



HB-RM16K

96kWh~241kWh

User Manual

STATEMENT

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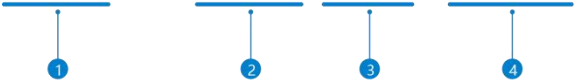
About This Manual

Scope of Validity

This manual is an integral part of HB-RM16K system. It describes the transportation, storage, installation, electrical connection, commissioning , maintenance and troubleshooting of the product. Please read it carefully before operating.

HB-RM16K is a battery system.

HB - RM16K240



1	高压	High Voltage Lithiun Battery
2	机架式模块化	Rack Modular
3	单个模组电能	16 kWh
4	电芯串数	240S

Battery Model List:

HB-RM16K96
HB-RM16K112
HB-RM16K128
HB-RM16K144
HB-RM16K160
HB-RM16K176
HB-RM16K192
HB-RM16K208
HB-RM16K224
HB-RM16K240

Target Group

The installation, maintenance and grid-related setting can only be performed by qualified personnel who:

- Are licensed and/or satisfy state and local jurisdiction regulations.
- Have good knowledge of this manual and other related documents.
- A medium-voltage operator is required to obtain any certifications for High-voltage Electrician.

Conventions

The symbols that may be found in this manual are defined as follows.

Symbol	Description
 DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION!	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE!	Provides tips for the optimal operation of the product.

Change History

Version 01 (2026-01-20)

Update [“12 Technical Data”](#).

Version 00 (2026-01-08)

Initial release

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1 Safety

1.1 General Safety

The series device has been meticulously designed and thoroughly tested to comply with all relevant state and international safety standards. Nevertheless, like all electrical and electronic equipment, safety precautions must be observed and followed during the installation of the device to minimize the risk of personal injury and ensure a safe installation.

Please thoroughly read, comprehend, and strictly adhere to the comprehensive instructions provided in the user manual and any other relevant regulations prior to the installation of the device. The safety instructions in this document serve as supplementary guidelines to local laws and regulations.

FENG Rui shall not be liable for any consequences resulting from the violation of the storage, transportation, installation, and operation regulations outlined in this document. Such consequences include, but are not limited to:

- Device damage caused by force majeure events, such as earthquakes, floods, thunderstorms, lightning, fire hazards, volcanic eruptions, and similar events.
- Device damage due to human causes.
- Device damage caused by strong vibrations from external factors before, during and after installation.
- Usage or operation of the device in violation of local policies or regulations.
- Failure to comply with the operation instructions and safety precautions provided with the product and in this document.
- Improper installation or usage of the device in unsuitable environmental or electrical conditions.
- Unauthorized modifications to the product or software.
- Device damage occurring during transportation by the customer.
- Storage conditions that do not meet the requirements specified in this document.
- Failure to adequately maintain the device.
- Installation and commissioning performed by unauthorized personnel who lack the necessary licenses or do not comply with state and local jurisdiction regulations.

1.2 Safety Instructions of Battery

General safety precautions

- Overvoltage or wrong wiring may damage the battery pack and cause combustion which may be extremely dangerous;
- Leakage of electrolytes or flammable gas may be occurred due to any type of product breakdown;
- Do not install the battery pack in places where flammable and combustible materials are stored, and in which an explosive atmosphere is present;
- The battery pack wiring must be carried out by qualified personnel;
- Battery pack must be serviced by qualified personal;
- Ensure that the grounding cable is connected before handling the battery pack.

Battery handling guide

Do's

- DO keep the battery pack away from flammables materials, heat sources, and water sources;
- DO keep the battery pack out of reach of children and animals;
- DO practice proper battery storage by keeping the battery pack in a clean environment, free of dust, dirt and debris;
- DO store the battery pack in a cool and dry place;
- DO seal the outer cable connection hole to prevent ingress of foreign objects;
- DO confirm that the wiring of the device must be correct;
- DO install the device according to the local standards and regulations.

Don'ts

- DON'T expose the battery pack to an open flame, or the temperature in excess of

140°F/60°C;

- DON'T install or operate the battery pack in places where there is excessive moisture or liquids;
- DON'T place the battery pack in a high-voltage environment;
- DON'T disconnect, disassemble or repair the device by unqualified personnel. Only a qualified personnel is allowed to handle, install and repair the device;
- DON'T damage the device by dropping, deforming, impacting, cutting or penetrating with a sharp object. Otherwise, it may cause a fire or leakage of electrolytes;
- DON'T touch the device if liquid spill on it. There is a risk of electric shock;
- DON'T step on the packaging or the device may be damaged;
- DON'T place any objects on top of the battery pack;
- DON'T charge or discharge a damaged battery pack;
- DON'T dispose of the battery pack in a fire. It may cause leakage or rupture;
- DON'T mix different types or makes of the battery pack. It may cause leakage or rupture, resulting in personal injury or property damage.

Response to emergency situations

In case the battery module leaks electrolyte or any other chemical materials, or gas may be generated due to the leakage of battery module, be sure to avoid contact with the discharge at all times. In case of accidentally coming into contact with them, please do as follows:

- In case of inhalation: Leave the contaminated area immediately, and seek medical attention at once;
- In case of contact with eyes: Rinse eyes with running water for 15 minutes, and seek medical attention;
- In case of contact with skin: Wash the contacted area thoroughly with soap, and seek medical attention;
- In case of ingestion: Induce vomiting, and seek medical attention.

If a fire breaks out where the battery module is installed, please do as follows:

- In case the battery pack is charging when the fire breaks out, provide it is safe to do so, disconnect the battery pack circuit break to shut off the power charge;
- In case the device is not on fire yet, use a Class ABC fire extinguisher or a carbon dioxide extinguisher to extinguish the fire;
- If the battery pack catches fire, do not try to put out the fire, and evacuate immediately.
- The battery pack may catch fire when it is heated above 302°F/150°C; and in case

of catching fire, it will produce noxious and poisonous gas, DO not approach and keep away.

Effective ways to deal with accidents

- In case of the damaged battery pack, place it into a segregated place, and call the local fire department at the place where the user lives or qualified personnel.
- If any part of the battery pack, or wiring is submerged, DO stay out of the water and DON'T touch anything; If the battery pack gets wet, DON'T touch it.
- If the battery pack is damaged, DON'T use it. Otherwise, it may result in both personal injury and property damage.
- DON'T use the submerged battery pack again, and contact the qualified personnel for assistance.
- DO contact FENGRUI immediately for assistance if the user suspects that the battery pack is damaged.

WARNING!

- Do not crush or impact battery, and always dispose of it according to relevant safety regulations.
- The battery pack may catch fire when heated above 150°C/302°F.
- In case of catching fire, the battery pack will produce noxious and poisonous gases, and please keep away the battery.
- Damaged batteries may leak electrolyte or produce flammable gas. If users suspect that the battery is damaged, please immediately contact FENGRUI for advice and information.
- All operations of the batteries relating to electrical connection and installation must be carried out by qualified personnel.

CAUTION!

- If the battery pack is not installed within a month after receipt, it must be charged for maintenance. Non-operational batteries should be discarded according to the local regulations.

2 Product Overview

2.1 Product Introduction

The product "HB-RM16K" is an energy storage system that is both powerful and highly scalable. It meets the capacity requirements of single systems from 96 kWh to 241 kWh, is equipped with a high-voltage box for optimal performance and protection, and maximises energy efficiency, and supports indoor and outdoor installations.

2.2 Appearance and Dimension

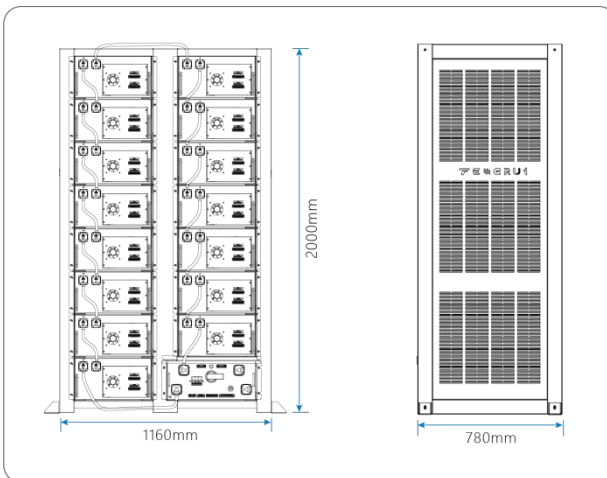


Figure2-1 Appearance and Dimensions

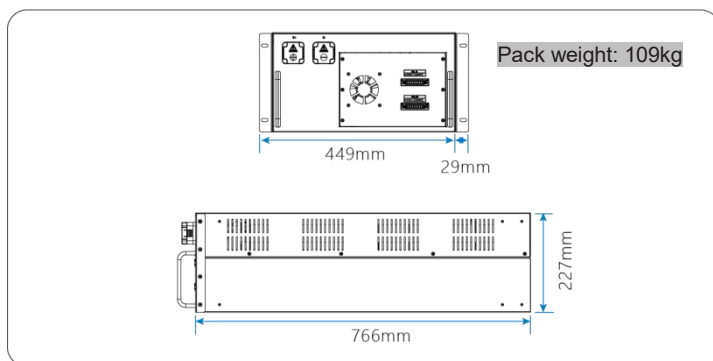


Figure2-2 Dimensions and weight of battery pack

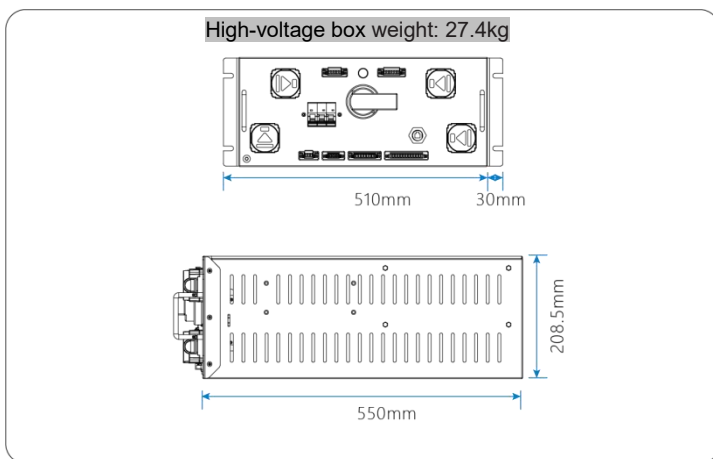


Figure2-3 Dimensions and weight of high-voltage box

2.3 Parts Description

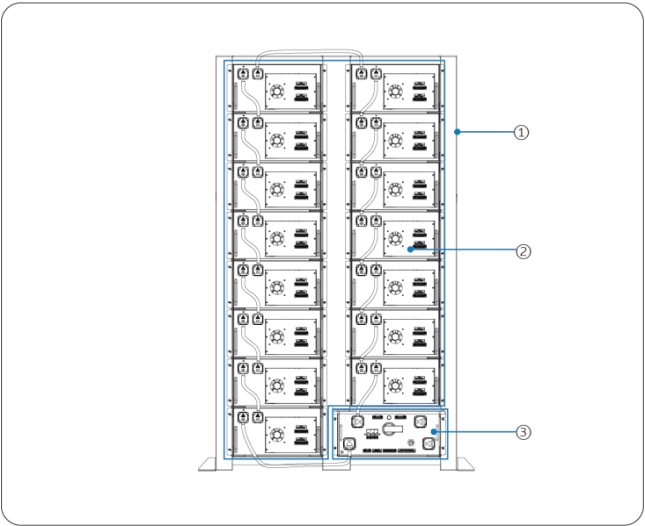


Figure2-4 HB-RM16K240

No.	Item	Description
1	Bracket	To place and secure battery pack(s) and high-voltage box.
2	Battery pack	A type of electrical battery which can charge loads.
3	High-voltage box	To collect current and voltage information on battery cluster, and control the charge and discharge of battery pack.

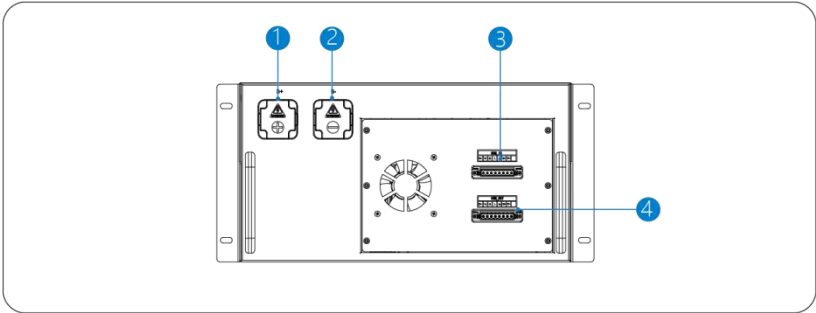


Figure2-5 Description of battery pack components

1	端口B+	用于通过电源线连接到高压盒或电池包的端口 B+
2	端口B-	用于通过电源线连接到高压盒或电池包的端口 B-
3	COM-IN	用于通过通信线连接到高压盒或电池包
4	COM-OUT	用于通过通信线连接到电池包或连接终端电阻

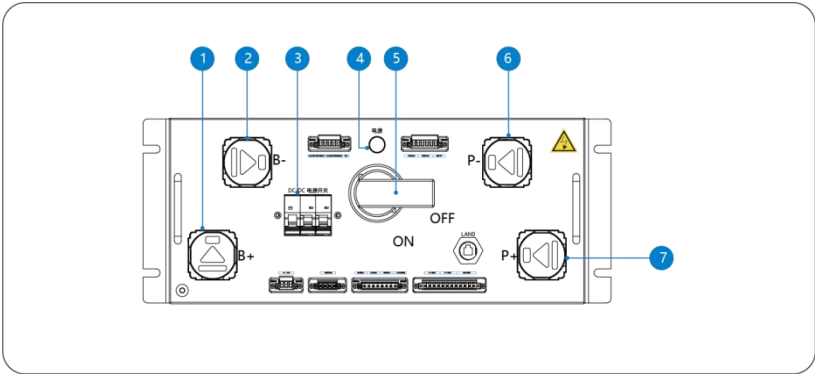


Figure2-6 Definition of power socket port for high-voltage box

序号	端口定义	功能说明	备注
1	B+	电池簇输入正端	连接电池簇正端，接口为M8极柱
2	B-	电池簇输入负端	连接电池簇负端，接口为M8极柱
3	DC/DC 电源开关	BMS/风扇: DC/DC 电源开关	BMS/风扇电源直流空开， 控制BMS上下电池，电池侧取点
4	电源	BMS/风扇: AC/DC 电源开关	BMS/风扇电源开关按钮， 控制BMS上下电，市电/UPS取电
5	电池簇开关	电池簇开关	手动控制电池簇高压输出（断路器手柄）
6	P-	高压箱输出负端	高压箱输出到汇流柜BAT-汇流 或直接到PCS-，接口为M8极柱
7	P+	高压箱输出正端	高压箱输出到汇流柜BAT+汇流 或直接到PCS+，接口为M8极柱

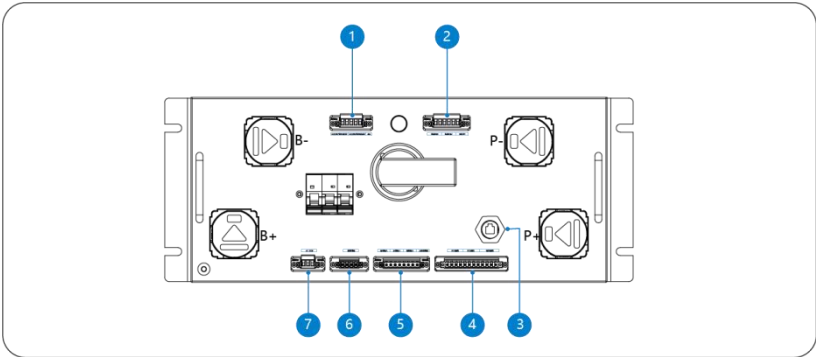


Figure2-7 Definition of pins for high-voltage box control port

端口1：（从控接口）

端口名称	端子序号	端口定义	功能说明	备注
簇内 通信 电源	1	①CAN 从控供电：24V+ ②菊花链通信：IP1	①高压箱给簇内 CAN 通信从控模块 DC24V 供电 ②菊花链从控模块通信	CAN 和菊花链 二选一
	2	①CAN 从控供电：24V- ②菊花链通信：IM1		
	3	①CAN 从控通信：0H ②菊花链通：IP2	①高压箱与 CAN 从控模块通信：CAN0-H ②菊花链从控模块通信	
	4	①CAN 从控通信：0L ②菊花链通：IM2	①高压箱与 CAN 从控模块通信：CAN0-L ②菊花链从控模块通信	
	5	+5V	从控模块自动分配地址	主控的+5V 引脚

端口2：（风扇供电）

端口名称	端子序号	端口定义	功能说明	备注
风扇供电 及其它	1	风扇供电：24V+	高压箱给簇内风扇模块 DC24V 供电	单路供电电流≤12A（持续） 电流较大时建议走 2 路/3 路供电
	2	风扇供电：24V-		
	3	风扇供电：24V+	高压箱给簇内风扇模块 DC24V 供电	
	4	风扇供电：24V-		
	5	预留供电：24V+	预留供电 DC24V	预留其它 DC24V 设备供电，若整簇 风扇电流过大，2 路不够时也可使用
	6	预留供电：24V-		

端口3：（LAN0）

端口名称	功能说明	备注
LAN0	三级架构用于与 ESMU 显控通信； 二级架构用于与 EMS（ESCCU）通信	
LAN1	三级架构用于与 LAN0 搭配手拉手 与 ESMU 显控通信	当前高压箱面板暂时只有 LAN0

端口4：（动环通讯）

端口名称	端子序号	端口定义	功能说明	备注
动环通讯	1	1H	PCS 通讯	一般用于 PCS 通讯 根据实际需要接入
	2	1L		
	3	R_1H	两者短路，则 CAN1 有终端电阻， 否则无终端电阻	根据实际需要短接
	4	R_1L		
	5	D08+	PCS 停机干接点信号	一般用于严重故障时， BMS输出此信号告知PCS 此时应停机保护
	6	D08-		
	7	485A	PCS 通讯（推荐液冷/温湿度/水浸/消防/电表等通讯）	一般用于 PCS 通讯 根据实际需要接入
	8	485B		
	9	2H	常见用于空调、消防、液冷机组等设备通讯	根据实际需要接入 产线充放电柜 DBC 也可 接 CAN2 调试
	10	2L		
	11	R_2H	两者短路，则 CAN2 有终端电阻，否则无终端电阻	根据实际需要短接
	12	R_2L		

端口5：（联动保护信号/调试口）

端口名称	端子序号	端口定义	功能说明	备注
联动 保护 信号	1	DI4H	急停输入信号	急停输入信号 (实际可接可不接，仅作参考推荐)
	2	V+		
	3	D17-	水浸反馈输入信号	水浸反馈输入信号 (实际可接可不接，仅作参考推荐)
	4	V-		
	5	D18-	消防三级输入信号	消防三级输入信号 (实际可接可不接，仅作参考推荐)
	6	V-		
上位机 调试口	7	0H	上位机调试口	上位机调试接口
	8	0L		

端口6：（主控簇间编址）

端口名称	端子序号	端口定义	功能说明	备注
主控编址	1	DI5L	高压箱内主控编址输入	手拉手
	2	V-		
	3	D07+	高压箱内主控编址输出	
	4	D07-		

端口7：（AC 230V）

端口名称	端子序号	端口定义	功能说明	备注
BMS-AC230V	1	L	外部 AC230V 电源输入， 给高压箱内部 BMS 开关电源供电	
	2	N		
	3	NC	悬空	

2.4 Label



Industrial And Commercial Lithium-ion Battery Systems

System Model /Nominal Voltage/Operation Voltage/Nominal Energy

□ HB-RM16K96/307.2V/268.8-345.6V/96.46kWh	IFpP72/174/207/[(165)65]E/-20+55/90
□ HB-RM16K112/358.4V/313.6-403.2V/112.53kWh	IFpP72/174/207/[(165)75]E/-20+55/90
□ HB-RM16K128/409.6V/358.4-460.8V/128.61kWh	IFpP72/174/207/[(165)85]E/-20+55/90
□ HB-RM16K144/460.8V/403.2-518.4V/144.69kWh	IFpP72/174/207/[(165)95]E/-20+55/90
□ HB-RM16K160/512.0V/448.0-576.0V/160.76kWh	IFpP72/174/207/[(165)105]E/-20+55/90
□ HB-RM16K176/563.2V/492.8-633.6V/176.84kWh	IFpP72/174/207/[(165)115]E/-20+55/90
□ HB-RM16K192/614.4V/537.6-691.2V/192.92kWh	IFpP72/174/207/[(165)125]E/-20+55/90
□ HB-RM16K208/665.6V/582.4-748.8V/208.99kWh	IFpP72/174/207/[(165)135]E/-20+55/90
□ HB-RM16K224/716.8V/627.2-806.4V/225.07kWh	IFpP72/174/207/[(165)145]E/-20+55/90
□ HB-RM16K240/768.0V/672.0-864.0V/241.15kWh	IFpP72/174/207/[(165)155]E/-20+55/90

Battery Type : LiFePO₄(LFP)
Rated Capacity : 314Ah
Operation Voltage : 43.2V-57.6V
Recommended Charge : 150A charge CC-CV
Operation Temperature : Charge 0~60°C / Discharge -20~60°C
Protection Class : I
Ingress Protection : IP20
Storage Temperature : -20~60°C



BEWARE OF FIRE HAZARD! DISPOSAL ACC. TO LOCAL REGULATIONS!
WUXI FENG RUI NEW ENERGY POWER BATTERY CO., LTD.

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ADD: No.5 Jingxin Road, Xishan District,
Wuxi CityJiangsu Province, P.R China

Made in China

Figure2-8 System Performance Label



Industrial And Commercial Lithium-ion Battery Systems

Model: HB-RM16K
Battery Type : LiFePO₄(LFP)
Battery Labeling : IFpP72/174/207/[(165)]E/-20+55/90
Rated Capacity : 314Ah
Operation Voltage : 43.2V-57.6V
Rated Voltage/Rated Energy : 51.2V/16.07KWh
Recommended Charge : 150A charge CC-CV
Operation Temperature : Charge 0~60°C / Discharge -20~60°C
Protection Class : I
Ingress Protection : IP20
Storage Temperature : -20~60°C



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Figure2-9 PACK Label

2.5 Symbols on the Label

Table 2-10 Description of symbols

Symbol	Description
	The battery system must be disposed of at a proper facility for environmentally-safe recycling.
	Additional grounding point
	The battery pack may explode. The rechargeable battery can become hot during operation. Avoid contact during operation.
	Risk of electric shock. High voltage exists after the device is powered on!
	Risk of danger Potential hazards exist after the device is powered on!
	Observe enclosed document.
	The device can not be disposed together with the household waste.
	Keep the battery system away from children.
	Keep the battery system away from open flames or ignition sources.

3 Transportation and Storage

3.1 Transportation

3.1.1 Battery Transportation



- Please be careful to avoid physical collisions during transportation. Do not place the equipment upside down, be exposed to water, etc., which may result in equipment damage, or even a fire or an explosion.

NOTICE!

- Please strictly comply with the transportation requirements of the warning signs on the packaging and equipment.
- To reduce product damage caused by shocking, tilting or impacting during transportation, it is recommended to consider sea or road (with better conditions) transport instead of rail and air transports.

NOTICE!

Transportation requirements for battery:

- Relevant qualifications for the transport of dangerous goods must be obtained by the forwarding agent engaged in such businesses, and they must strictly abide by the local regulations for the transport of dangerous goods.
- Please check the battery before transportation. If a battery leaks, smells, or is damaged, do refuse to transport it.
- Please handle gently in the process of loading and unloading, transportation, and moving a battery to prevent bumping, and take effective moisture-proof measures to prevent personal injuries and battery damage.
- Unless otherwise specified, do not transport the batteries, which are classified as dangerous goods, together with food, medicine, or other additives on the same means of transport.

Manual handling

- Please choose an appropriate transport method based on site conditions and device weight.
- Please wear PPE (eg. protective gloves, shoes, belt, etc.) and lift the device with proper postures, to prevent personal injuries and device damage.
- Please reasonably arrange the number of workers and the handling position to achieve distributing weight and balancing load when moving the device.
- Please hold the handles or the bottom of the device when moving, to avoid device damage.
- Please pay attention to the surrounding environment when moving, such as obstacles, slippery ground, etc., to avoid personal injuries and device damage.

Forklift

- Please confirm the forklift's load-bearing capacity shall be $> 2\text{ t}$ before using it.
- Before moving the device, please pay attention to the center of gravity position of the load, and fully secure the load on the forklift by securing measures, such as ropes or bindings. In addition, please designate a person to supervise for safety concerns during transportation.

3.2 Storage

3.2.1 Battery Storage



- The battery must be stored indoors, which the environment should meet the following requirements: 1. Avoiding direct sunlight and keeping out of rain; 2. Dry and well-ventilated; 3. Keeping away from heat and fire sources; 4. Keeping away from radiation; 5. Keeping away from chemicals; 6. Keeping away from dust and metal conductive dust; 7. Being equipped with fire facilities.
- Batteries must be stored in accordance with the requirements of the warning signs and other information on the packaging.
- Do not store with any other electronic equipment, chemicals, or other items that may cause interference or danger.
- Please pay attention to the height when stacking batteries to avoid deforming or damaging the battery at the bottom.

NOTICE!

- Do not store the batteries for a long time. If long periods of storage are unavoidable, please recharge it periodically to avoid battery damage.

- Regarding with the storage information, see the following table:

Table 3-1 Storage information

Storage temperature range	Storage time
30°C to 50°C	6 months
-20°C to 30°C	12 months

- Relative humidity for device storage: 5% ~ 95% (packaged storage).
- If the battery has been stored for more than 1 year, it must be checked and tested

by professionals before use.

Table 3-2 Maintenance of battery pack

Circumstance	Measure
If the ambient temperature for storage is between 30°C and 50°C	Recharge the battery packs at least once every 6 months
If the ambient temperature for storage is between -20°C and 30°C	Recharge the battery packs at least once every 12 months.
In the first installation	The interval among manufacture dates of battery packs shall not be exceed 3 months.
If a battery module is replaced or added for capacity expansion	Each battery's SOC should be consistent. The max. SOC difference should be $\pm 5\%$.
If users want to increase their battery system capacity	Ensure that the SOC of the existing system capacity is about 40%. The manufacture date of the new battery pack shall not exceed 6 months. If the manufacture date of the new one exceeds 6 months, please charge it to around 40%.

4 Preparation before Installation

4.1 Selection of Installation Location

The installation location selected for the device is quite critical in the aspect of the guarantee of machine safety, service life and performance, which shall be convenient for wiring connection, operation and maintenance.

Battery environment requirement

Make sure the installation site meets the following conditions:

- The ambient temperature: -20°C to $+53^{\circ}\text{C}$;
- The humidity shall be between 5-85%;
- Do not install the battery in the areas where the altitude exceeds 3000 m;
- Area accessible only to electrically skilled persons and electrically instructed persons with the proper authorization;
- Avoid direct sunlight;
- Flaunting an IP20 enclosure, the battery can only be used indoors;
- Do not install the battery in areas with flammable, explosive and corrosive materials or near antenna.

NOTICE!

- In a high temperature environment above 45°C , the battery may shed load during operation.

4.1.1 Installation Carrier Requirement

Battery installation carrier requirement

The mounting location must be suitable for the weight and dimensions of the product and the support surface for installation must be made of a non-flammable material.

- Solid brick/concrete, or mounting surface with equivalent strength;
- Please ensure that the thickness of any part of the wall should not be less than 150 mm;
- The bearing capacity of the ground for one bracket must be over 1500 kg; The bearing capacity of the ground for dual bracket must be over 3000 kg.
- The device must not be installed on the wood wall.

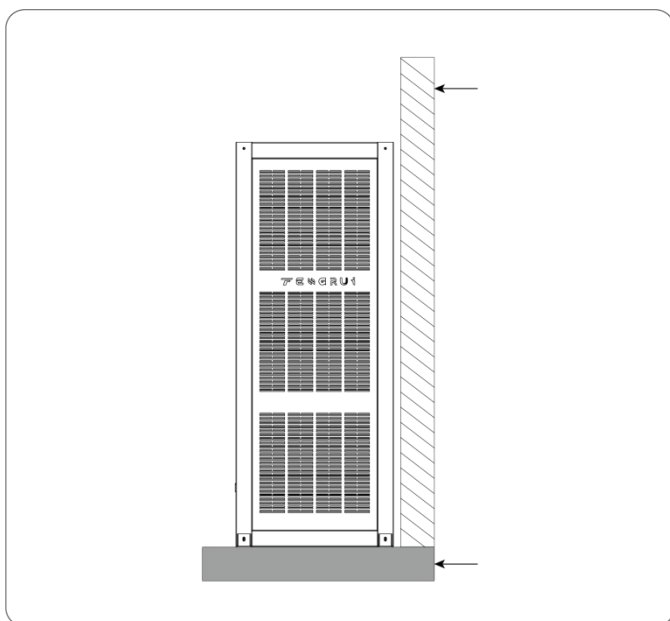


Figure 4-1 Installation carrier requirement

4.1.2 Clearance Requirement

Battery clearance requirement

To guarantee proper heat dissipation and ease of disassembly, the minimum space around the bracket must meet the standards indicated below.

- At least a distance not less than 850 mm shall be provided to give access to the bracket for installation and maintenance.
- At least a distance between 20 and 35 mm shall be provided between the wall and the bracket for heat dissipation.

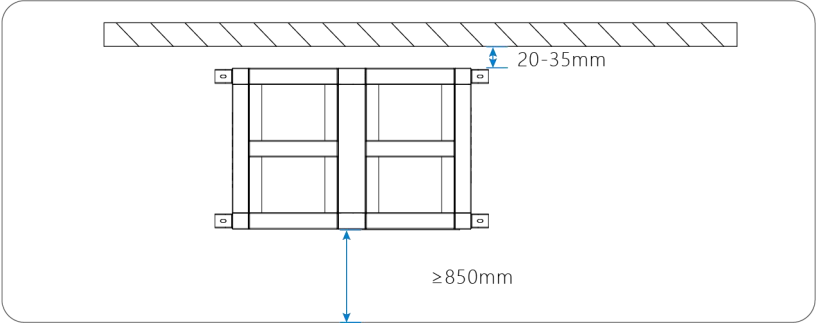
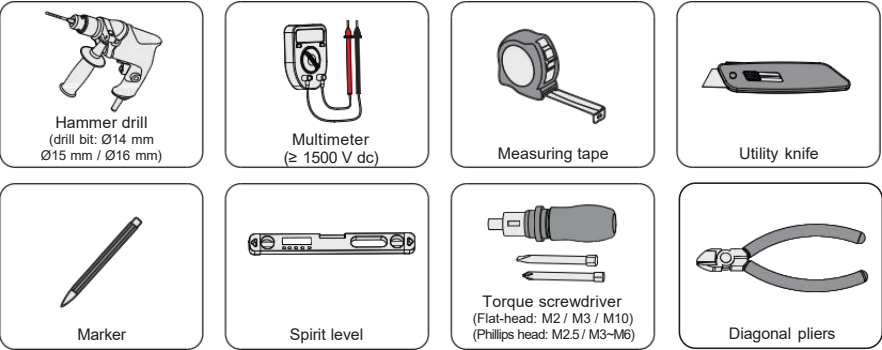


Figure 4-2 Installation space

4.2 Tools Requirement

Installation tools include but are not limited to the following recommended ones. If necessary, use other auxiliary tools on site.

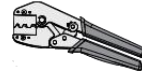




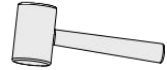
Wire stripper



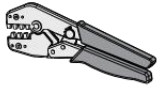
Crimping tool
for RJ45



Crimping tool for
PV terminals



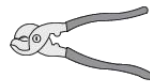
Rubber mallet
(hammer diameter < 34 mm)



Crimping tool



Crimping tool for ferrules



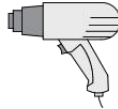
Wire cutter



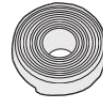
Ladder (>1.5m)



Torque wrench (M4~M12)



Heat gun



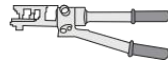
Heat shrink tubing
(Ø13 mm / Ø30~60 mm)



Cable tie



Slings
carrying capacity ≥ 150 kg
length ≥ 0.8 m



Hydraulic plier



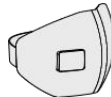
Crane
carrying capacity ≥ 150 kg
lifting height ≥ 2.1 m



Electric forklift



Safety goggle



Anti-dust mask



Safety gloves



Safety boots



Vacuum cleaner

4.3 Additionally Required Materials

Table 4-4 Additionally required wires

No.	Required Material	Type	Conductor Cross-section
1	PV wire	 Dedicated PV wire with a voltage rating of 1000 V, a temperature resistance of 105°C , a fire resistance grade of VW-1	6 mm ²
2	Communication wire 1	 Network cable CAT5E	/
3	Communication wire 2	 Four-core signal cable	0.25 mm ² -0.3 mm ²
4	Grid and EPS wire	 Five-core copper cable	35 mm ²
5	Additoinal PE wire	 Conventional yellow and green wire	25 mm ²
6*	Battery power cable (for capacity expansion only)	 One-core copper cable	26.7±2 mm ²
7	Grounding plate	 Copper bar	Width: 40 mm Depth: 4mm
8	Protective pipe	 /	Inner diameter: Over 50 mm

NOTICE!

- The battery power cable needs to be prepared when the system needs capacity expansion.

Table 4-5 Circuit breaker recommended for Grid connection

Model	49.9 kW	50 kW	60 kW
Circuit breaker 	> 100A	> 100A	> 125A

Table 4-6 Micro-breaker recommended for EPS connection

Model	49.9 kW	50 kW	60 kW
Circuit breaker 	> 100A	> 100A	> 125A

Table 4-7 RCD recommended

Model	49.9 kW	50 kW	60 kW
RCD 	< 500 mA	< 500 mA	< 600 mA

5 Mechanical Installation

⚠ WARNING!

- Only the qualified personnel can perform the mechanical installation following the local standards and requirements.
- Check the existing power cables or other piping in the wall to prevent electric shock or other damage.

⚠ CAUTION!

- Always be aware of the weight of the battery. Personal injuries may result if the battery is lifted improperly or dropped while being transported or mounted.
- Use insulated tools and wear individual protective tools when installing the battery.



Figure5-1 Assembling the bracket

6 Electrical Connection

6.1 Dual bracket Battery System Connection

NOTICE!

- The battery system configuration of dual bracket system takes HB-RM16K240 as an example.

Cables between the battery packs, high voltage box and inverter, as shown in the following figure.

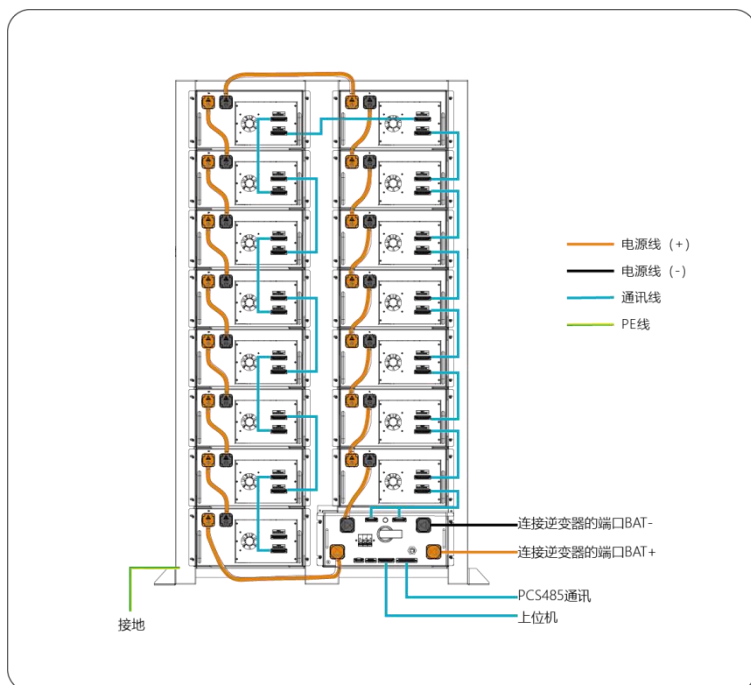


Figure6-1 Dual bracket Battery System Connection

7 Decommissioning

7.1 Disposing of the Wasted and Damaged Battery Pack

Regarding the wasted or damaged battery packs, FENGRUI will not recycle them. Therefore, users can contact a recycling agency to dispose of them. The expenses incurred shall be borne by the users themselves.

Step 1: Contact a recycling agency, and estimate the expenses.

Step 2: The recycling agency will take full responsibility for dispose of the wasted or damaged battery packs.

8 Technical Data

Battery system configuration list

No.	Model	BMS	Battery pack	Nominal energy (kWh)	Operating voltage (Vdc)
1	HB-RM16K96	BMS-R15 × 1	HB-RM16K × 6	96.46	268.8~345.6
2	HB-RM16K112	BMS-R15 × 1	HB-RM16K × 7	112.53	313.6~403.2
3	HB-RM16K128	BMS-R15 × 1	HB-RM16K × 8	128.61	358.4~460.8
4	HB-RM16K144	BMS-R15 × 1	HB-RM16K × 9	144.69	403.2~518.4
5	HB-RM16K160	BMS-R15 × 1	HB-RM16K × 10	160.76	448~576
6	HB-RM16K176	BMS-R15 × 1	HB-RM16K × 11	176.84	492.8~633.6
7	HB-RM16K192	BMS-R15 × 1	HB-RM16K × 12	192.92	537.6~691.2
8	HB-RM16K208	BMS-R15 × 1	HB-RM16K × 13	208.99	582.4~748.8
9	HB-RM16K224	BMS-R15 × 1	HB-RM16K × 14	225.07	627.2~806.4
10	HB-RM16K240	BMS-R15 × 1	HB-RM16K × 15	241.15	672~864

Battery system performance parameter

Model	HB- RM16K96	HB- RM16K112	HB- RM16K128	HB- RM16K144	HB- RM16K160
Cell Chemistry	LFP/ 314Ah				
Pack Configuration	1P96S	1P112S	1P128S	1P144S	1P160S
Rated Energy (kWh)	96.46kWh	112.53kWh	128.61kWh	144.69kWh	160.76kWh
Rated Voltage (V)	307.2V	358.4V	409.6V	460.8V	512V
Operating Voltage Range	268.8-345.6V	313.6-403.2V	358.4-460.8V	403.2-518.4V	448-576V
Max. Continuous Charge/ Discharge Current	140A				
Dimensions (W*D*H)(mm)	585*784*2150mm		1170*784*2150mm		
Weight	788 KGS	898 KGS	1083 KGS	1193 KGS	1303 KGS
BMS Communication	Modbus RTU				
Depth of Discharge	80%				
IP Rating	IP20				
Operating Temperature (°C)	Charge: 0-50°C; Discharge: -10~50°C				
Relative Humidity	≤90%(Non-condensing)				

Technical Data

Altitude	≤2000m
Cycle Life	≥6500 Cycles @25°C 80%DOD
Installation Method	Floor Standing
Certifications	UN38.3, IEC62619(CB), CE-EMC

Model	HB- RM16K176	HB- RM16K192	HB- RM16K208	HB- RM16K224	HB- RM16K240
Cell Chemistry	LFP/ 314Ah				
Pack Configuration	1P176S	1P192S	1P208S	1P224S	1P240S
Rated Energy (kWh)	176.84kWh	192.92kWh	208.99kWh	225.07kWh	241.15kWh
Rated Voltage (V)	563.2V	614.4V	665.6V	716.8V	768V
Operating Voltage Range	492.8-633.6V	537.6-691.2V	582.4-748.8V	627.2-806.4V	672-864V
Max. Continuous Charge/ Discharge Current	140A				
Dimensions (W*D*H)(mm)	1170*784*2150mm				
Weight	1413 KGS	1523 KGS	1633 KGS	1743 KGS	1853 KGS
BMS Communication	Modbus RTU				
Depth of Discharge	0.8				
IP Rating	IP20				
Operating Temperature (°C)	Charge: 0-50°C; Discharge: -10~50°C				
Relative Humidity	≤90%(Non-condensing)				
Altitude	≤2000m				
Cycle Life	≥6500 Cycles @25°C 80%DOD				
Installation Method	Floor Standing				
Certifications	UN38.3, IEC62619(CB), CE-EMC				

Note:

1. Test conditions: 90% DOD, 0.2 C charge & discharge @ +25°C.
2. System usable energy may vary with inverter different setting.
3. Discharge: In case of battery cell's temperature range of -20°C ~ 10°C and 45°C ~ 53°C, the discharge current will be reduced; Charge: In case of battery cell's temperature range of 0°C ~ 25°C and 45°C ~ 53°C, the charge current will be reduced. Product charge or discharge power depends on the actual temperature of the battery cell.
4. The battery can only be discharged and cannot be charged when the battery cell's temperature range is between -20°C and 0°C.

Battery Pack parameter

Model:	HB-RM16K
Battery Type:	LiFePO4(LFP)
Battery Labeling:	IFpP72/174/207/[(16S)]E/-20+55/90
Rated Capacity:	314Ah

Technical Data

Operation Voltage:	43.2V-57.6V
Rated Voltage/Rated Energy:	51.2V/16.07KWh
Recommended Charge:	150A charge CC-CV
Operation Temperature:	Charge 0~60℃/ Discharge -20~60℃
Protection Class:	I
Ingress Protection:	IP20
Storage Temperature:	-20~60℃



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