handle with care. Otherwise, the equipment may break, leak, catch fire or explode.

启动运输标准 Start the transport standard

- 运输前请确认设备包装完整无损，且未出现明显异味、冒烟、起火等现象，否则禁止运输
Before transportation, please confirm that the equipment package is intact, and there is no obvious odor, smoke, fire and other phenomena, otherwise it is prohibited to transport.
- 运输前，请确认设备已经放置稳固，并做好防潮措施
Before transportation, please confirm that the equipment has been placed firmly and moisture-proof measures have been taken.
- 禁止将设备与食品、药品、动物饲料等普通物品装置在同一车辆或集装箱中。[®]
It is forbidden to install the equipment in the same vehicle or container with ordinary articles such as food, medicine and animal feed.
- 若设备必须要与普通物品一同运输，请采取以下措施：
If the equipment must be transported together with ordinary items, please take the following measures:
 - △ 普通物品与设备四周间隔 $\geq 0.8\text{m}$ 。
 - △ The interval between the ordinary items and the equipment is $\geq 0.8\text{ m}$.
 - △ 使用与设备包件等高的隔离物进行隔离。
 - △ Isolate with isolators at the same height as the equipment package.
- 禁止将设备与易燃、易爆、易腐蚀的物品装置在同一车辆或集装箱中。
It is forbidden to install the equipment in the same vehicle or container with inflammable, explosive and corrosive articles.

运输过程要求 Transportation process requirements

- 请遵守国际危险货物运输规则，满足起运国、途径国、目的国当地运输监管局的监管要求
Please observe the international rules for the transport of dangerous goods and meet the regulatory requirements of the local transport regulatory authorities in the country of origin, transit and destination.
- 禁止铁路运输和空运。
Transport by rail and air is prohibited.
- 海运 请遵守《国际海运危险货物规则》(IMDG CODE) 运输要求。
For sea transportation, please comply with the transportation requirements of the International Maritime Dangerous Goods Code (IMDG CODE).

- 陆运 请遵守《欧洲关于危险货物国际公路运输的协议》(ADR) 或《危险货物道路运输规则》(JT/T 617) 运输要求。

For land transport, please follow the transport requirements of the European Agreement on the International Carriage of Dangerous Goods by Road (ADR) or the Rules for the Carriage of Dangerous Goods by Road (JT/T 617).

- 运输时，建议海运或选择路况较好的公路，运输过程中尽量减少颠簸或倾斜。

When transporting, it is recommended to transport by sea or choose roads with better road conditions to minimize bumps or inclines during transportation.

2.3 存储要求 Storage Requirements

- 存储地点应符合当地法律法规要求。

Storage location shall comply with local laws and regulations.

- 禁止拆包装存储设备。如果设备已拆开外包装且不立即投入使用，请将设备装入其原包装内且保留干燥剂，用胶带进行密封。

Do not unpack storage equipment. If the equipment has been unpacked and is not ready for immediate use, pack the equipment in its original packaging and seal with tape, retaining the desiccant.

- 禁止将电池包与其他物品混合存放。电池包存储地点须放置符合要求的灭火器等消防设施。

Do not mix the battery pack with other items. Fire fighting facilities such as fire extinguishers that meet the requirements shall be placed in the storage place of the battery pack.

- 禁止将设备放置在阳光直射、潮湿、凝露、脏污、雨淋、易燃、易爆、易腐蚀等环境中。

It is forbidden to place the equipment in the environment of direct sunlight, moisture, condensation, dirt, rain, inflammable, explosive and corrosive.

- 存储期间，请定期检查（建议三个月检查一次）。存储地点请做好防虫、防鼠等措施。如发现存在由于虫蛀鼠咬等造成包装损坏，请及时更换包装。

During storage, please check regularly (it is recommended to check once every three months). Please take measures to prevent insects and rats in the storage place. If the package is found to be damaged due to insect and rat bites, please replace the package in time.

- 设备存储时，请按照包装上的存放要求正确放置设备。

When storing the equipment, please place the equipment correctly according to the storage requirements on the package.

- 设备在室外临时存放时，禁止在栈板上进行堆叠存放，且需要防护（如配置防雨布等），避免设备遭受雨雪、积水等侵蚀。

When the equipment is temporarily stored outdoors, it is forbidden to stack the equipment on the pallet, and protection is required (such as waterproof cloth) to prevent the

equipment from being eroded by rain, snow, water, etc.

- 设备存储期间，请定期对存放环境的温度、湿度等进行记录。

During the storage of the equipment, please record the temperature and humidity of the storage environment regularly.

- 存储温度：-25°C~60°C，推荐 20°C~30°C。

Storage temperature: -25°C~60°C, 20°C~30°C is recommended.

- 相对湿度：5%RH~95%RH。若电池包接口有潮湿凝露情况时，禁止安装使用。

Relative humidity: 5% RH ~ 95% RH. If the battery pack interface is wet and condensed, it is forbidden to install and use it.

- 电池包存储前，请确认电池包电量为 40%±5% SOC。

Before storing the battery pack, please confirm that the battery pack charge is 40% ± 5% SOC.

- 若您的设备已存储 > 2 年时，请经过专业人员的检查和测试后再投入使用。

If your equipment has been stored for > 2 years, please check and test it by a professional before putting it into use.

- 电池包存储时，库房管理人员需要每月统计并通报库存情况。接近补电周期时，请及时安排补电。

When the battery pack is stored, the warehouse management personnel shall make statistics and report the inventory situation every month. When the power supply cycle is approaching, please arrange the power supply in time.

存储温度要求 Storage temperature requirements	补电周期 Power supply cycle
$T \leq -20^{\circ}\text{C}$	不允许 Not allowed
$-20^{\circ}\text{C} < T \leq 20^{\circ}\text{C}$	6 个月 Six months
$20^{\circ}\text{C} < T \leq 35^{\circ}\text{C}$	12 个月 12 months
$35^{\circ}\text{C} < T \leq 45^{\circ}\text{C}$	6 个月 Six months
$45^{\circ}\text{C} < T$	不允许 Not allowed

- 电池包存储时间以外包装上出货时间为计算起点，电池补充电合格后，刷新最近一次充电时间（建议记录 xx 年 xx 月 xx 日）。

The storage time of the battery pack shall be calculated from the delivery time on the outer package. After the battery is recharged and qualified, the latest charging time shall be refreshed (it is recommended to record XX, XX, XX).

- 不建议电池包超期存储，在推荐的存储温度下存储，首年 12 个月后，一般不可逆容量损失为 3%~10%。若电池包超期存储时，需经过专业人员的检查和测试后方可投入使用。

It is not recommended to store the battery pack beyond the time limit. When the battery pack is stored at the recommended storage temperature, the irreversible capacity loss is generally 3% ~ 10% after 12 months of the first year. If the battery pack is stored beyond the time limit, it shall be inspected and tested by professionals before it can be put into use.

- 设备出货时，请遵循先进先出原则。

Please follow the first-in first-out principle when shipping the equipment.

3. 操作要求 Operational requirements

危险 ! Danger

- 禁止带电操作（包含但不限于安装、接线、更换等）。在操作前，请确保设备所有供电电源已断开，包含但不限于电网侧、逆变器和柴油发电机电源开关。带电操作可能造成火灾、电击、电弧或爆炸，导致人员伤亡或财产损失。

Live operation (including but not limited to installation, wiring, replacement, etc.) is prohibited. Before operation, please ensure that all power supplies of the equipment are disconnected, including but not limited to the power switches of the grid side, inverter and diesel generator. Live operation may cause fire, electric shock, electric arc or explosion, resulting in personal injury or property damage.

- 禁止在未完成安装或未经专业人员评估的情况下给设备上电。

It is forbidden to power up the equipment without completing the installation or evaluating it by a professional.

- 禁止在恶劣天气时（包含但不限于雷电、雨、雪、台风等）操作设备。

It is forbidden to operate the equipment in bad weather (including but not limited to lightning, rain, snow, typhoon, etc.).

- 禁止将设备长时间暴露于高温环境或发热源长时间在设备周围（如日照、火源、取暖器等）。

It is forbidden to expose the equipment to high temperature environment for a long time or the heating source is around the equipment for a long time (such as sunshine, fire source, heater, etc.).

- 禁止用水、酒精、油等清洗或浸泡设备，以免造成设备漏电等。

It is forbidden to clean or soak the equipment with water, alcohol, oil, etc., so as to avoid electric leakage of the equipment.

- 禁止撞击、拖动或踩踏设备。若意外发生撞击，请立即停止使用设备并及时您的销售代理商，设备经专业人员检查评估后方可继续使用。

Do not hit, drag, or step on the device. In case of accidental impact, please stop using the equipment immediately and contact your sales agent in time. The equipment can only be

used after being checked and evaluated by professionals.

- 操作设备前，请检查设备无损坏。若有异常（如外观变形、有异味等），请及时联系您的销售代理商处理，禁止自行拆解设备。

Before operating the equipment, check that it is not damaged. If there is any abnormality (such as appearance deformation, odor, etc.), please contact your sales agent in time to deal with it. It is forbidden to disassemble the equipment by yourself.

- 操作设备时，发现设备异常或出现可能导致人身伤害的情况时（如外观变形、有异味、电弧等），请立即停止操作，及时向负责人反馈，并采取有效措施。

When operating the equipment, in case of equipment abnormality or conditions that may cause personal injury (such as appearance deformation, odor, arc, etc.), please stop operation immediately, report to the person in charge in time, and take effective measures.

- 操作设备时，请穿戴绝缘手套、绝缘鞋、安全帽等防护用具。禁止佩戴金属手镯、戒指、项链等导电饰品。

When operating the equipment, please wear insulating gloves, insulating shoes, safety helmet and other protective equipment. It is forbidden to wear metal bracelets, rings, necklaces and other conductive jewelry.

- 安装、接线时，请使用绝缘工具。

During installation and wiring, please use insulated tools.

- 需要接地的设备永久连接保护地。连接线缆时，必须首先连接保护地线；更换设备时，必须最后拆除保护地线。

Equipment requiring grounding shall be permanently connected to the protective earth. When connecting the cable, the protective ground wire must be connected first; when replacing the equipment, the protective ground wire must be removed last.

- 禁止徒手或使用导体、潮湿物体接触设备端子。接触设备端子之前，测量接触点电压，确保无电击危险。

It is forbidden to touch the equipment terminals with bare hands or with conductors or wet objects. Before touching the terminals of the equipment, measure the voltage at the contact point to ensure that there is no risk of electric shock.

- 操作设备过程中，禁止将异物掉落至设备内部，否则可能导致设备短路故障或损坏、负载供电降额或掉电，甚至人身伤害。

In the process of operating the equipment, it is forbidden to drop foreign matters into the equipment, otherwise it may cause short circuit failure or damage of the equipment, derating or power failure of the load power supply, or even personal injury.

- 设备表面出现油漆划伤，请及时进行补漆。

If the surface of the equipment is scratched by paint, please repair the paint in time.

3.1 安全要求 Safety requirements

危险 ! Danger

- 禁止设备长时间暴露于高温环境或发热源长时间在设备周围（如日照、火源、取暖器等）
It is forbidden to expose the equipment to high temperature environment for a long time or the heating source is around the equipment for a long time (such as sunshine, fire source, heater, etc.).
- 禁止用水、酒精、油等清洗或浸泡设备，以免造成设备漏电等。
It is forbidden to clean or soak the equipment with water, alcohol, oil, etc., so as to avoid electric leakage of the equipment.
- 禁止敲打、撞击设备。若意外发生撞击，请立即停止使用设备并及时您的安装商或销售代理，设备经专业人员检查评估后方可继续使用。
Do not knock or strike the equipment. In case of accidental impact, please stop using the equipment immediately and contact your installer or sales agent in time. The equipment can only be used after being checked and evaluated by professionals.

警告 Warning

- 禁止停用设备中的保护装置，包括但不限于防护盖、防雷器等。
It is forbidden to disable the protective devices in the equipment, including but not limited to protective covers, lightning protection devices, etc.
- 设备运行时，散热区域处温度较高，请勿触摸。
When the equipment is running, the temperature in the heat dissipation area is high, so do not touch it.

- 设备运行时，禁止盖住散热区域，保持 300mm ~ 600mm 的散热通道，以免高温起火。

When the equipment is running, it is forbidden to cover the heat dissipation area and keep the heat dissipation channel of 300 mm ~ 600 mm to avoid high temperature fire.



注意



Notice

- 禁止使用有破损或不合格的线缆、工具，操作设备前，请检查所用线缆、工具应符合要求，并进行登记；完成操作后，进行清点回收，避免遗落在设备内，造成安全隐患。

It is forbidden to use damaged or unqualified cables and tools. Before operating the equipment, please check that the cables and tools used meet the requirements and register them. After completing the operation, check and recycle them to avoid leaving them in the equipment and causing potential safety hazards.

- 操作设备时，请遵守所在国家、地区电站安全规范，包括但不限于执行操作票、工作票等。

When operating the equipment, please comply with the safety regulations of the power station in the country and region, including but not limited to the execution of operation tickets, work tickets, etc.

- 推荐场所中备二氧化碳灭火器或 ABC 干粉灭火器。

Carbon dioxide fire extinguishers or ABC dry powder fire extinguishers are recommended.

- 非工作人员禁止进入操作场所，请在操作场所周围加装临时围栏或警示绳，并悬挂“非工作人员禁止进入”等相关标识牌。

Non-working personnel are not allowed to enter the operation site. Please install temporary fences or warning ropes around the operation site and hang relevant signboards such as "Non-working personnel are not allowed to enter".

- 禁止人为遮挡、破坏设备上的警示标识或铭牌，若发现警示标识或铭牌由于长期使用有破损、不清晰，请及时更换。

It is forbidden to block or destroy the warning signs or nameplates on the equipment. If the warning signs or nameplates are damaged or unclear due to long-term use, please replace them in time.

- 操作、维护设备前，请检查设备顶部是否有积水、积雪或其他杂物，若有，请先清理。

Before operating and maintaining the equipment, please check whether there is water, snow or other debris on the top of the equipment. If there is, please clean it first.

禁止设备用于以下场景 Prohibit devices from being used in the following scenarios:

- 连接公共基础设施设施（如红绿灯、安保系统等）。
Connect public infrastructure facilities (such as traffic lights, security systems, etc.).
- 连接急救医疗设施。
Connect to emergency medical facilities.
- 连接电梯等控制设备。
Connect control equipment such as elevators.
- 任何其他类似场景等。
Any other similar scenario, etc.

3.2 设备安装 Equipment installation



- 安装设备前，请检查出厂安装的螺钉是否紧固。设备出厂前，紧固后的螺钉会画线标记，若标记错位，说明螺钉松动，请重新紧固。
Before installing the unit, check that the factory-installed screws are tight. Before the equipment leaves the factory, the tightened screws will be marked with lines. If the marks are misaligned, it means that the screws are loose. Please tighten them again.
- 搬运设备时，请做好承重准备，请勿滑落，避免砸伤。
When handling the equipment, please be prepared to bear the weight, and do not slip down to avoid injury.

梯子使用安全 The ladder is safe to use

- 禁止未经培训或指导的人员使用梯子
Use of ladders by untrained or uninstructed personnel is prohibited.

- 禁止使用不合格的梯子（包括但不限于破损、断裂、变形、临时制作的梯子等）。

It is forbidden to use unqualified ladders (including but not limited to damaged, broken, deformed and temporarily manufactured ladders).

- 禁止使用不符合承重要求的梯子。

Do not use a ladder that does not meet the load bearing requirements.

- 当可能涉电登高操作时，请使用木梯或玻璃钢梯。

Please use a wooden ladder or a glass steel ladder when the operation may involve electricity.

- 使用一字梯时，梯子的倾斜度为 $60^{\circ} \sim 70^{\circ}$ 。

When a straight ladder is used, the gradient of the ladder shall be $60^{\circ} \sim 70^{\circ}$.

- 在梯子上操作时，禁止高空抛物。

When operating on a ladder, it is forbidden to throw objects from a high place.

- 在梯子上操作时，建议有一人监护。

When operating on a ladder, it is recommended to have one person to supervise.

- 在通道门口使用梯子时，需锁门。

Lock the door when using the ladder at the entrance of the passage.

吊装安全 Hoisting safety

- 进行吊装作业的人员需经过相关培训，合格后方可上岗。

The personnel conducting the hoisting operation shall be trained and qualified before taking the post.

- 吊装区域需竖立临时警示标识或栅栏进行隔离。

Temporary warning signs or fences shall be erected in the hoisting area for isolation.

- 进行吊装作业的地基必须满足吊车工作的承重要求。

The foundation for lifting operation must meet the bearing requirements of the crane.

- 吊装前，确保吊装工具牢固固定在符合承重标准的固定物或墙上。

Before lifting, make sure that the lifting tool is firmly fixed to a fixed object or wall that meets the load-bearing standard.

- 吊装时，严禁在吊臂、吊装物下方走动。

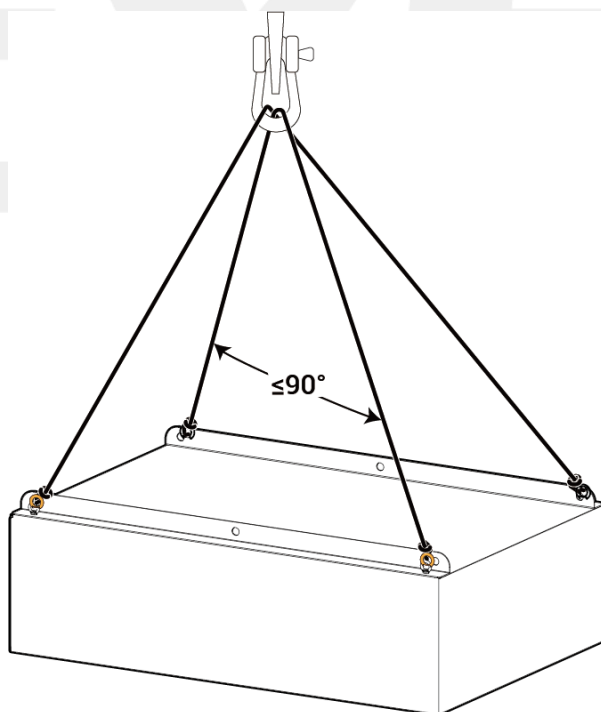
During hoisting, it is strictly prohibited to walk under the boom and the hoisted object.

- 吊装时，禁止拖拽钢丝绳、吊具，禁止使用硬物撞击。

When hoisting, it is forbidden to drag the wire rope and lifting tools, and it is forbidden to use hard objects to impact.

- 吊装过程中，选用符合产品承重要求的缆绳，并确保每条缆绳穿过吊钩后的夹角不超过 90° ，如下图所示。

During the lifting process, select the cables that meet the product bearing requirements, and ensure that the included angle of each cable after passing through the hook does not exceed 90° , as shown in the following figure.



钻孔安全 Drilling is safe

- 禁止在设备上进行钻孔。

Drilling on the equipment is prohibited.

- 钻孔时应佩戴护目镜和保护手套。

Wear goggles and protective gloves when drilling.

- 钻孔时，禁止将设备放置在打孔位置周围，避免碎屑掉入设备内部。

When drilling, do not place the equipment around the drilling position to prevent debris from falling into the equipment.

- 钻孔后，请及时清扫。

After drilling, please clean it in time.

3.3 线缆连接 Cable connection



- 在接线前，请确认设备无损坏，否则可能造成电击或起火

Before wiring, make sure that the equipment is not damaged, otherwise it may cause electric shock or fire.

- 连接或拆除接线前，请确认设备前后级开关和自身开关均已断开。

Before connecting or removing the wiring, make sure that the front and rear switches of the equipment and its own switches are disconnected.

- 禁止线缆互相缠绕或交叉不放，建议线缆分类绑扎。如发现电源线长度不够时，须重新更

换电源线，严禁在电源线中做接头或焊点。

It is forbidden to twist or cross the cables. It is recommended to bind the cables by classification. If it is found that the length of the power cord is not enough, the power cord must be replaced. It is strictly prohibited to make connectors or solder joints in the power cord.

- 线缆须垂直接入设备，避免端子因横向受力而损坏。

The cable must be connected to the equipment vertically to prevent the terminal from being damaged due to lateral force.

- 禁止在设备进、出风口进行走线。

It is forbidden to conduct wiring at the air inlet and outlet of the equipment.

- 禁止使用绝缘层破损的线缆，线缆过孔位置不可存在锐边、毛刺等。如发现线缆长度不够，请更换线缆，禁止使用焊接等方式延长线缆。

It is forbidden to use the cable with damaged insulation layer, and there shall be no sharp edge or burr at the position of cable through hole. If it is found that the length of the cable is not enough, please replace the cable. It is forbidden to extend the cable by welding.

- 设备接地阻抗应满足国家、地区标准要求。

The grounding impedance of the equipment shall meet the requirements of national and regional standards.

- 当布线方式或环境温湿度等有变化时，请参照 IEC-60364-5-52 或者当地法规和规范进行线缆选型验证。

When there is a change in the wiring method or ambient temperature and humidity, please refer to IEC- 60364-5-52 or local regulations and specifications for cable selection verification.

- 线缆远离发热源 $\geq 100\text{mm}$ ，避免高温环境加速线缆老化。

The cable shall be kept away from the heating source $\geq 100\text{ mm}$ to avoid accelerating the aging of the cable in high temperature environment.

- 环境温度越低，线缆塑胶外皮脆性越大。为避免安装过程中外皮开裂，请在 0°C 以上安装，搬运线缆时，轻拿轻放。若线缆长时间在 0°C 以下的环境中，请将线缆移至 0°C 以上环境中存储 24h 以上后再使用。

The lower the ambient temperature is, the more brittle the cable plastic sheath is. In order to avoid outer skin cracking during installation, please install above 0°C and handle the cable with care. If the cable is in the environment below 0°C for a long time, please move the cable to the environment above 0°C and store it for more than 24 hours before use.

- 安装线缆前，请确定线缆已经做好标签，做好绝缘措施，且标识正确；接线时请按照标识

及安装指导正确、完整接线。

Before installing the cable, please make sure that the cable has been labeled and insulated, and the identification is correct; during wiring, please follow the identification and installation instructions for correct and complete wiring.

- 埋地布线时，请使用支架和电缆线夹固定线缆；回填泥土前，建议线缆预留出适当的长度，回填泥土的区域保证线缆与地面紧密贴合，避免填埋时线缆受力造成端子变形、损坏或松脱。

During buried wiring, please use brackets and cable clamps to fix the cables; before backfilling the soil, it is recommended to reserve a proper length for the cables, and the backfilled soil area shall ensure that the cables are closely attached to the ground, so as to avoid terminal deformation, damage or loosening caused by cable stress during burying.

- 安装设备时，需选用合适量程的力矩工具将螺钉拧紧。使用扳手拧紧时，须确保扳手不歪斜，且力矩值误差不超过规定的 10%。

When installing the equipment, it is necessary to select a torque tool with appropriate range to tighten the screws. When tightening with a wrench, make sure that the wrench is not skewed and the error of the torque value does not exceed the specified 10%.

3.4 高空作业要求 Requirements for working at height

- 高空作业必须满足当地高空操作法规的要求。

Work at height must meet the requirements of local regulations for working at height.

- 高处作业人员应严格按照高空安全规定进行作业，对违反高空安全作业规定而造成的事故本公司概不负责。

The personnel working at heights shall operate in strict accordance with the high-altitude safety regulations, and the company shall not be responsible for the accidents caused by violation of the high-altitude safety operation regulations.

- 在距离地面 2 米以上进行的作业，都属于高空作业。

Operations carried out more than 2 meters above the ground belong to high-altitude operations.

- 遇以下情况之一者，禁止在高空作业：钢管雨水未干，以及可能发生危险的其他情况。

In case of one of the following circumstances, it is prohibited to work at heights: the steel pipe is not dried by rain, and other circumstances that may cause danger.

- 高空作业前，应仔细检查登高工具和安全用具，如安全帽、安全带、梯子、跳板、脚手架、起重设备等，如有不符合要求的应立即改进或拒绝高空作业。

Before working at heights, carefully check the climbing tools and safety appliances, such as safety helmet, safety belt, ladder, springboard, scaffold, lifting equipment, etc. If they do not meet the requirements, they should immediately improve or refuse to work at heights.

- 高空作业现场，应划出危险禁区，设置明显标志，严禁无关人员进入。

The dangerous restricted area shall be marked on the high-altitude operation site, and obvious signs shall be set up to prohibit irrelevant personnel from entering.

- 高空作业的沿口、孔洞处，应设护栏和标志，防止失足踏空。

Guardrails and signs shall be set up at the edges and holes of high-altitude operation to prevent missing.

- 高空作业区的下方地面，严禁堆放脚手架，跳板，其他杂物。地面人员严禁在高空作业区的正下方停留或通行。

Scaffolds, springboards and other sundries are not allowed to be stacked on the ground below the aerial work area. Personnel on the ground are strictly prohibited to stay or pass directly below the high-altitude operation area.

- 应尽量避免上下层同时进行作业。如无法避免时，上下层之间必须设专用防护棚或采取其他防护措施，且上层严禁堆放工具、物料等杂物。

The simultaneous operation of upper and lower layers shall be avoided as far as possible. If it is unavoidable, a special protective shed or other protective measures must be taken between the upper and lower layers, and it is strictly prohibited to stack tools, materials and other sundries on the upper layer.

- 做好安全防护工作，佩戴安全帽、安全带或腰绳，系在牢固结实的结构件上，严禁挂在移动的不牢固的物体上或有锋利棱角的金属上，防止挂钩滑脱发生坠落事故。

Do a good job of safety protection, wear safety helmet, safety belt or waist rope, tie it to a firm and solid structural part, and do not hang it on a moving object that is not firm or on a metal with sharp edges and corners, so as to prevent the hook from slipping and falling.

- 携带好操作器械及工具，防止工具坠落砸伤他人。

Carry operating instruments and tools to prevent them from falling and injuring others.

- 严禁高空作业人员从高空向地面抛掷物件，严禁从地面向高空抛掷物件，应采用强索、吊篮、高架车或吊车等传送物件。

It is strictly prohibited to throw objects from high altitude to the ground. It is strictly prohibited to throw objects from the ground to high altitude. The objects shall be conveyed by strong ropes, hanging baskets, overhead vehicles or cranes.

- 严禁在高空作业时嬉笑打闹，严禁在高空作业区休息。

It is strictly prohibited to laugh and play when working at heights, and it is strictly prohibited to rest in the working area at heights.

- 高空作业完成后，需将现场登高工具、安全用具和防护用具等其他杂物清理或带离现场，并将现场恢复原状态。

After the work at heights is completed, the site climbing tools, safety appliances, protective appliances and other sundries shall be cleaned or taken away from the site, and the site shall be restored to its original state.

3.5 设备维护 Equipment maintenance

- 维护或更换设备前，必须将设备下电，并按照设备的延时标签等待足够的时间后方可操作

Before the equipment is maintained or replaced, the equipment must be powered off and operated after waiting for enough time according to the time delay label on the equipment.

- 当维护供电设备后级的用电或者配电设备时，需要断开供电设备对应的输出开关。

When maintaining the power consumption or power distribution equipment behind the power supply equipment, the corresponding output switch of the power supply equipment needs to be disconnected.

- 当维护供电设备后级的配电或者用电设备时，需要断开供电设备对应的输出开关，如维护负载设备，需要断开负载所连接的电源开关。

When maintaining the post-stage power distribution or electrical equipment of the power supply equipment, it is necessary to disconnect the output switch corresponding to the power supply equipment. For example, when maintaining the load equipment, it is necessary to disconnect the power switch connected to the load.

- 维护设备时，在前后级开关或断路器上悬挂“禁止闭合”等相关标识，并贴示警示牌，防止意外连接。故障完全排除或更换操作结束后，设备方可上电继续使用。

During equipment maintenance, relevant signs such as "No Closing" shall be hung on the front and rear switches or circuit breakers, and warning signs shall be posted to prevent accidental connection. After the fault is completely eliminated or the replacement operation is completed, the equipment can be powered on and continue to use.

- 若发现线缆受损，请由专业人员进行更换。

If the cable is found to be damaged, have it replaced by a professional.

4. 产品介绍 Product introduction

4.1 产品简介 Product introduction

➤ 产品特点 Product features

灵活配置，自由组合 Flexible configuration and free combination

- 模块化设计，可实现快速安装。
Modular design for quick installation.
- 可调式高度站脚，减震防滑，高容错安装。
Adjustable height feet, shock absorption and anti-slip, high fault-tolerant installation.
- 支持新旧电池包混用，灵活扩容。
Support the mixing of new and old battery packs and flexible capacity expansion.
- 高扩容能力，支持 8 簇并机，最大可达 384kWh。
High capacity expansion capability, supporting 8 clusters of parallel machines, up to 384kWh.
- 适配市场大多数主流逆变器，可进行自由搭配。
It adapts to most mainstream inverters in the market and can be freely matched.



图 4.1 产品示意图
Figure 4.1 Product Diagram

多重安全防护 Multiple security protections

- 独立的电芯温度监测（1:1 电芯温度检测，实时监控电芯安全）
Independent battery core temperature monitoring (1:1 battery core temperature detection, real-time monitoring of battery core safety)
- 独立的输出排温度监测（配置 2 个独立 NTC 进行输出排温度检测）
Independent output row temperature monitoring (with 2 independent NTCs for output row temperature detection)

- 纳米级隔热材料（单芯过温失效，互不影响）

Nano-scale thermal insulation material (single core failure due to over-temperature, not affecting each other)

- PACK 级应急消防（内置带 V-Mark 标识的消防模块，通过 UL 认证要求，如遇火情，可在 15 秒内检测并完成灭火，第一时间切断风险）

PACK-level emergency fire protection (built-in fire protection module with V-Mark logo, through UL certification requirements, in case of fire, it can detect and complete fire extinguishing within 15 seconds, and cut off the risk at the first time)

- 电气分舱，双舱运行（实现 BMS 与电池的物理隔离，隔热控温，防火防爆）

Electrical compartment division and double-compartment operation (to realize physical isolation between BMS and battery, heat insulation and temperature control, fire and explosion prevention)

- BMS+双向 DC/DC 主动智能电池管理（过流、过压、短路、反接多重功能保护，高隔离防护型变压器，多重电路开关保护）

BMS + bidirectional DC/DC active intelligent battery management (overcurrent, overvoltage, short circuit, reverse connection multi-function protection, high isolation protection transformer, multi-circuit switch protection)

高性能 PACK

High performance PACK

- EVE 高品质自研电芯（行业领先 LFP（磷酸铁锂）电芯，通过全方位严苛筛选检测，包括 1/8 生命周期循环测试与穿刺测试。可靠承诺，顶级保障，从“芯”开始）

EVE's high-quality self-developed battery core (industry-leading LFP (lithium iron phosphate) battery core) has passed all-round rigorous screening and testing, including 1/8 life cycle test and puncture test. Reliable commitment, top guarantee, starting from "core")

- 可靠运行，快充快放（独立模块管理，额定功率达到 4kW，最大支持 1.5 倍峰值功率带载 10s，每簇储能系统最大充放功率可达 24kW，性能突破，带来效率提升）

Reliable operation, fast charging and discharging (independent module management, rated power up to 4kW, maximum support for 1.5 times peak power with load for 10 s, maximum charging and discharging power of cluster energy storage system up to 24 kW, performance breakthrough, efficiency improvement)

- -20℃~50℃宽温域运行（支持-20℃环境稳定运行，1h 内完成低温加热）

-20℃ ~ 50℃ wide temperature range operation (support stable operation in -20 °C environment, complete low temperature heating within 1H)

- IP65 高防护性能（超高级别防水防尘，无惧户外复杂环境）

IP65 high protection performance (super high level waterproof and dustproof, no fear of outdoor complex environment)

- BMS+双向 DC/DC 主动智能电池管理（通过充放电电流精准调控技术，可自动实现电池组内各电池包的能量动态均衡）

BMS + bidirectional DC/DC active intelligent battery management (through the precise control technology of charging and discharging current, it can automatically realize the dynamic energy balance of each battery pack in the battery pack)

- 已通过 UN38.8、IEC61000、IEC62619、IEC62477 认证。

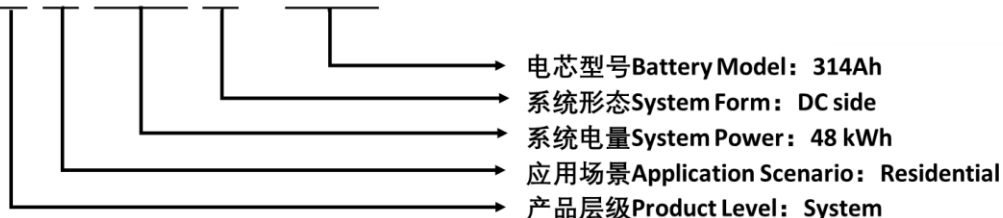
It has passed UN38.8, IEC61000, IEC62619 and IEC62477 certification.

4.2 型号说明 Model description

📖 储能电池系统型号为：SR (008~048) D-314

Model of energy storage battery system: SR (008 ~ 048) D-314

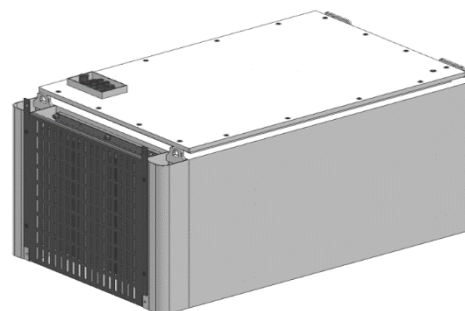
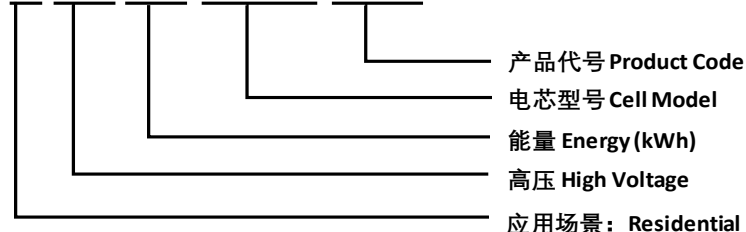
S R 048 D - 314



No	描述 Description	备注 Remark
1	产品标识 Product identification	SR: 户用储能系统 Residential Energy Storage System
2	能量等级 Energy level	008: 8kWh 016: 16kWh 024: 24kWh 032: 32kWh 040: 40kWh 048: 48kWh
3	系统形态 System form	D: 储能电池 Energy storage battery
4	电芯代号 Cell code	314: 电芯代号 cell code

📖 电池 PACK 型号为 Battery model: RHV8.0-MB31-V1.0

R HV 8.0-MB31-V1.0



📖 电池 PACK 技术参数表 Battery PACK Technical Parameter Table

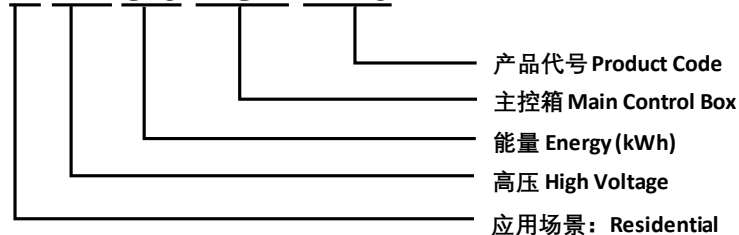
NO	项目类型 Type of project	规格描述 Specification description	备注 Remark
1	额定容量 Rated capacity	314Ah	
2	标称电池电压 Nominal battery voltage	25.6V	1P8S
3	额定输出电压 Rated output voltage	450~850V	
4	标称电量 Nominal quantity of electricity	8.0kWh	
5	额定功率 Rated power	4kW	
6	最大峰值功率 Maximum peak power	6kW_10s	
7	电池内阻 Battery internal resistance	≤15mΩ	25±2°C, AC 1KHz
8	运行环境温度 Operating ambient temperature	-20°C~50°C	
9	工作湿度 Operating humidity	5%~85%	No Condensate
10	尺寸 Size	640*388*300mm	
11	重量 Weight	73±2kg	
12	IP 等级 IP rating	IP65	系统层级 System level
13	设计寿命	10 years	

	Design life	
14	认证要求 Certification requirements	UN38.8, IEC62619, IEC61000, IEC62477

主控箱型号为: RHV8.0-BOX-V1.0

Model of main control box: RHV 8.0-BOX-V1.0

R HV 8.0-BOX-V1.0



主控箱技术参数表

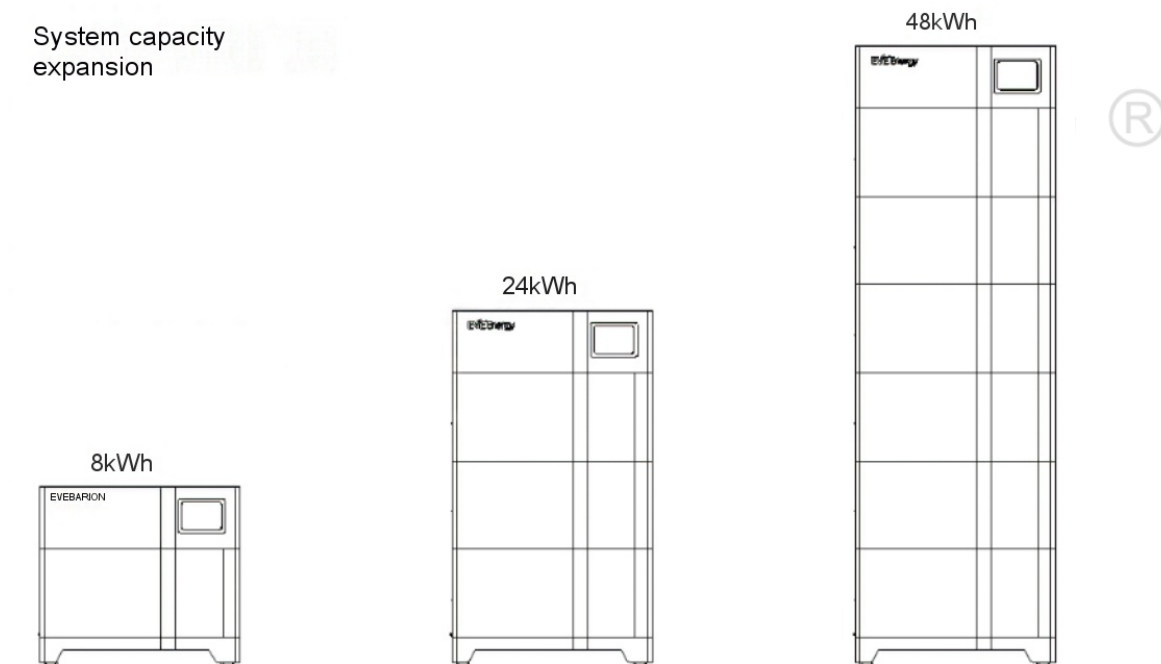
Technical parameter table of main control box

NO	项目类型 Type of project	规格描述 Specification description	备注 Remark
1	电池类型 Battery pack type	RHV8.0-MB31-V1.0	Battery Connection
2	电池数量 number of battery pack	1~6 pcs	
3	电压范围 voltage range	450~850V	
4	最大允许工作电流 Maximum current	80A	Charge and Discharge
5	运行环境温度 Operating temperature	-20°C~50°C	
6	工作湿度 Operating humidity	5%~95%	No Condensate
7	通信方式 Communication mode	CAN/RS485	
8	尺寸 Size	640*388*198mm	
9	重量 Weight	14±3kg	
10	IP 等级 IP rating	IP65	系统层级 System level
11	设计寿命 Design life	10 years	

4.3 储能容量说明 Description of energy storage capacity

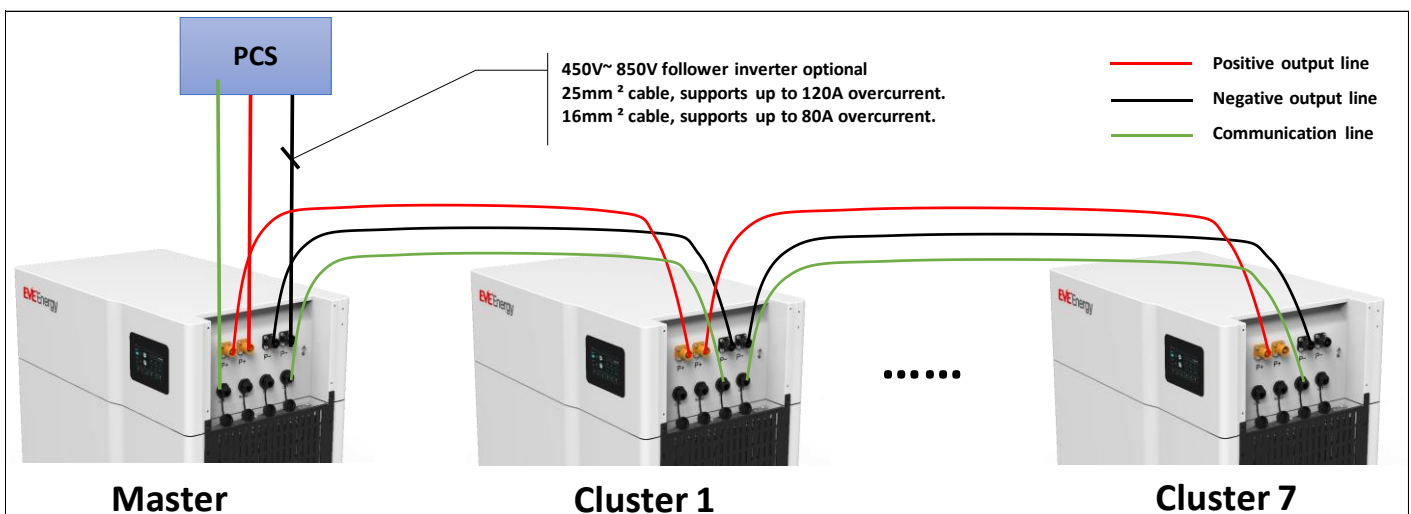
单簇系统容量扩展：一个电池模块容量为 8.0kWh，最多可以支持 6 个电池模块扩展。

Capacity expansion of single cluster system: the capacity of one battery module is 8.0 kWh, which can support the expansion of up to 6 battery modules.



多簇并机容量扩展：单个储能系统容量为 48.0kWh，最大可支持 8 个储能系统并机。

Multi-cluster parallel capacity expansion: the capacity of a single energy storage system is 48.0 kWh, which can support up to 8 parallel energy storage systems.



扩展说明 Extended description:

- 当 PACK 数量 ≤ 6 PCS 时，按单个储能系统进行堆叠使用；

When the number of PACKs is ≤ 6 PCS, they shall be stacked for use as a single energy storage system;

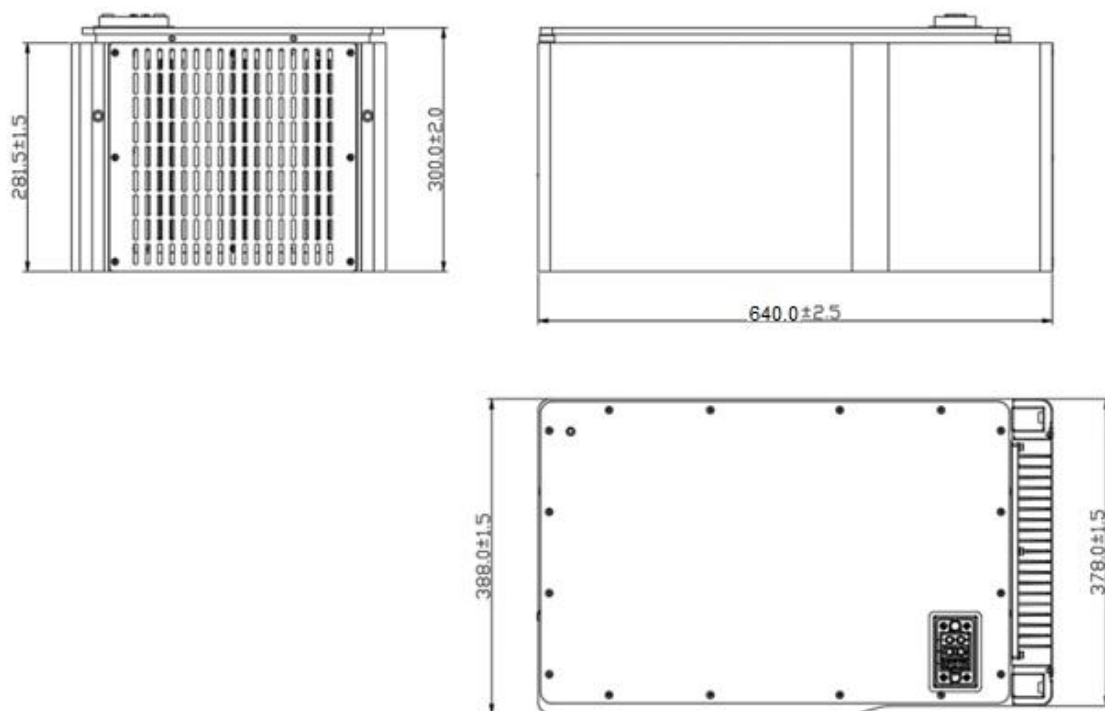
- 当 PACK 数量 > 6 PCS 时，需按上图所示进行并机，不同簇的 PACK 不需要数量一致。

When the number of PACKs is more than 6 PCS, parallel operation shall be performed as shown in the figure above. The number of PACKs of different clusters does not need to be the same.

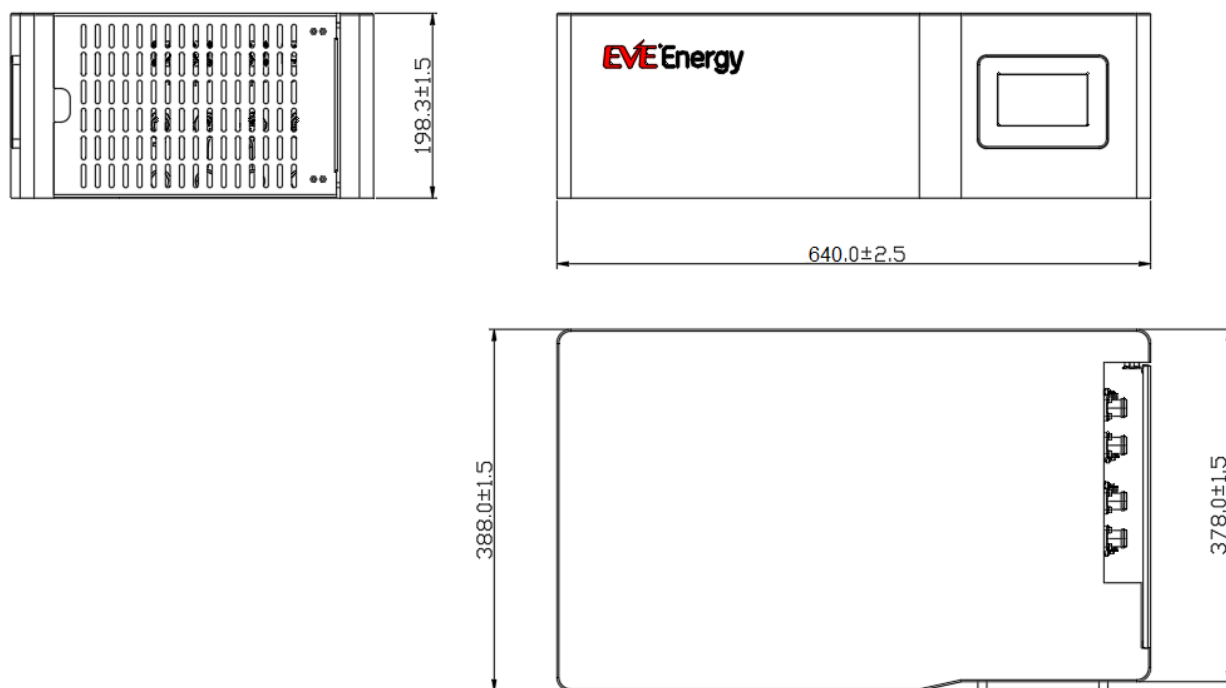


4.4 产品外观 Product appearance

4.4.1 结构尺寸 Structural dimensions

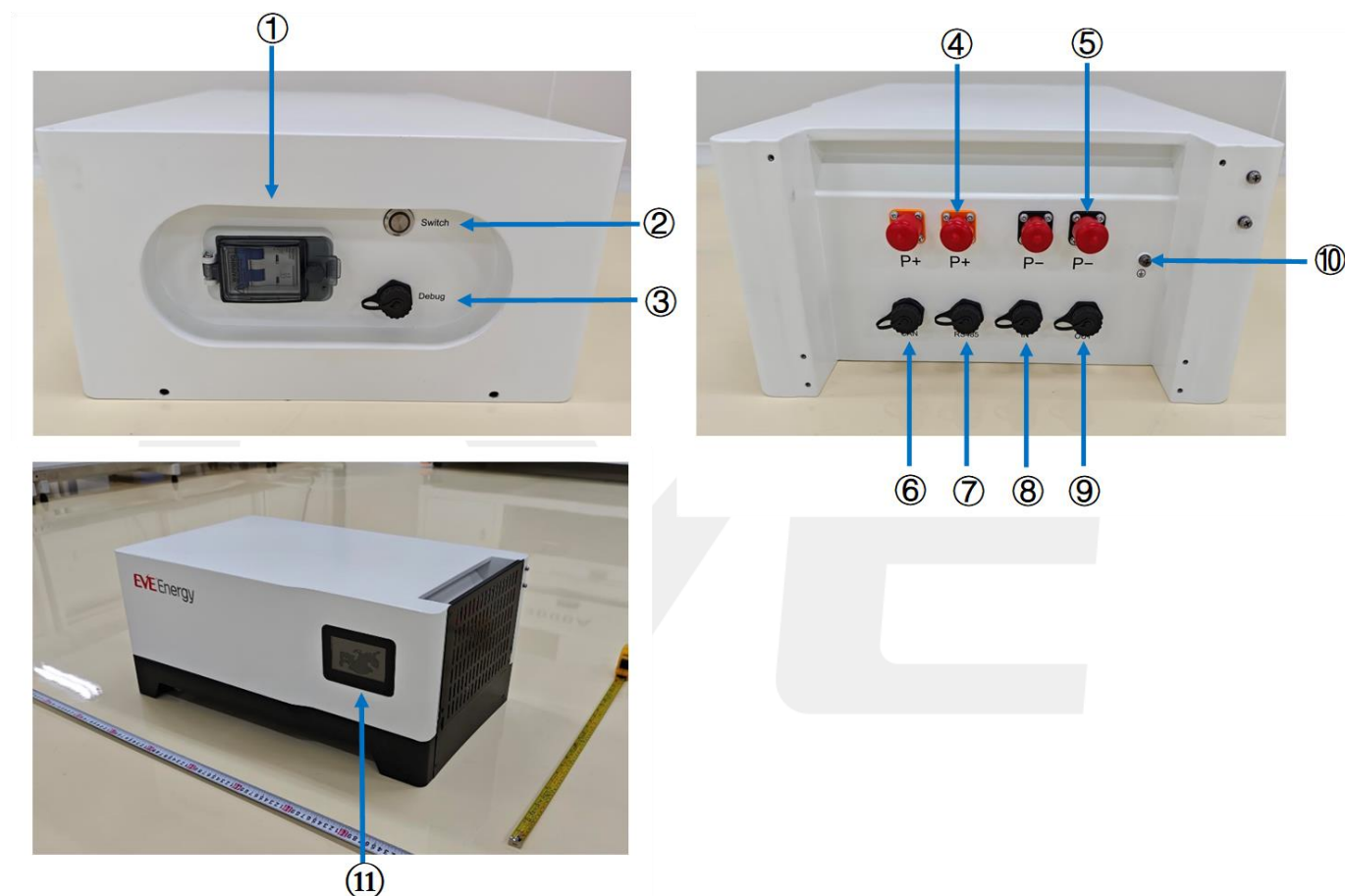


PACK 尺寸图
PACK dimensional drawing



主控箱尺寸图
Dimensional drawing of main control box

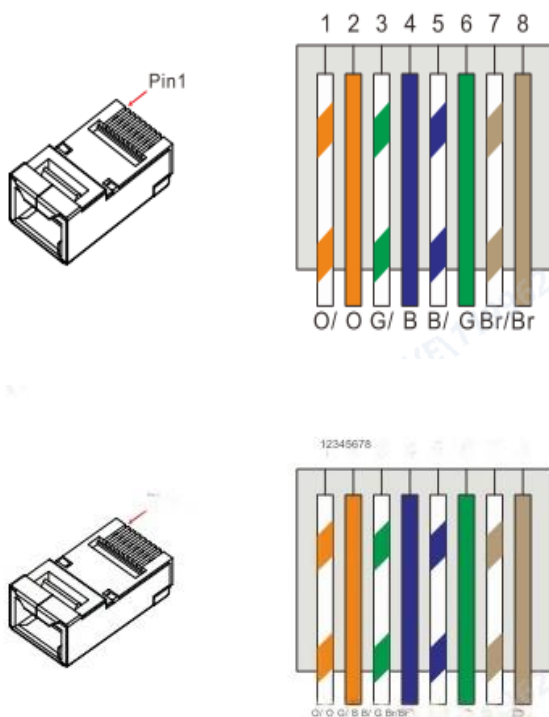
4.4.2 端口介绍 Port introduction



序号 NO.	名称 Name	物料描述 Description of the material
①	Breaker	1000V 80A, 直流开关 DC switch
②	Switch	弱电开关, 用于启动 BMS (绿灯系统正常, 红灯系统故障) Weak current switch, used to start BMS (green light system normal, red light system fault)
③	Debug	调试接口, 用于在特殊情况下连接到 BMS 主机 Debug interface to connect to the BMS host in special case
④	P+	系统总正, 正极输出端口 System main positive, positive output port
⑤	P-	系统总负, 负极输出端口 System total negative, negative output port
⑥	CAN	CAN 通信端口, 用于外部 CAN 协议通信 CAN communication port for external CAN protocol communication
⑦	RS485	RS485 通信端口, 用于外部 Modbus 协议通信 RS485 communication port for external Modbus protocol communication
⑧	IN	并行通信端口, 用于并机通讯输入 Parallel communication port for parallel communication input

⑨	OUT	并行通信端口，用于并机通讯输出 Parallel communication port for parallel communication output
⑩	GND	接地端子 Ground terminal
⑪	HMI	人机交互界面，显示屏 Human-computer interaction interface, display screen

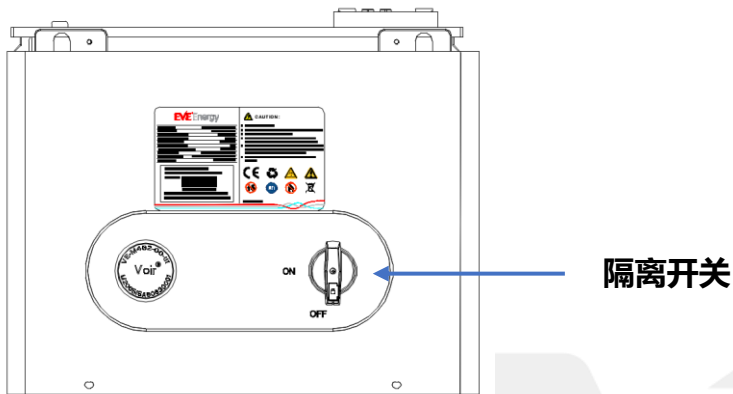
4.4.3 RJ45 通讯接口说明 Description of RJ45 communication interface



PIN PIN	定义描述 Define the description	接口功能 Interface function
4 4	BCANH BCANH	Debug 接口 Debug interface
5 5	BCANL BCANL	

PIN	定义描述 Define the description	接口功能 Interface function	PIN	定义描述 Define the description	接口功能 Interface function
1	NC	CAN 接口 CAN interface	1	RS485B	RS485 接口 RS485 interface
2	NC		2	RS485A	
3	SGND		3	SGND	
4	CANH		4	NC	
5	CANL		5	NC	
6	SGND		6	SGND	
7	NC		7	RS485A	
8	NC		8	RS485B	

4.4.4 PACK 开关介绍 Introduction of PACK switch



备注：系统启动前，请将隔离开关开启到 ON 状态，系统运行过程中禁止手动开断隔离开关。

Remarks: Before starting the system, please turn on the isolating switch to the ON state. It is forbidden to manually turn off the isolating switch during the operation of the system.

4.5 标签说明 Labeling Instructions

PACK 铭牌 PACK nameplate

EVE Energy

Battery Type:	Rechargeable Li-ion Battery
Battery Model:	RHV8.0-MB31-V1.0
Battery Capacity / Energy:	314Ah / 8.0kWh
Battery Nominal Voltage:	25.6Vd.c.
Input/Output Voltage:	450-850Vd.c.
Rated Discharge Power:	4kW
Operating Temperature Range:	-20℃~50℃
Enclosure Type:	IP65(Energy Storage System)
Battery Designation:	IFpP73/175/209[1P8S]M/-20+50/95
Manufacturer:	EVE Power Co.,Ltd.

Production Date: 2026.02.11
 Serial Number: ESXXXXT3S21100001
 SN Code: 

Address: No.68,Jingnan Avenue,Jingmen
 Hi-tech Zone,Jingmen City,Hubei,P.R.China

CAUTION:

- Read instructions carefully before performing any operation on the battery.
- Do not use or store the battery where is exposed to extremely hot,such as under window of a car in direct sunlight in a hot day.
- Do not use battery in the strong electrostatic and magnetic field.
- Do not throw batteries into a fire or heater.
- Do not reverse charge or over-discharge the battery.
- Disposal of Lithium Batteries in accordance with local disposal regulation.











MADE IN CHINA

箱体标识 Box identification



中国制造
MADE IN CHINA

System Model: SR008D-314 / SR016D-314 / SR024D-314 / SR032D-314 / SR040D-314 / SR048D-314

Input/Output Voltage: 450-850Vd.c.

Max. Input/Output Power: 4kW / 8kW / 12kW / 16kW / 20kW / 24kW

Protective Class: I

Enclosure Type: IP65

Operating Temperature Range: -20℃~50℃

SN Code:



ESXXXXT3S211SR001



CAUTION: Read instructions carefully before performe any operation on the battery.

Manufacturer: EVE Power Co.,Ltd.

Address: No.68,Jingnan Avenue,Jingmen Hi-tech Zone,
Jingmen City,Hubei,P.R.China



5. 产品安装 Product installation

须知

Need to know

- 设备支持室内和室外安装。安装应符合本节的说明和当地法律法规的要求。

The equipment supports both indoor and outdoor installations. Installation shall be in accordance with the instructions in this section and the requirements of local laws and regulations.

- 在安装设备之前，请务必仔细阅读以下安装要求。如果因未按照要求操作而导致设备在运行过程中出现功能异常、损坏，甚至引发人身安全事故，本公司将不承担任何责任。

Before installing the equipment, be sure to read the following installation requirements carefully. The company will not assume any responsibility for any abnormal function, damage or even personal safety accident of the equipment during operation due to failure to operate as required.

- 实际安装时，安装位置的选定应同时满足当地消防、环保等法规，具体安装位置规划以安装商或 EPC (Engineering, Procurement, Construction) 为准。

During actual installation, the selection of installation location shall meet the local regulations on fire protection and environmental protection, and the specific installation location planning shall be subject to the installer or EPC (Engineering, Procurement, Construction).

5.1 安装前检查 Inspection before installation

检查外包装材料 Check the outer packing material

包装材料和部件在运输过程中可能会受损。因此，在安装电池模组和 BDU 之前，请检查其包装材料。确认外包装材料是否受损，如存在孔洞和裂纹等。若发现任何损坏情况，请勿打开包装，并尽快联系经销商。建议您在安装前 24 小时内拆除外包装材料。

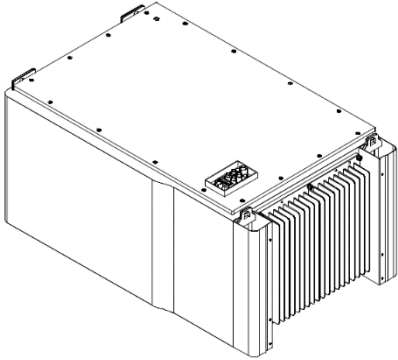
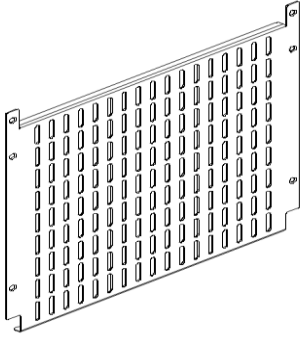
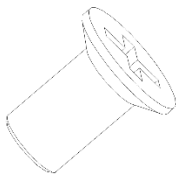
Packaging materials and components may be damaged during transportation. Therefore, before installing the battery module and BDU, check their packaging materials. Confirm whether the outer packing material is damaged, such as holes and cracks. If any damage is found, do not open the package and contact the dealer as soon as possible. It is

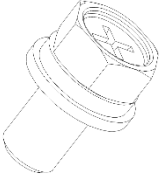
recommended that you remove the outer packing material within 24 hours prior to installation.

📖 检查装箱单 Check the packing list

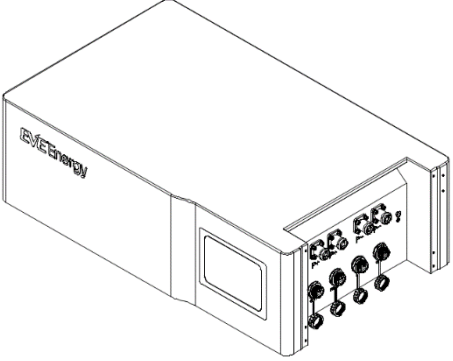
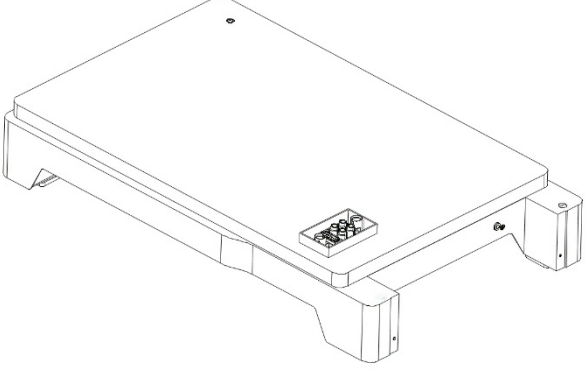
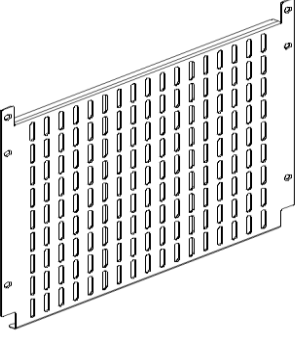
电池模块和 BDU 拆包后，检查包装及配件是否完好。如发现任何损坏或缺少组件，请联系经销商。

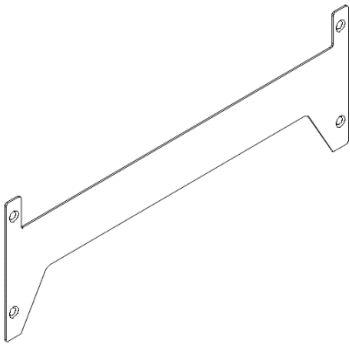
After unpacking the battery module and BDU, check whether the package and accessories are in good condition. If any damage or missing components are found, contact your dealer.

电池箱 Battery box (91063094): RHV8.0-MB31-V1.0			
序号 NO.	图片 Picture	描述 Description	数量 Quantity
1		电池模块 Battery module	1 pcs
2		侧面装饰板 Side trim panel	1 pcs
3	/	合格证 Certificate of conformity	1 pcs
4		装饰板固定螺丝，自封 PE 袋打包 Trim panel set screw,	8 pcs

		packed in self-sealing PE bag	
5		模块固定螺丝, 自封 PE 袋打包 Module fixing screws, packed in self-sealing PE bag	4 pcs

主控箱 Main control box (91063093): RHV8.0-BOX-V1.0

序号 NO	图片 Picture	描述 Description	数量 Quantity
1		主控箱 Main control box	1 pcs
2		底座 Base	1 pcs
3		主控箱侧面装饰板 Side trim panel of the main control box	1 pcs

4		底座侧面装饰板 Base side trim panel	1 pcs
5	/	底座可调节站脚 Adjustable standing feet on the back	® 4 pcs
6	/	电池模块手提吊钩 Hand-held hook for battery module	4 pcs
7	/	正极输出线束 Positive output harness	1 pcs
8	/	负极输出线束 Negative output harness	1 pcs
9	/	防水通讯网线 Waterproof communication network cable	1 pcs
10	/	合格证 Certificate of conformity	1 pcs

5.2 安装环境要求 Requirements for installation environment

安装前，需先确定 EVE 户用储能电池系统的安装区域必须满足以下要求：

Before installation, it is necessary to determine that the installation area of EVE household energy storage battery system must meet the following requirements:

- 禁止将设备安装于烟雾、易燃、易爆的环境中。

Do not install the equipment in a smoky, flammable or explosive environment.

- 禁止将设备安装于有导电性金属粉尘、导磁性尘埃的环境中。

It is forbidden to install the equipment in the environment with conductive metal dust and magnetic dust.

- 禁止将设备安装于易滋生霉菌、真菌等的环境中。

It is forbidden to install the equipment in the environment where mildew and fungi are easy to breed.

- 避免将设备安装于阳光直射、雨淋、积水、积雪、沙尘等环境中，建议安装于有遮挡的位置。若当地易发生洪水、泥石流、地震、台风等自然灾害，安装设备时需要采取防范措施。

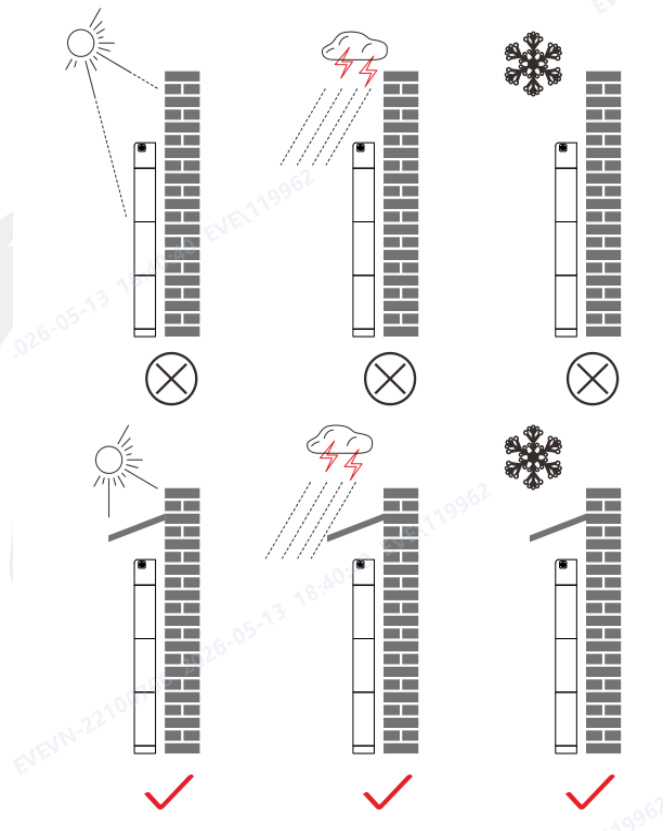
Avoid installing the equipment in direct sunlight, rain, water, snow, dust and other environments. It is recommended to install the equipment in a sheltered position. If natural disasters such as flood, debris flow, earthquake and typhoon are prone to occur in the local area, preventive measures shall be taken when installing the equipment.

- 禁止将设备安装于强电磁干扰的环境中。

It is forbidden to install the equipment in an environment with strong electromagnetic interference.

- 安装环境的温度与湿度要符合设备要求。

The temperature and humidity of the installation environment shall meet the requirements



of the equipment.

- 设备应安装于距高盐或高酸等腐蚀源 $\geq 500\text{m}$ 的地区（腐蚀源包括但不限于海边、火电厂、化工厂、冶炼厂、煤厂、橡胶厂、电镀厂等）。

The equipment shall be installed in an area $\geq 500\text{m}$ away from corrosion sources such as high salt or high acid (corrosion sources include but are not limited to seaside, thermal power plant, chemical plant, smelter, coal plant, rubber plant and electroplating plant).

- 在海洋环境良好（挪威等近岸盐度 $\leq 28\text{ psu}$ ）的地区，设备安装距海岸线区域可适当放宽至 $\geq 200\text{m}$ 。

In areas with good marine environment (coastal salinity $\leq 28\text{ PSU}$, such as Norway), the distance from equipment installation to the coastline can be appropriately relaxed to $\geq 200\text{ m}$.

- 若设备出现外表面破损情况，请及时对设备进行补漆。

If the external surface of the equipment is damaged, please repair the paint of the equipment in time.

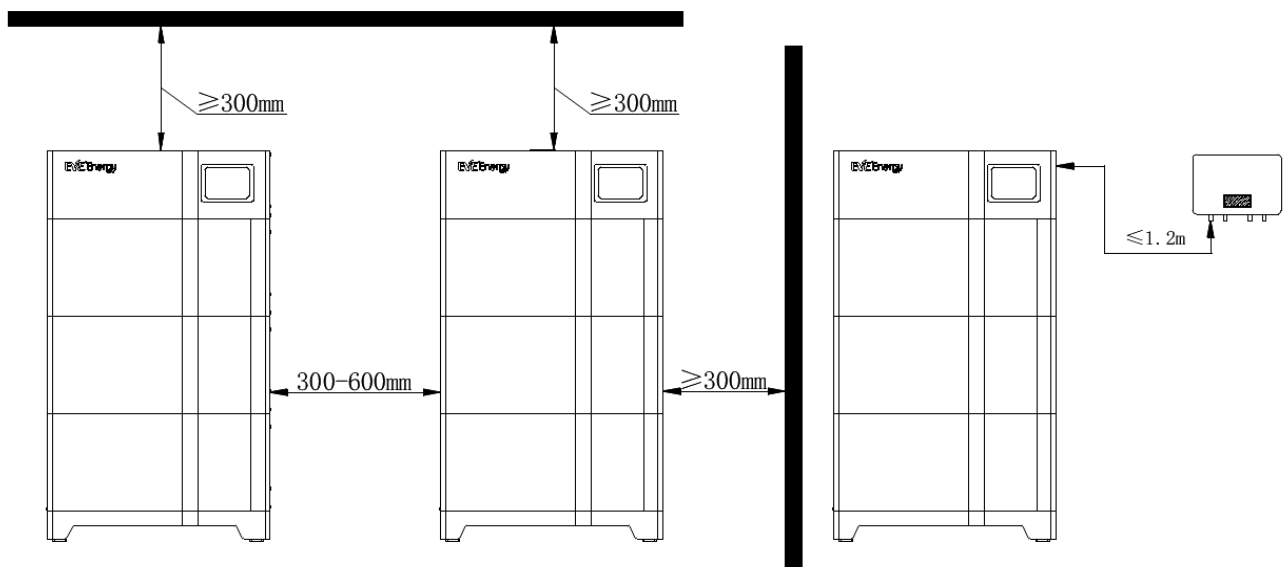
5.3 安装空间要求 Installation space requirements

为确保安装和散热空间充足，需在 EVE 户用储能电池系统周围预留足够空间。

In order to ensure sufficient space for installation and heat dissipation, it is necessary to reserve enough space around the EVE household energy storage battery system.

具体要求如下：

Specific requirements are as follows:



5.4 安装位置要求 Requirements for installation position

- 禁止设备倾斜、倒置，确保设备水平安装。

Do not tilt or invert the equipment to ensure that the equipment is installed horizontally.

- 禁止将设备安装于有火源或潮湿的位置。

Do not install the equipment in a location where there is a source of ignition or moisture.

- 禁止将设备安装于密闭、不通风、未配置消防设施且消防人员难以到达的位置。

It is forbidden to install the equipment in a closed, unventilated place without fire fighting facilities and where it is difficult for firefighters to reach.

- 禁止将设备安装于水源下方，包含但不限于水管、空调出线窗等易产生冷凝水或漏水的下方，避免液体进入设备内部造成短路。

It is forbidden to install the equipment under the water source, including but not limited to the water pipe, air conditioning outlet window and other places where condensation or leakage is easy to occur, so as to avoid short circuit caused by liquid entering the

equipment.

- 设备运行会发热。若将设备安装于室内，请确保室内通风良好，禁止出现由于设备运行而导致室内温度升高超过 3℃的情况，避免温度升高导致设备降额。

The equipment will generate heat during operation. If the equipment is installed indoors, please ensure that the indoor ventilation is good. It is forbidden to cause the indoor temperature to rise by more than 3 °C due to the operation of the equipment, so as to avoid the derating of the equipment caused by the temperature rise.

- 设备运行时会发热，避免将设备安装于易触碰散热区域的位置。

When the equipment is running, it will generate heat. Avoid installing the equipment in a position where it is easy to touch the heat dissipation area.

- 禁止将设备安装于房车、游轮、火车等移动场景中。

It is forbidden to install the equipment in mobile scenes such as RV, cruise ship and train.

- 推荐将设备安装于易通行、易安装、易操作、易维护、易查看显示屏信息的位置。

It is recommended to install the equipment in a place where it is easy to access, install, operate, maintain and view the display information.

- 如果设备安装在除工作和生活区域以外的公共场合（如停车场、车站、厂房等），请在设备外部安装防护网并竖立安全警示标志进行隔离，禁止不相关人员靠近逆变器，避免设备运行过程中由于非专业的人员意外接触或其他原因导致的人身伤害或财产损失。

If the equipment is installed in public places other than working and living areas (such as parking lots, stations, plants, etc.), please install a protective net outside the equipment and erect safety warning signs for isolation. It is forbidden for irrelevant personnel to get close to the inverter, so as to avoid personal injury or property damage caused by accidental contact of non-professional personnel or other reasons during the operation of the equipment.

5.5 安装载体要求 Requirements for installation carrier

- 禁止将设备安装于易燃载体上。

Do not install the device on a flammable carrier.

- 安装载体符合承重要求，不存在不良地质，包含但不限于有橡皮土、软弱土等，推荐选择

实心砖混结构、混凝土墙体。

The installation carrier shall meet the bearing requirements, and there is no unfavorable geology, including but not limited to rubber soil, soft soil, etc. It is recommended to select solid brick-concrete structure and concrete wall.

- 安装载体表面要平整，可安装区域要满足设备安装空间要求。

The surface of the installation carrier shall be flat, and the installation area shall meet the requirements of the equipment installation space.

- 安装载体内部无水电走线，以免安装设备时钻孔发生危险。

There is no water and electricity wiring inside the installation carrier, so as to avoid the danger of drilling when installing the equipment.

5.6 电池系统安装 Installation of battery system

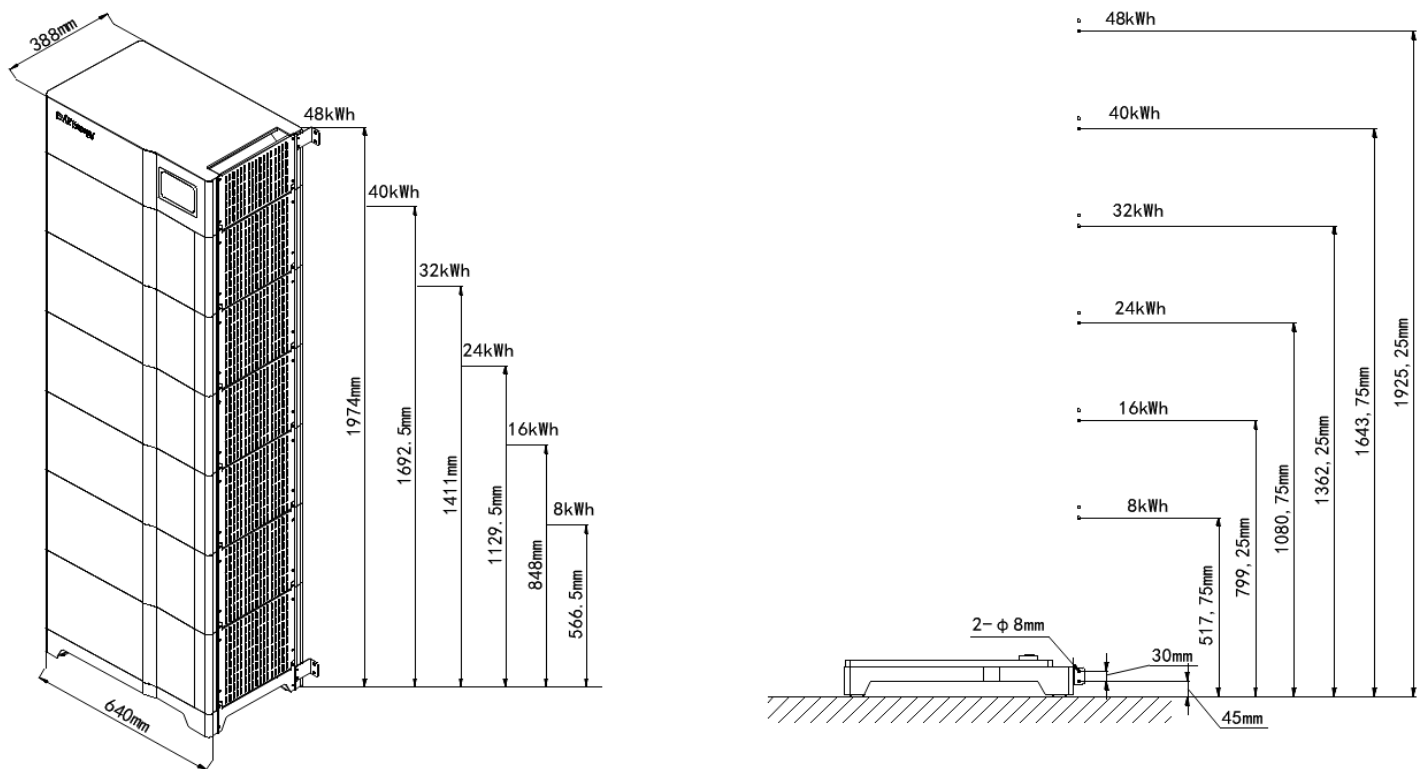


图 5.6.1 系统安装尺寸图

Figure 5.6.1 System Installation Dimension Drawing

5.6.1 底座安装 Installation of base

- 将底座紧贴墙面，并保持距离墙面 10 至 25 毫米。使用水平仪调整孔位，并用记号笔标记孔位位置。

Place the base against the wall and keep it 10 to 25 mm away from the wall. Adjust the hole position with a level and mark the hole position with a marker.

- 拆卸底座，使用电锤钻孔（8mm，深度范围 60-65mm），并拧紧膨胀螺栓，确保底座牢固安装。

Remove the base, drill holes (8mm, depth range 60-65mm) with an electric hammer, and tighten the expansion bolts to ensure that the base is securely installed.

- 根据图 5.6.1 所示尺寸，用标记笔在电池模块和 BDU 的安装孔上做标记。

Mark the mounting holes of the battery module and BDU with a marking pen according to the dimensions shown in Figure 5.6.1.

备注：后续补充底座安装示意图

Remarks: The schematic diagram of base installation shall be supplemented subsequently.

5.6.2 模块间固定安装 Fixed installation between modules

- 步骤①：将第一个电池模块放置在底座上。

Step ①: Place the first battery module on the base.

- 步骤②：在两侧安装连接器，并用十字螺丝刀拧紧螺丝。

Step ②: Install the connectors on both sides and tighten the screws with a cross screwdriver.

- 步骤③：从下至上安装剩余的电池模块和 BDU。（在安装下一个模块之前，确保前一个模块侧边连接器上的螺丝已牢固安装。）

Step ③: Install the remaining battery modules and BDUs from bottom to top. (Before installing the next module, make sure the screws on the side connector of the previous

module are securely installed.)

备注：后续补充模块安装示意图

Note: The schematic diagram of module installation is supplemented subsequently.

5.6.3 防倾倒支架安装 Installation of anti-toppling support

- 步骤①：使用电锤钻孔（8 毫米，深度范围 60-65 毫米）。如果原孔位偏差较大，则重新定位并钻孔。

Step ①: Use an electric hammer to drill the hole (8mm, depth range 60-65mm). If the deviation of the original hole position is large, reposition and drill the hole.

- 步骤②：将防倾倒支架 B 安装在墙上，并拧紧膨胀螺栓。

Step ②: Install the anti-toppling bracket B on the wall and tighten the expansion bolt.

- 步骤③：调整防倾倒支架 A，确保防倾倒支架 A 与防倾倒支架 B 之间的孔对齐。

Step ③: Adjust the anti-toppling bracket A to ensure that the holes between the anti-toppling bracket A and the anti-topple bracket B are aligned.

- 步骤④：使用 M6*16 螺钉连接并固定防倾倒支架 A 和防倾倒支架 B。

Step ④: Connect and fix the anti-toppling bracket A and the anti-toppling bracket B with M6 * 16 screws.

备注：后续补充防倾倒支架安装示意图

Remarks: schematic diagram for installation of anti-toppling support shall be supplemented subsequently.

6. 电气连接 Electrical connection

6.1 准备线缆 Cable preparation

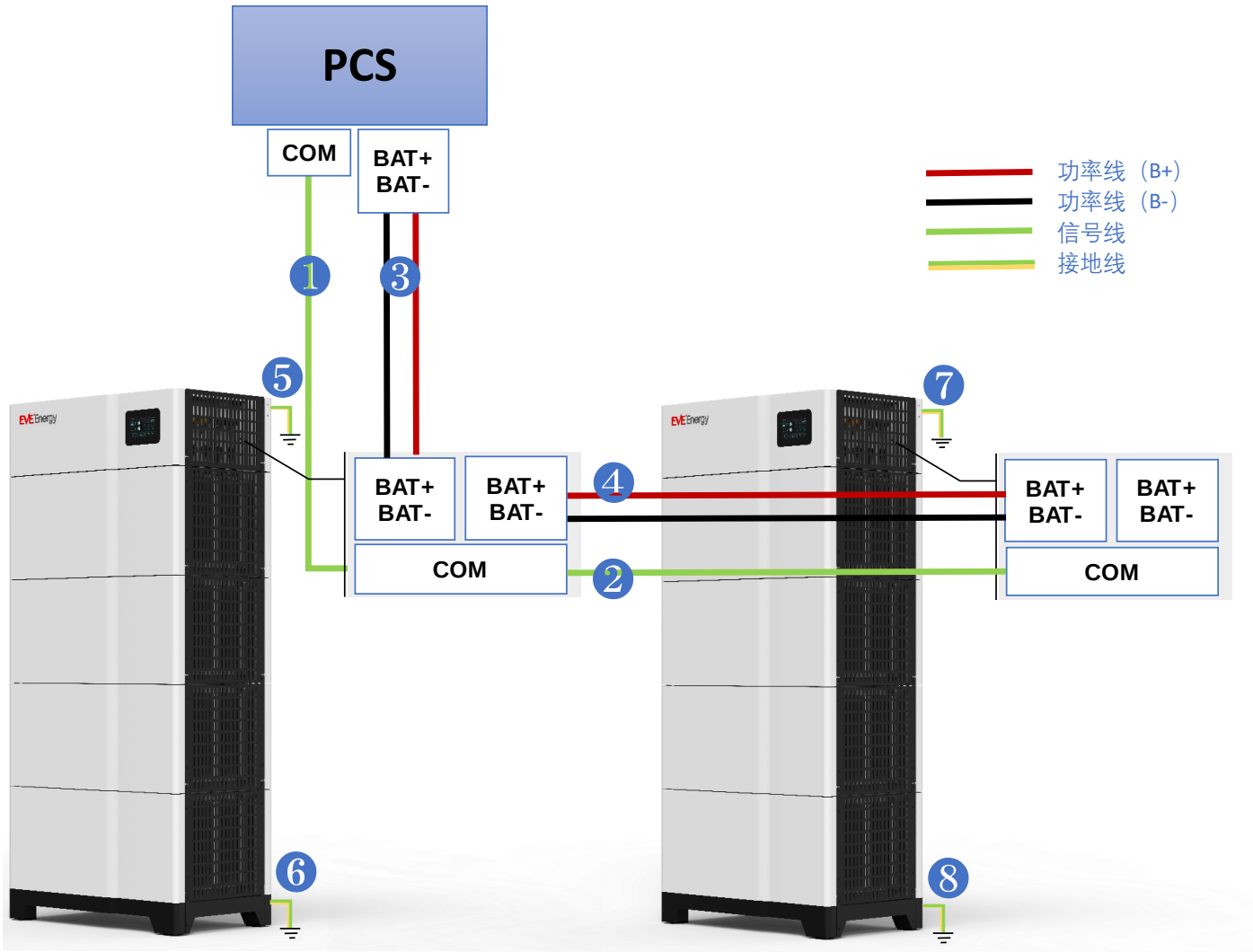


图 6.1 储能系统接线示意图

Fig. 6.1 Wiring Diagram of Energy Storage System

表 6-1 线缆准备

Table 6-1 Cable preparation

序号 NO	线缆 Cable	类型 Type	推荐规格 Recommended specifications	来源 Source
①②	信号线 (逆变器-储能、储能-储能) Signal line (inverter-accumulator, accumulator-accumulator)	户外屏蔽双绞 网线 (8 芯) Outdoor shielded twisted-pair cable (8 cores)	RJ45 标准屏蔽网线 RJ45 standard shielded network cable	厂家提供 Provided by the manufacturer 用户自备 User-provided

③④	直流输入线 (逆变器-储能、储能-储能) DC input line (inverter-energy storage, energy storage-energy storage)	定制电缆 Custom cable	导体横截面积 16mm² Conductor cross-sectional area 16 mm²	厂家提供 Provided by the manufacturer
⑤⑥ ⑦⑧	接地线 Ground wire	单芯户外铜芯线 缆 Single-core outdoor copper-core cables	≥10mm² ≥10mm²	用户自备 User-provided

6.2 安装保护接地线 Installation of protective grounding wire



- 请确认保护接地线可靠连接，如果未连接或松动，可能导致电击危险。

Please make sure that the protective grounding wire is reliably connected. If it is not connected or loosened, it may cause electric shock hazard.

说明 Explain

建议地线安装完成后，在接地端子外部涂抹硅胶或刷漆进行接地防护。

It is recommended to apply silica gel or paint on the outside of the grounding terminal for grounding protection after the grounding wire is installed.

操作步骤：Operation steps:

步骤 1：压接 OT 端子

Step 1: Crimp the OT terminal

须知

Need to know

- 剥线时，请勿划伤线芯。

When stripping, do not scratch the wire core.

- OT 端子的导体压接片压接后，所形成的腔体应完全将线芯包覆，并且线芯与 OT 端子结合紧密、无松动。

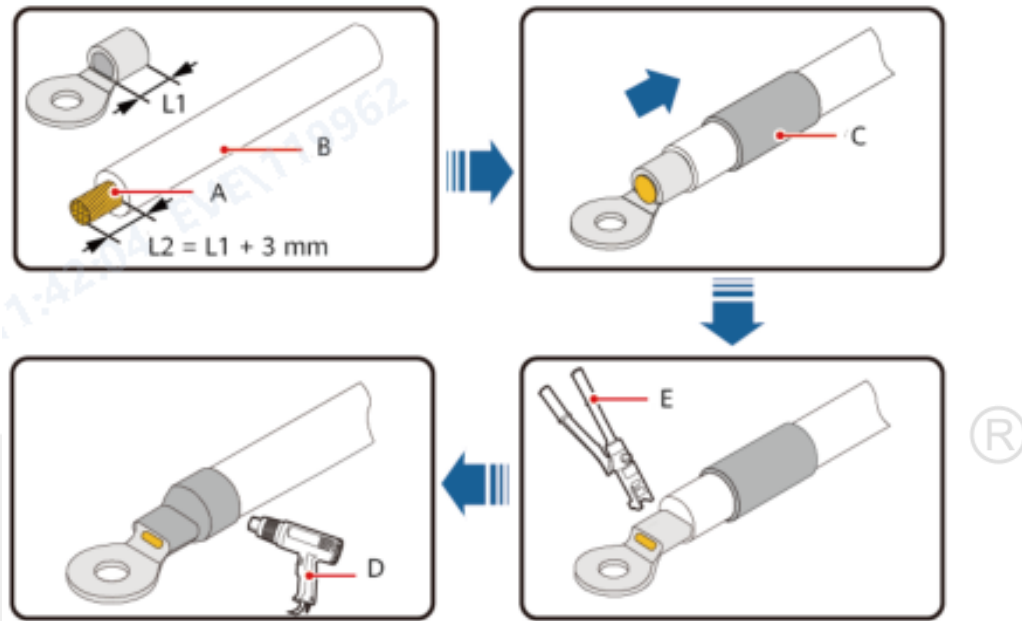
After the crimping of the conductor crimping piece of the OT terminal, the formed cavity shall completely cover the wire core, and the wire core shall be tightly combined with the OT terminal without looseness.

- 压线处可使用热缩套管或绝缘胶布包覆。

The pressing line can be covered with heat-shrinkable sleeve or insulating tape.

- 使用热风枪的过程中，请注意防护，防止烤伤设备。

In the process of using the hot air gun, please pay attention to protection to prevent the equipment from being burned.



(A) 线芯 (B) 绝缘层 (C) 热缩套管 (D) 热风枪 (E) 液压钳

(A) Wire core (B) Insulation layer (C) Heat-shrinkable sleeve (D) Hot air gun (E) Hydraulic tongs

步骤 2：将主控箱和底座上的接地点 与 外部接地点连接。

Step 2: Connect the grounding point on the main control box and the base to the external grounding point.

说明 Explain

建议地线安装完成后，在接地端子外部涂抹硅胶或刷漆进行接地防护。

It is recommended to apply silica gel or paint on the outside of the grounding terminal for grounding protection after the grounding wire is installed.

---结束

-- End

6.3 安装直流输入线 Installation of DC input line

须知

Need to know

- 直流输入线使用了储能专用的 IP67 防水快插头，连接器本身有限位结构，设计防呆。

The DC input line uses a dedicated IP67 waterproof fast plug for energy storage, and the connector itself has a limit structure, which is designed to prevent foolishness.

- 直流输入线 OT 端只有颜色防呆，红色为 BAT+，黑色为 BAT-，请先与逆变器连接好 OT 端，确保连接可靠后，再与储能系统进行快速接插。

The OT end of the DC input line only has the color of fool-proof, the red is BAT +, and the black is BAT-. Please connect the OT end with the inverter first, and then connect it with the energy storage system quickly after ensuring the reliable connection.

备注：后续补充直流输入线连接示意图

Remarks: schematic diagram of DC input line connection to be supplemented subsequently

图 6.3 连接直流输入线

Figure 6.3 Connecting the DC Input Line

说明 Explain

当有并机场景时，请连接储能之间的直流电缆，可参考图 6.1 储能系统接线示意图中的线缆操作。

When there is a parallel scenario, please connect the DC cable between the energy storage. Refer to the cable operation in Figure 6.1 Wiring Diagram of Energy Storage System.

6.4 安装信号线 Installation of signal wire

须知

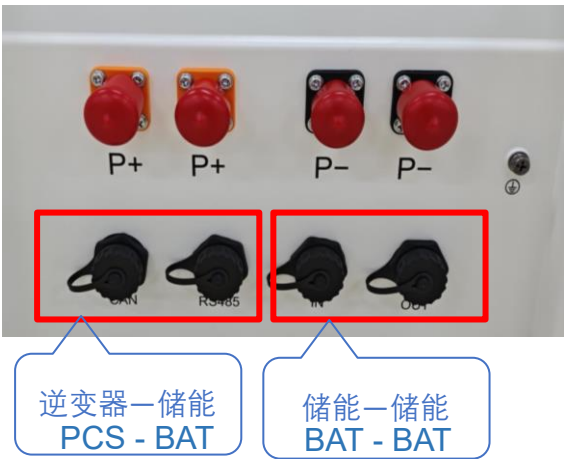
Need to know

- 安装信号电缆时，尽量将信号电缆与功率电缆分开走线，且走线时需避开大干扰源，以免信号受到干扰导致通信受影响。

When installing the signal cable, the signal cable and the power cable shall be routed separately as far as possible, and the routing shall avoid large interference sources, so as to avoid the communication being affected by signal interference.

📖

6.4.1 信号端口定义 Definition of signal port



PIN	定义描述 Define the description	接口功能 Interface function	PIN\	定义描述 Define the description	接口功能 Interface function
1	NC	CAN 接口 CAN interface	1	RS485B	RS485 接口 RS485 interface
2	NC		2	RS485A	
3	SGND		3	SGND	
4	CANH		4	NC	
5	CANL		5	NC	
6	SGND		6	SGND	
7	NC		7	RS485A	
8	NC		8	RS485B	



6.4.2 信号接线说明 Signal wiring description

(储能—储能) 的信号线使用标准的 RJ45 屏蔽网线即可，由主机的 OUT 口接到从机的 IN 口，多簇系统并机的情况下，逐一连接“IN – OUT – IN ”即可。

The signal line of (energy storage – energy storage) can use the standard RJ45 shielded network cable, which is connected from the OUT port of the host to the IN port of the slave. In the case of parallel operation of multi-cluster system, it is enough to connect "IN – OUT – IN" one by one.

7. 系统运行维护 System operation and maintenance

7.1 上电前检查 Inspection before power-on

序号 NO	检查项目 Check items	验收标准 Acceptance criteria
1	储能系统安装到位 Installation of energy storage system in place	安装正确且牢固可靠。 The installation is correct and secure.
2	线缆布置合理 Cable layout is reasonable	线缆布置合理，满足客户要求。 Cable layout is reasonable to meet customer requirements.
3	扎带绑扎美观 The binding of the cable tie is beautiful	扎带绑扎均匀，且剪断出不留尖角。 The cable ties shall be bound evenly and cut off without sharp corners.
4	接地可靠 Reliable grounding	地线连接正确，且牢固可靠。 The ground wire shall be connected correctly, firmly and reliably.
5	开关断开 The switch is open	直流开关和与储能系统相连的所有开关均处于 OFF 状态 The DC Switch and all switches connected to the energy storage system are OFF.
6	线缆连接到位 The cable is connected in place	直流输入线、储能线和信号线连接正确且牢固可靠。 The DC input line, energy storage line and signal line are connected correctly and reliably.
7	接线端口密封完善 Perfect sealing of wiring port	接线端口都有完好密封。 The wiring ports are well sealed.
8	安装环境符合要求 Installation environment meets the requirements	安装空间、环境符合手册要求，无施工遗留物。 The installation space and environment shall meet the requirements of the manual, and there shall be no construction remnants.

7.2 系统上下电 System power-on and power-off



操作设备时，请穿戴绝缘手套、绝缘鞋、安全帽等防护用具。禁止佩戴金属手镯、戒指、项链等导电饰品。

When operating the equipment, please wear insulating gloves, insulating shoes, safety helmet and other protective equipment. It is forbidden to wear metal bracelets, rings, necklaces and other conductive jewelry.

系统上电流程 System power-on process

步骤 1：从下到上，逐一将 PACK 的旋钮开关拨至 ON 的状态。

Step 1: Turn the knob switch of PACK to ON one by one from bottom to top.

步骤 2：启动主控箱上的 DC Switch 开关，系统正常启动时，Switch 指示灯闪烁。

Step 2: Start the DC Switch on the main control box. When the system is started normally, the Switch indicator flashes.

步骤 3：人机交互主界面查看 PACK 在线数量与实际安装数量是否一致。

Step 3: Check whether the online quantity of PACK is consistent with the actual installed quantity on the main interface of human-computer interaction.

步骤 4：人机交互主界面无故障信息时，进入高级设置界面，选择标准模式 and 对应逆变器的通讯协议，先后分别点击写入、读取，确认设置成功。

Step 4: When there is no fault information in the main interface of human-computer interaction, enter the advanced setting interface, select the standard mode and the communication protocol of the corresponding inverter, and click Write and Read successively to confirm that the setting is successful.

步骤 5：关闭 DC Switch 开关，系统下电。

Step 5: Turn off the DC Switch and power down the system.

步骤 6：确认与逆变器的安装接线可靠后，重启 DC Switch 开关，将主控箱上的直流开关拨至 ON 的状态。

Step 6: After confirming that the installation and wiring with the inverter are reliable, restart the DC Switch and turn the DC switch on the main control box to ON.

步骤 7：当逆变器与储能系统完成通讯交互，人机交互主界面的 PCS 通讯状态会显示“在线”，并可查看到 BMS 发送给 PCS 的信息，即上电完成。

Step 7: When the communication interaction between the inverter and the energy storage system is completed, the PCS communication status on the main human-computer interaction interface will display "Online", and the information sent by BMS to PCS can be viewed, that is, the power-on is completed.

系统下电流程 System power-down process

步骤 1：确认逆变器与储能电池系统之间已经停止工作。

Step 1: Confirm that the inverter and the energy storage battery system have stopped working.

步骤 2：关闭 DC Switch 开关，再将主控箱上的直流开关拨至 OFF 的状态。

Step 2: Turn off the DC Switch, and then turn the DC switch on the main control box to OFF.

步骤 3：最后将所有 PACK 的旋钮开关拨至 OFF 的状态。

Step 3: Finally, turn the knob switches of all PACKs to OFF.

7.3 人机交互界面 Human-computer interaction interface

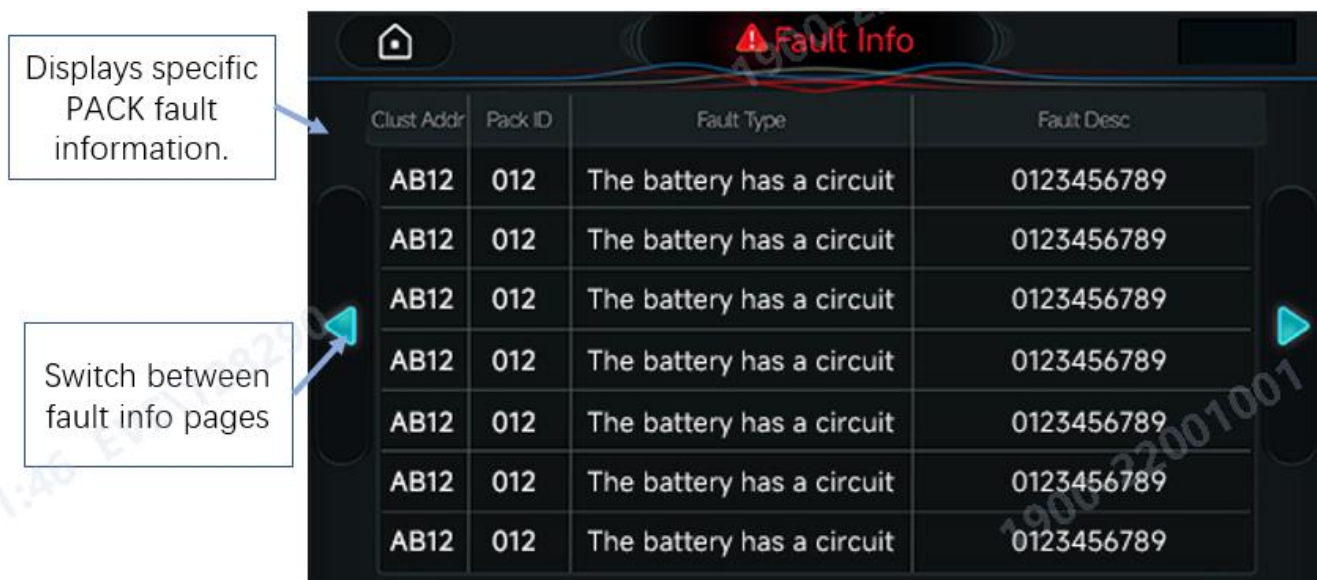
7.3.1 主界面介绍 Introduction to the main interface



7.3.2 故障信息 Fault information

当系统出现上电失败或故障停机时，进入系统故障信息界面，获取对应的故障代码信息，对照附录页的 系统故障处理表 进行临时处理，若无法解决，请联系专业人员。

In case of power-on failure or fault shutdown of the system, enter the system fault information interface, obtain the corresponding fault code information, and carry out temporary treatment according to the system fault treatment table on the appendix page. If the problem cannot be solved, please contact professionals.



7.3.3 PCS 通讯状态 PCS Communication Status

当储能系统与逆变器通讯成功后，即可进行该界面查看 BMS 发送给 PCS 的信息。当多簇系统并机拓展容量时，仅系统主机可查。

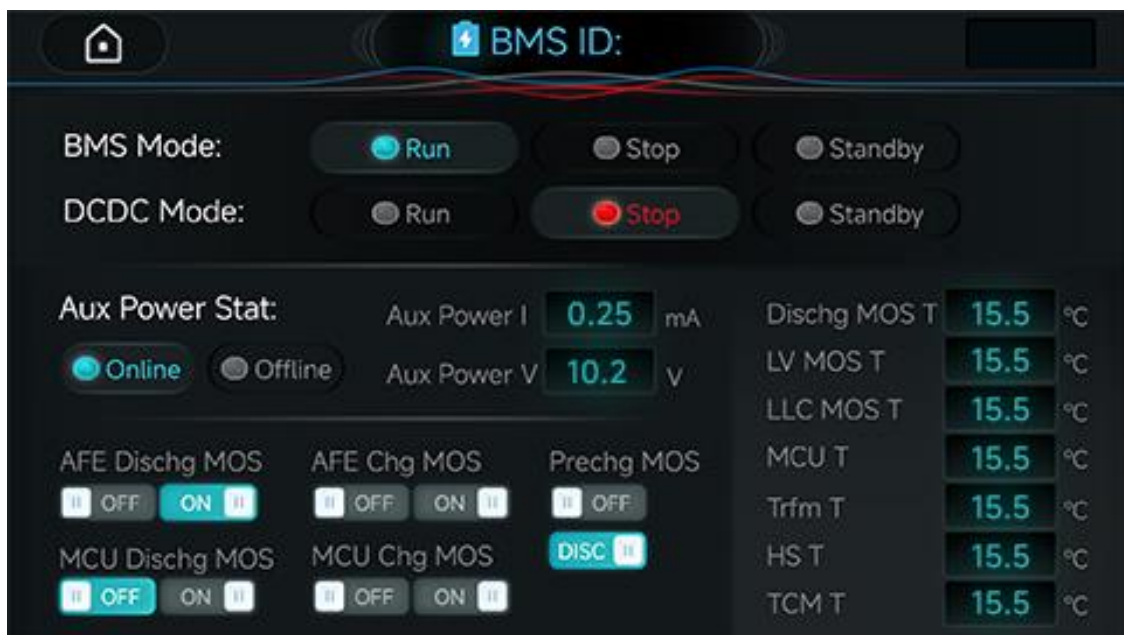
When the communication between the energy storage system and the inverter is successful, the information sent by the BMS to the PCS can be viewed on this interface. When the capacity of multi-cluster system is expanded in parallel, only the system host can be checked.



7.3.4 BMS 信息 BMS Information

BMS 信息界面主要用于系统运维时进行故障分析，根据系统故障信息上的 PACK 编号，给专业人员提供以下界面的图片用于故障分析。

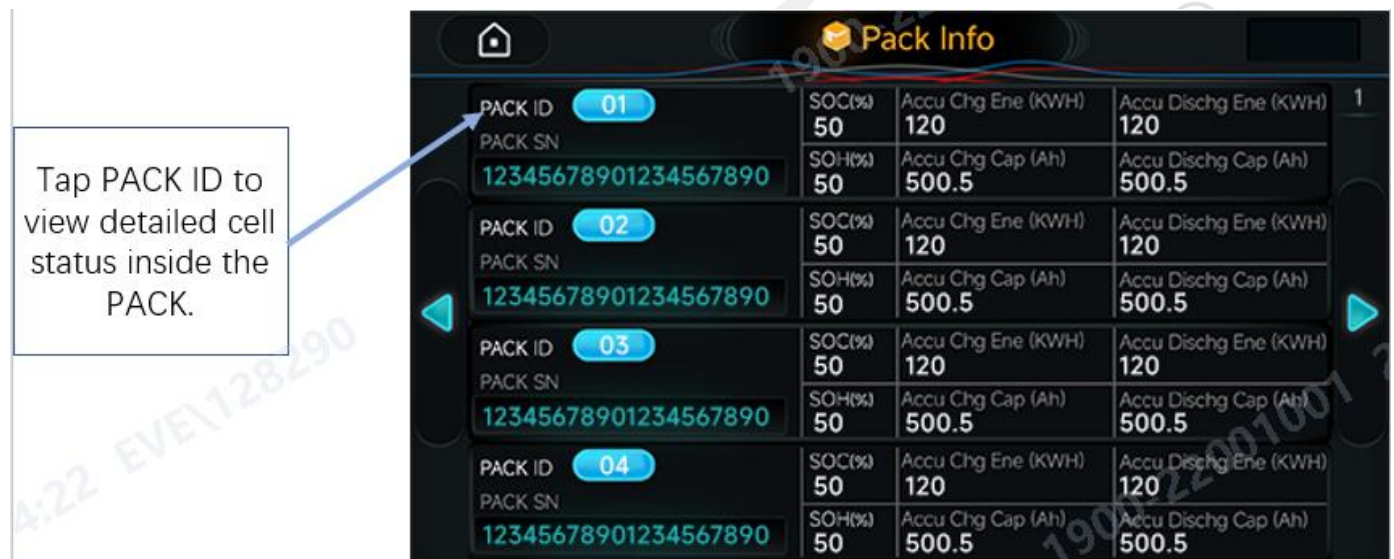
The BMS information interface is mainly used for fault analysis during system operation and maintenance. According to the PACK number on the system fault information, the following interface pictures are provided to professionals for fault analysis.



7.3.5 PACK 信息 PACK information

PACK 信息界面主要用于系统运维时进行故障分析，根据系统故障信息上的 PACK 编号，给专业人员提供以下界面的图片用于故障分析。

The PACK information interface is mainly used for fault analysis during system operation and maintenance. According to the PACK number on the system fault information, the following interface pictures are provided to professionals for fault analysis.



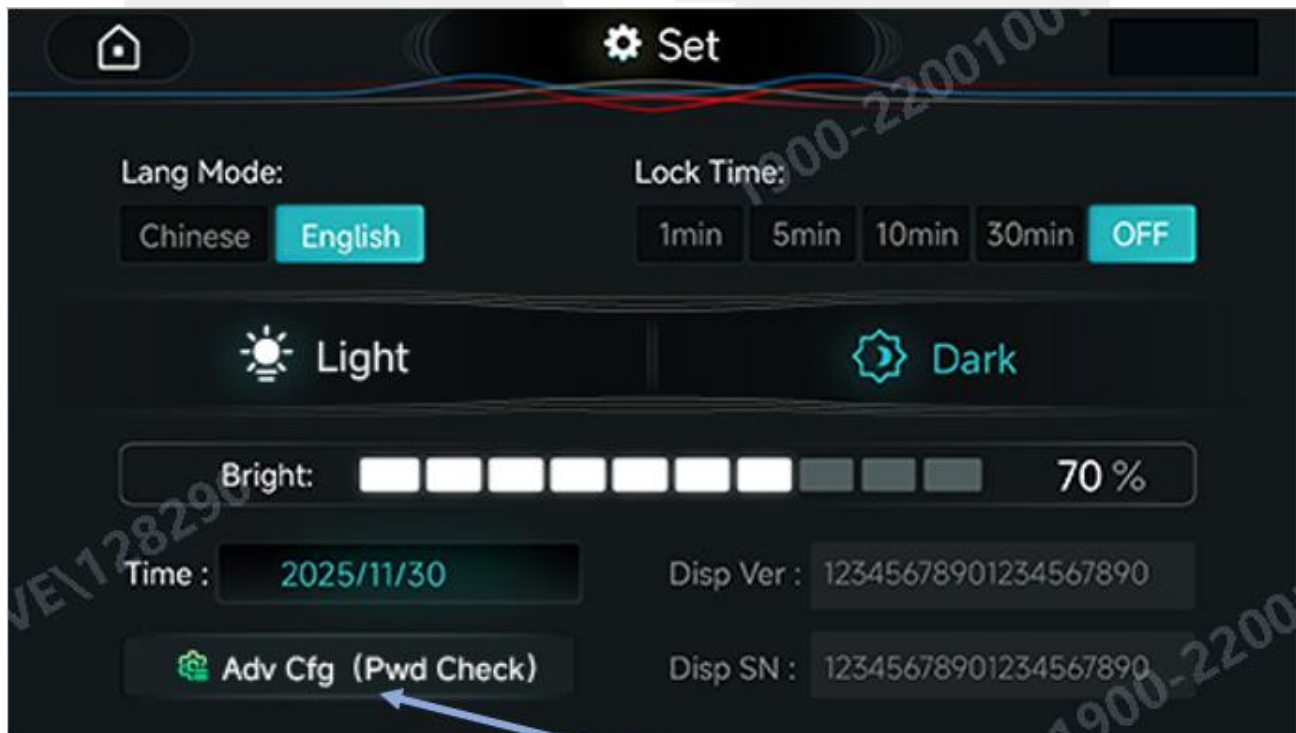
7.3.6 设置界面 Setting interface

设置界面具备调节显示屏状态，切换语言模式，系统时间和高级配置功能。

The setting interface has the functions of adjusting the display status, switching the language mode, system time and advanced configuration.

高级配置界面，可切换逆变器通讯协议和工作模式，非专业人员禁止随意修改。

The advanced configuration interface can switch the communication protocol and working mode of the inverter, and non-professionals are not allowed to modify it at will.



Basic display config screen. Select Adv Cfg and enter password for on-site commissioning.

高级配置界面 Advanced configuration interface

须知

Need to know



警告



Warning

高级配置界面具备系统调试功能，不符合文档中 1.2 人员要求，进行操作导致系统故障，我司不予承担责任。

The advanced configuration interface has the function of system debugging, which does not meet the requirements of 1.2 personnel in the document. Our company will not be responsible for the system failure caused by the operation.



高级配置密码：20160510

Advanced configuration password: 2016 0510



Enter password to access this config screen:

1. Configure inverter protocol;
2. Switch to Test mode for lead-acid battery charge/discharge;
3. Manually hibernate and restart the system.

7.4 例行维护 Routine maintenance

为了保障设备能够长期良好运行，建议按照本章节的描述对其进行例行维护。

Routine maintenance as described in this section is recommended to ensure long-term good operation of the equipment.

检查内容 Check the contents	检查方法 Inspection method	是否关机 Whether to shut down or not	维护周期 Maintenance cycle
系统清洁 System cleaning	定期检查设备有无遮挡及灰尘脏污，若有，请清理。清理时禁止使用可能导致触电或绝缘破坏的工具，如钢丝刷、湿毛巾等。 Regularly check whether the equipment is blocked or dirtied by dust. If yes, please clean it. It is prohibited to use tools that may cause electric shock or insulation damage during cleaning, such as wire brushes, wet towels, etc.	是 Yes	3 个月 1 次。 Once every 3 months.
系统运行状态 System operational status	◆ 观察设备外观是否有损坏或者变形。 ◆ Observe whether the appearance of the equipment is damaged or deformed. ◆ 听设备在运行过程中是否有异常声音。 ◆ Check whether there is any abnormal sound during the operation of the equipment. ◆ 在设备运行时，检查设备各项参数是否设置正确。 ◆ When the equipment is running, check whether the parameters of the equipment are set correctly.	否 No	6 个月 1 次。 Once every 6 months.
电气连接 Electrical connection	◆ 检查线缆端子连接是否松脱。 ◆ Check whether the cable terminal connection is loose. ◆ 检查线缆表面是否有损坏。 ◆ Check the surface of the cable for damage. ◆ 检查线缆与金属接触的表皮是否有	是 Yes	开局后 6 个月检查 1 次，之后间隔 6~12 月 1 次。 Check once 6 months after the start, and

	划痕。 ◆ Check whether there are scratches on the surface of the cable in contact with the metal. ◆ 检查未使用的走线孔是否处于密封状态。 ◆ Check whether the unused wiring holes are sealed.		then once every 6 to 12 months.
接地可靠 Reliable grounding	检查接地线缆是否完整、可靠连接。 Check whether the grounding cable is completely and reliably connected.	否 No	开局后 6 个月检查 1 次，之后间隔 6~12 月 1 次。 Check once 6 months after the start, and then once every 6 to 12 months.

7.5 低电量使用 Low battery usage

- 由于电池包自放电特性会造成电量损失。设备长时间不充电，可能会电量过放导致设备损坏。设备处于低电量状态时，请及时进行充电。

Due to the self-discharge characteristics of the battery pack, there is a loss of power. If the equipment is not charged for a long time, it may be damaged due to excessive discharge of power. When the device is in a low battery state, please charge it in time.

- 正常情况下，设备可根据运行情况，自行充电。若设备出现无法充电的情况时，请及时联系您的安装商或销售代理，并在规定的时间内进行处理，若因为超期而造成电池容量损失或不可逆的损坏，本公司不承担责任。

Under normal circumstances, the equipment can charge itself according to the operation conditions. If the equipment cannot be charged, please contact your installer or sales agent in time and deal with it within the specified time. Our company will not be responsible for the loss of battery capacity or irreversible damage caused by overdue.

- 电量 $\geq 10\%$ 时，30 天内完成充电。

When the electric quantity is $\geq 10\%$, the charging shall be completed within 30 days.

- $0\% \leq \text{电量} < 10\%$ 时，7 天内完成充电。

When $0\% \leq \text{electric quantity} < 10\%$, the charging shall be completed within 7 days.

📖 可能造成无法充电的场景 (包括但不限于):

Scenarios that may cause failure to charge (including but not limited to):

- PV 侧无输入, 且电网侧长期掉电。

There is no input at the PV side, and the grid side is powered down for a long time.

- 设备故障。

Equipment failure.

- 未正确设置参数。

Parameters are not set correctly.

7.6 应急处理 Emergency treatment

📖 火灾应急措施 Fire emergency measures



危险 ! Danger

- 请在确保安全的情况下, 应该将设备关机或断开电源总闸。

Please shut down the equipment or disconnect the main switch of the power supply under the condition of ensuring safety.

- 高温会使电池包变形、损坏, 导致电解液溢出, 甚至泄露有毒气体, 请勿靠近, 并佩戴防护用具。

High temperature will deform and damage the battery pack, resulting in electrolyte overflow and even toxic gas leakage. Please do not approach and wear protective equipment.

- 若火势较小, 采用二氧化碳或 ABC 干粉灭火器灭火。

If the fire is small, use carbon dioxide or ABC dry powder fire extinguisher to extinguish the fire.

- 若火势有扩展趋势, 请立即撤离建筑物或设备区域, 并拨打火警电话。禁止再次进入燃烧建筑物。

If the fire has a tendency to spread, evacuate the building or equipment area immediately and call the fire alarm telephone. Reentry to burning buildings is

prohibited.

- 消防员在灭火中请勿与高压组件接触，否则可能会导致电击风险。

Firefighters should not come into contact with high-voltage components during fire fighting, otherwise there may be a risk of electric shock.

- 灭火后，禁止使用设备，请联系您的安装商或销售代理商。

After the fire has been extinguished, do not use the equipment. Contact your installer or sales agent.

洪水应急措施 Emergency measures for flood



- 请在确保安全的情况下，应该将设备关机或断开电源总闸。

Please shut down the equipment or disconnect the main switch of the power supply under the condition of ensuring safety.

- 如果电池包被淹没，禁止触碰，避免电击危险。

If the battery pack is submerged, do not touch it to avoid the risk of electric shock.

- 洪水退去后，禁止使用设备，请联系您的安装商或销售代理商。

Do not use the equipment after the flood recedes. Contact your installer or sales agent.

📖 电池包异常应急措施 Emergency measures for abnormal battery pack

危险 ! Danger

- 当电池包有异常气味、电解液泄露、发热等时，禁止靠近或触碰，并立即联系专业人员处理。专业人员必须穿戴护目镜、橡胶手套、防毒面具、防护服等防护用具，保护自身安全。

When the battery pack has abnormal odor, electrolyte leakage, heating, etc., it is forbidden to approach or touch, and immediately contact professionals to deal with it. Professionals must wear goggles, rubber gloves, gas masks, protective clothing and other protective equipment to protect their own safety.

- 电解液具有腐蚀性，接触可能会导致皮肤刺激或化学烧伤。如果意外接触到电解液，请立即采取以下措施：

Electrolyte is corrosive and may cause skin irritation or chemical burns on contact. In case of accidental contact with the electrolyte, take the following measures immediately:

- 吸入：疏散受污染区域，保持新鲜空气流通，并立即寻求医疗帮助。

Inhalation: Evacuate the contaminated area, maintain fresh air circulation, and get medical help immediately.

- 眼睛接触：用大量清水冲洗眼睛≥15 分钟，禁止揉眼，并立即寻求医疗帮助。

Eye contact: Rinse eyes with plenty of water for ≥ 15 minutes, do not rub eyes, and seek medical help immediately.

- 皮肤接触：用大量的肥皂水清洗接触区域，并立即寻求医疗帮助。

Skin contact: Wash the contact area with plenty of soapy water and get medical help immediately.

- 摄入：催吐，并立即寻求医疗帮助。

Ingestion: induce vomiting and seek immediate medical attention.

- 禁止继续使用异常电池包，请联系您的安装商或销售代理。

Do not continue to use the abnormal battery pack. Please contact your installer or sales agent.

电池包跌落或受撞击应急措施 Emergency measures for falling or impact of battery pack

- 如果出现明显的异味、冒烟、起火等，请立即远离设备，并联系专业人员处理。

If there is obvious odor, smoke, fire, etc., please stay away from the equipment immediately and contact professionals to deal with it.

- 电池包跌落或受撞击后禁止使用，请联系您的销售代理商。

Do not use the battery pack after it has been dropped or hit. Please contact your sales agent.

8. 产品使用说明 Instructions for product use

须知

Need to
know

使用该产品前，请仔细阅读该文档中的相关注意事项。

Before using this product, please carefully read the relevant notes in this document.

- 电池包必须在规定的充电倍率或功率条件下使用，并且充电上限电压不得超过产品技术要求，防止电池过充电。以免影响电池的充放电性能、机械性能和安全性能。

The battery pack must be used under the specified charging rate or power conditions, and the upper limit of charging voltage shall not exceed the technical requirements of the product to prevent overcharging of the battery. In order to avoid affecting the charging and discharging performance, mechanical performance and safety performance of the battery.

- 电池包必须在规定的的环境条件下使用，过高或过低的温度环境都会影响电池的性能和安全。

The battery pack must be used under the specified environmental conditions. Too high or too low temperature environment will affect the performance and safety of the battery.

- 电池包必须在清洁、通风的环境条件下使用或存储，避免与腐蚀性物质接触，并远离火源及热源。

The battery pack must be used or stored in a clean and ventilated environment, avoid contact with corrosive substances, and keep away from fire and heat sources.

- 电池系统禁止在强静电和强磁场的地方使用和存储，以免产生安全隐患。

The battery system is not allowed to be used and stored in places with strong static electricity and strong magnetic field, so as to avoid potential safety hazards.

- 电池系统安装或接线前，禁止拆下将正负极和通讯插座的防尘盖，避免造成接触短路和接口积灰。

Before installation or wiring of the battery system, it is forbidden to remove the dust cover of the positive and negative poles and the communication socket to avoid contact short circuit and dust accumulation at the interface.

- 未经我司允许，不得私自拆卸或改装本产品，否则质保终止，若产生安全事故，我司概不负责。

The product shall not be disassembled or modified without the permission of our company, otherwise the warranty will be terminated, and our company will not be responsible for any safety accident.

- 不得将电池系统与金属物体混放，避免造成短路，产生安全风险。

Do not mix the battery system with metal objects to avoid short circuit and safety risks.

- 电池系统必须按照设计状态正立、平躺安装或存放，严禁侧放或倒置。

The battery system must be installed or stored upright or horizontally according to the design state, and it is strictly prohibited to place it on its side or upside down.

- 电池系统第一次使用时，若有腐蚀，难闻气体或不正常现象，禁止使用。

When the battery system is used for the first time, if there is corrosion, smelly gas or abnormal phenomenon, it is forbidden to use.

- 禁止将电池包投入水中。

Do not put the battery pack into the water.

- 禁止反向充电或过放电。

Reverse charge or overdischarge is prohibited.

- 电池系统的使用必须严格遵照以上要求，否则质保终止，造成产品的性能损坏以及安全事故，我司概不负责。

The battery system must be used in strict accordance with the above requirements, otherwise the warranty will be terminated, and our company will not be responsible for the performance damage and safety accidents of the product.

- 在产品使用寿命到期时，请按照按照所在地适用的电器垃圾处置法案进行处理。

At the end of the product's useful life, dispose of it in accordance with the Electrical Waste Disposal Act applicable in the locality.

- 使用直流充电器给电池充电或补电时，当单体电芯电压 < 3.2V，只能以 3kW 进行充电。

When the battery is charged or replenished with a DC charger, the battery can only be charged with 3 kW when the voltage of the single cell is < 3.2 V.

- 在最大 50℃环境温度下，系统充电完成后，需等系统温度静置到 50℃环境温度后，再进行完整的放电循环测试。

At the maximum ambient temperature of 50 °C, after the system is charged, it is necessary to wait for the system temperature to stand at 50 °C ambient temperature before conducting a complete discharge cycle test.

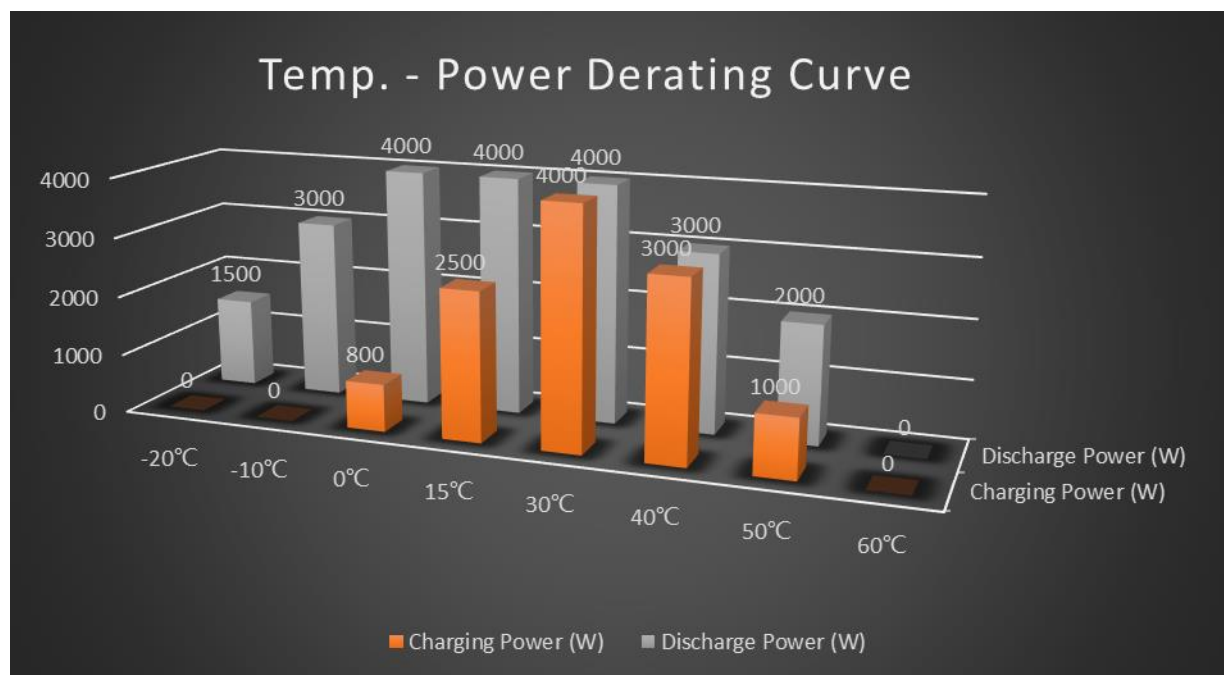
9. 附录 Appendix

9.1 系统参数表 System parameter table

项目 Item	规格 Specification					
系统名称 System Name	SR008D-314	SR016D-314	SR024D-314	SR032D-314	SR040D-314	SR048D-314
系统能量 System Energy	8.0 kWh	16.0 kWh	24.0 kWh	32.0 kWh	40.0 kWh	48.0 kWh
系统电池数量(可选) Battery Module Qty (Optional)	1 (Min.)	2	3	4	5	6 (Max.)
电池电压 Battery Voltage	25.6V					
电池电压范围 Battery Voltage Range	21.6V~29.2V					
电池容量 Rated Capacity	314 Ah	628Ah	942 Ah	1256 Ah	1570 Ah	1884 Ah
额定输出电压 Rated Output Voltage	450V~850V(Optional)					
最大持续充放电功率Max. Continuous charge and discharge Power	4kW	8kW	12kW	16kW	20kW	24kW
工作湿度 Operating Humidity	30%~85%					
放电深度 Depth of Discharge	85% DOD					
运行环境温度 Operating environment temperature	-20℃~50℃					
存储温度 Storage temperature	0℃~35℃					
尺寸(D×W×H) Dimension	640*388*670.5mm	640*388*850.5mm	640*388*1130.5mm	640*388*1410.5mm	640*388*1690.5mm	640*388*1970.5mm
系统重量 System Weight	96kg	171kg	246kg	321kg	396kg	471kg
IP等级 IP Rating	IP65 (System Level)					
海拔高度 Altitude	≤3000m					

9.2 系统功率降容曲线

9.2 System power derating curve



9.3 系统故障处理表 System fault handling table

备注：后续进行补充。

Note: to be supplemented later.