HYXI

User Manual

LOW VOLTAGE BATTERY

HYX-E50-LR



Carefully read this user manual before using the product.
Read and save these instructions.

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1 About This Document

Zhejiang Hyxi Technologys Co., Ltd. (hereinafter referred to by its brand name HYXI) is committed to providing cleaner, smarter energy solutions worldwide, leveraging decades of expertise in renewable energy solutions and energy management systems. Our product portfolio includes telecom backup systems, residential, commercial, and industrial-grade Battery Energy Storage Systems (BESS), inverters, electric vehicle charging piles, Energy Management Systems (EMS), and more.

This user manual applies to this smart lithium-ion battery products manufactured by Zhejiang Hyxi Technologys Co., Ltd. (hereinafter 'HYXI'). Please read this manual carefully after unpacking the product to fully understand its specifications, performance features, installation requirements, and maintenance procedures. If you have any questions, contact HYXI promptly for professional advice and support.

This document is intended for:

- Installation Engineers
- Technical Support Engineers
- Maintenance Engineers

2 Safety Precautions

2.1 Safety Symbols

The following symbols may appear in this document and are defined as follows:

Table 1. Safety Symbol Definitions

Symbol	Definition	Remarks
DANGER	Danger	Indicates a high-risk hazard that, if not avoided, will result in death or serious injury.
WARNING	Warning	Indicates a medium-risk hazard that, if not avoided, could result in death or serious injury.
CAUTION	Caution	Indicates a low-risk hazard that, if not avoided, could result in minor or moderate injury.
NOTE	Note	Provides important supplemental information relevant to the text. Remark: Used for general information, explanations, or notes unrelated to personal injury, equipment damage, or environmental degradation.

2.2 Safety Precautions

Strictly adhere to the following safety precautions, installation and maintenance requirements, as well as all applicable local safety laws and regulations. Ligoo shall not be liable for any damage, injury, or death resulting from non-compliance with these instructions.

- Operation

DANGER

Do not wear conductive items such as watches, bracelets, bangles, rings, etc., while handling the battery system.

Immediately disconnect power if moisture is present on the battery surface. In humid environments, take measures to prevent moisture ingress into the battery system.

Ensure the battery pack remains disconnected during installation and maintenance.

Never short-circuit or reverse the polarity of battery terminals, as this may cause battery damage.

Do not place tools on top of batteries during installation or maintenance.

After installation or periodic maintenance, check all battery terminal bolts to ensure they are securely tightened.

- Usage

⚠ DANGER

Do not invert, tilt, or subject the battery to impact.

Do not install battery modules near open flames, in damp locations, or in corrosive environments.

Do not operate batteries outside the specified temperature range, as this may affect performance and safety.

Never immerse batteries in water or any other liquid.

Do not modify, disassemble, crush, bend, deform, puncture, or tear batteries without prior authorization from HYXI.

- Thunderstorms

⚠ DANGER

All on-site operations must be suspended during thunderstorms to avoid the risk of lightning strikes.

3 Product Overview

The HYX-E50-LR features low self-discharge, high energy density, and no memory effect. It offers excellent rate performance, cycle life, adaptability to high and low temperatures, and safety. It is widely used in telecommunications, commercial energy storage, and residential energy storage applications.

3.1 Product Appearance

The product appearance is shown below:

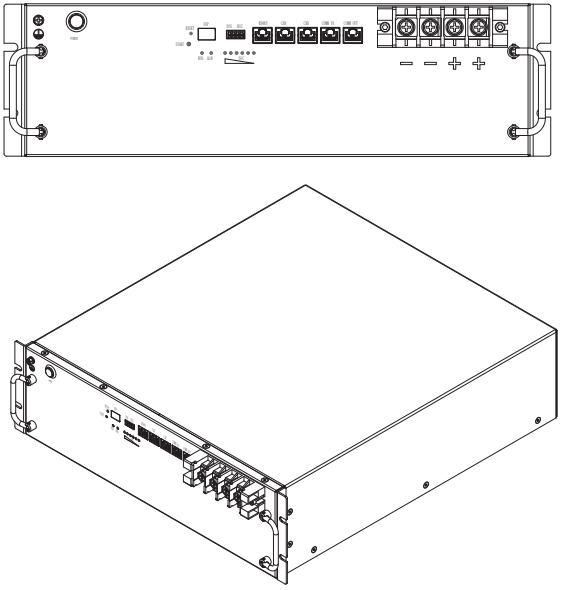


Figure 1. HYX-E50-LR External View

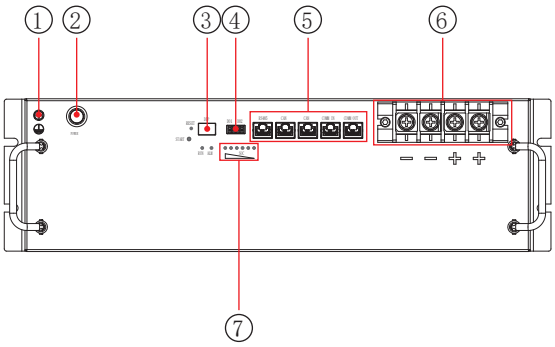


Figure 2. HYX-E50-LR Operation Panel

The interface definitions of the HYX-E50-LR are listed in the following table:

Table 2. HYX-E50-LR Operation Panel Description

No.	Interface	Description	Remarks
1	PE	Ground point	Reserved for external grounding
2	POWER	Power button	Sleep/Wake-up button
3	ID	DIP switch	Used to configure master/ slave and slave address
4	DRY	Dry contact	Used to output fault status externally
5	COM	PCS communication & parallel port	For PCS communication and parallel communication
6	P+/P-	Positive/Negative terminals	Power input/output ports
7	SOC	State-of-charge / Fault indicator	Indicates fault status and current charge level

3.2 Indicator Description

There are nine indicators on the operation panel, divided into three categories: six green SOC indicators, one red ALM alarm indicator, and two green START and RUN operation indicators.

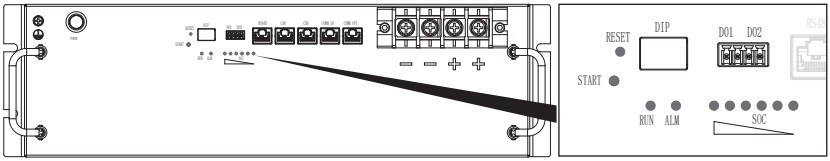


Figure 3. Operation Panel Indicators

The power indicators are used to identify the current capacity status of the battery.

The number of blinking SOC indicators corresponds to different remaining capacity levels. For detailed meanings, refer to the table below:

Table 3. SOC Indicator Definition

Indicator Color	Number of Indicators Lit	Remaining Capacity Range
Green	1 indicator lit	0% < SOC ≤ 17%
Green	2 indicators lit	18% < SOC ≤ 33%
Green	3 indicator lit	34% < SOC ≤ 50%
Green	4 indicators lit	51% < SOC ≤ 66%
Green	5 indicators lit	67% < SOC ≤ 83%
Green	6 indicators lit	84% < SOC ≤ 100%

The indicator blinking patterns are shown in the following table:

Table 4. Indicator Blinking Patterns

Blinking Pattern	ON Time	OFF Time	Common Name
Blinking Mode 1	0.25 s	3.75 s	Slow blink
Blinking Mode 2	0.5 s	0.5 s	/

The correspondence between battery operating states and indicator status is shown below:

Table 5. Indicator Status

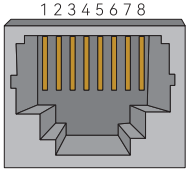
No.	Battery Operating Mode	Status	Operation Indicator	Fault Indicator
1	Standby	Normal	Blinking Mode 1	Off
2	Charge/ Discharge	Normal	On (steady)	Off
3	Charge/ Discharge	Fault	On (steady)	On (steady)
4	Alarm	Abnormal	Off	On (steady)

3.3 Communication Port Pin Definitions

3.3.1 RS485 (PCS Communication) Interface Definition

The RS485 interface is used for communication with the PCS via the RS485 protocol. The battery module employs an 8-pin (RJ45) connector for RS485 communication. The pin definitions of the RJ45 port are as follows:

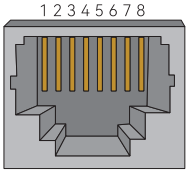
Table 6. RS485 Interface Pinout

LINK	PIN	Definition	Remarks
	1	RS485_B1	Communication with PCS (alternate)
	2	RS485_A1	
	3	GND	Communication ground
	4	NC (No Connection)	
	5	NC (No Connection)	
	6	NC (No Connection)	
	7	NC (No Connection)	
	8	NC (No Connection)	

3.3.2 CAN (PCS Communication) Interface Definition

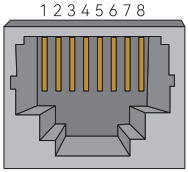
The CAN interface is used for communication with the PCS via the CAN protocol. The battery module employs an 8-pin (RJ45) connector for CAN communication. The CAN pinout of the RJ45 port is as follows:

Table 7. CAN Interface Pinout

RJ45	PIN	Definition	Remarks
	1	NC (No Connection)	
	2	NC (No Connection)	
	3	NC (No Connection)	
	4	CAN-H	Communication with PCS
	5	CAN-L	
	6	NC (No Connection)	
	7	GND	Communication ground
	8	NC (No Connection)	

3.3.3 CAN (Debug CAN) Interface Definition

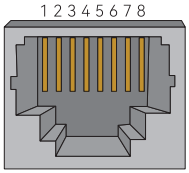
The battery module employs an 8-pin (RJ45) connector for connecting to a host computer via CAN communication for debugging purposes. The CAN pinout of the RJ45 port is as follows:

RJ45	PIN	Definition	Remarks
	1	NC (No Connection)	
	2	NC (No Connection)	
	3	NC (No Connection)	
	4	CAN-H	Communication with host computer
	5	CAN-L	
	6	NC (No Connection)	
	7	GND	Communication ground
	8	NC (No Connection)	

3.3.4 COMM_IN (Parallel Input Port) Interface Definition

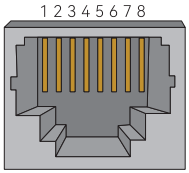
This port is used for communication between different PACKs during parallel connection and serves as the parallel input interface.

Table 8. COMM_IN Interface Pinout

RJ45	PIN	Definition	Remarks
	1	RS485_B2	Parallel communication
	2	RS485_A2	Communication ground
	3	GND	
	4	NC (No Connection)	
	5	NC (No Connection)	
	6	NC (No Connection)	
	7	NC (No Connection)	
	8	NC (No Connection)	

3.3.5 COMM_OUT (Parallel Output Port) Interface Definition

This port is used for communication between different PACKs during parallel connection and serves as the parallel output interface.

RJ45	PIN	Definition	Remarks
	1	RS485_B2	Parallel communication
	2	RS485_A2	Communication ground
	3	GND	
	4	NC (No Connection)	
	5	NC (No Connection)	
	6	NC (No Connection)	
	7	NC (No Connection)	
	8	NC (No Connection)	

3.4 Dry-Contact Alarm Definition

The battery module provides an optional normally-open dry-contact for alarm signaling. This interface is used to externally indicate internal fault conditions of the battery pack. The dry-contact alarm definition can be set as follows.

Table 9. Dry-Contact Alarm Definition

Dry-Contact No.	PIN	Definition	Remarks
Dry-Contact 1	1	COM1	Dry-contact 1 common terminal
	2	NO1	Dry-contact 1 normally-open terminal

4 Application Overview

A schematic diagram of the battery module operation is shown below:

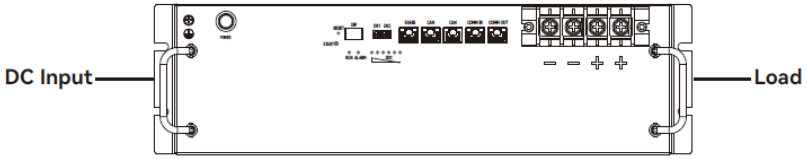


Figure 4. HYX-E50-LR Operation Diagram

4.1 Parallel Application

HYX-E50-LR battery modules support parallel connection to increase backup time or backup capacity for communication site loads. When clusters are paralleled, the power is fed to the PCS through a combiner box. The RS485/CAN communication cable is connected to the inverter's CAN communication port. Connect the COM-OUT of the first HYX-E50-LR to the COM-IN of the next unit, and so on. The wiring diagram for the combiner box connection is shown below:

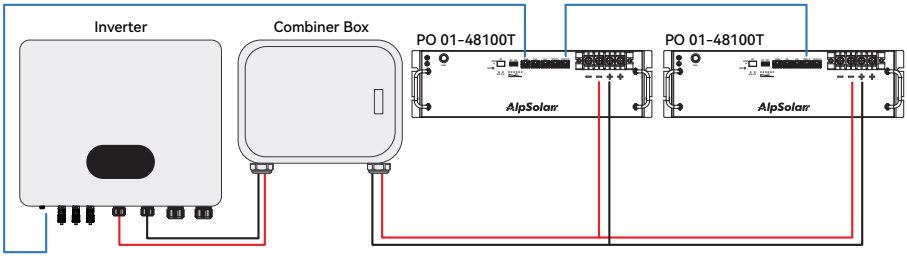


Figure 5. Parallel Power Cable Connection

- Connect one end of the battery communication cable to the COM-IN port of one battery module.
- Connect the other end of the battery communication cable to the COM-OUT port of another battery module.
- Following the steps above, continue to connect and complete the communication cabling for the remaining battery modules.

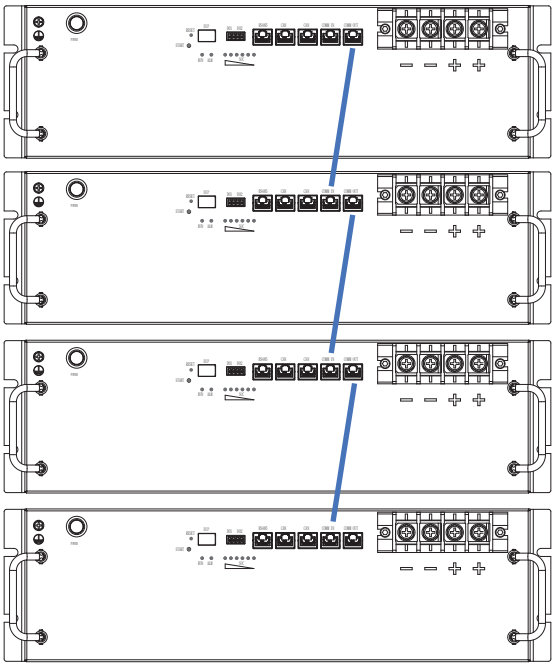


Figure 6. Parallel Communication Cable Connection

4.2 DIP-Switch Addressing

The HYX-E50-LR battery module is equipped with a DIP switch for master/slave identification and automatic slave addressing. When connecting parallel communication cables, the battery module requires manual DIP-switch setting.

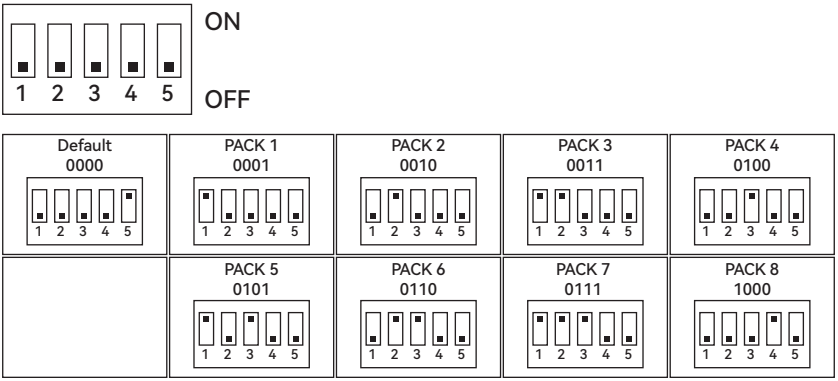


Figure 7. Manual DIP-Switch Operation Panel

Table 10. DIP-Switch Address Setting

DIP-Switch Address Setting					
Address (Number of Parallel Units)	DIP-Switch Position				Master/Slave Identification Bit
	#1	#2	#3	#4	#5
0	Same as the last slave DIP setting				ON
1	ON	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF
5	ON	OFF	ON	OFF	OFF
6	OFF	ON	ON	OFF	OFF
7	ON	ON	ON	OFF	OFF
8	OFF	OFF	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF
13	ON	OFF	ON	ON	OFF

14	OFF	ON	ON	ON	OFF
15	ON	ON	ON	ON	OFF

4.3 High- and Low-Temperature Applications

- High-Temperature Charge/Discharge

The battery module does not support charging or discharging above 55 °C. When the maximum battery temperature exceeds 55 °C, the BMS will cut off the charge/discharge circuit, and charging/discharging will be prohibited. To resume charging or discharging, the battery temperature must drop to 50 °C or below.

- Low-Temperature Charging

The battery module does not support charging below 0 °C. When the minimum battery temperature is below 0 °C, the BMS will cut off the charging circuit and prohibit charging. To charge, heating equipment must be used to raise the ambient temperature to 5 °C or higher.

- Low-Temperature Discharging

The battery module does not support discharging below -10 °C. When the minimum battery temperature is below -10 °C, the BMS will cut off the discharging circuit and prohibit discharging. To discharge, the ambient temperature must be raised to -15 °C or higher.

4.4 Corrosive Environment Applications

The battery module may be used in other environmental conditions but must not be used alone in Class A or Class B corrosive atmospheres. If operation in a Class A/B environment is required, an air-conditioned enclosure with a protection rating of IP54 or higher must be provided.

Atmospheric corrosive environments are defined and classified based on natural environmental conditions. Class A and Class B environments are defined as follows:

Table 11. Storage and Charging Requirements

<table>
<tr><th>Class</th><th colspan="2">Definition</th></tr>
<tr><td rowspan="2">Class A Environment</td><td rowspan="2">Land areas near the ocean or pollution sources, or environments with simple shelter (e.g., a canopy).</td><td>“Near the ocean” refers to areas 0.5 – 3.7 km from the coast.</td></tr>
<tr><td>“Near pollution sources” refers to areas within the following radii:
Within 3.7 km of a salt lake;
Within 3 km of heavy pollution sources such as smelters, coal mines, thermal power plants, chemical plants, rubber plants, electroplating facilities, etc.;
Within 2 km of moderate pollution sources such as chemical, rubber, or electroplating plants;
Within 1 km of light pollution sources such as food processing, leather tanneries, heating boilers, etc.</td></tr>
<tr><td>Class B Environment</td><td colspan="2">Land areas or sheltered coastlines (e.g., under a canopy) within 500 m of the shore, or offshore marine environments.</td></tr>
</table>

5 Product Specifications

5.1 Module Parameters

The HYX-E50-LR is a 51.2 V 100 Ah lithium iron phosphate ($LiFePO_4$) battery module. The module consists of 16 series-connected groups, each formed by 4 paralleled $LiFePO_4$ cells. It incorporates a Battery Management System (BMS) board independently developed by AlpSolarr, which collects operational data from the module and manages its performance.

Dimensions of the battery module are as follows:

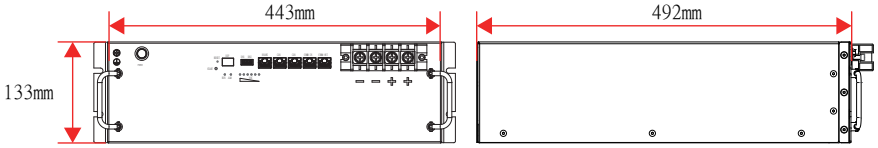


Figure 8. Battery Module Dimensions

Parameters of the HYX-E50-LR battery module are listed in the table below:

Table 12. HYX-E50-LR Battery Module Parameters

No.	Item	HYX-E50-LR
1	Rated Capacity	100Ah
2	Rated Energy	5.12kWh
3	Rated Voltage	51.2V
4	Operating Voltage Range	40~58.4V
5	Rated Charge-Discharge Current	50A
6	Maximum Charge-Discharge Current	100A
7	Communication Interface	RS485/CAN 2.0
8	Operating Temperature Range	Charge: 0 ° C to 55 ° C Discharge: –20 ° C to 55 ° C
9	Humidity Range	5%~95%
10	Altitude	⩽ 3000
11	Dimensions (W×D×H)	443*492*133
12	Battery Weight	41.2kg
13	IP Rating	IP20
14	Cooling Type	Natural convection
15	Cycle Life	>6000 cycles (@ 70% SOH)

6 Installation

This product is designed for industrial use and must be operated under the guidance of qualified personnel. Regular maintenance and management shall be performed in accordance with the relevant operating instructions. Ensure the product is powered off before any installation or maintenance activity.

6.1 Safety Requirements

Strictly adhere to the following safety requirements and comply with all applicable local safety laws and regulations. HYXI shall not be liable for any damage, injury, or death resulting from non-compliance with these instructions.

⚠ DANGER

- Only qualified electricians are permitted to operate the HYX-E50-LR product.
- Always wear protective gloves and safety goggles when handling the HYX-E50-LR product, and follow local safety regulations.
- Do not store or install the HYX-E50-LR product in areas containing flammable or explosive materials, or in damp or dusty environments.
- Do not store or install the HYX-E50-LR product in locations exposed to direct sunlight or rain.
- Before making any electrical connections to the HYX-E50-LR product, ensure that all switches and circuit breakers in the circuit are turned off.

⚠ WARNING

- Exercise caution when moving the HYX-E50-LR product. If any damage occurs to the equipment or its components—including but not limited to impact, dropping, or leakage—do not use the product.
- Do not place any objects on top of the HYX-E50-LR product.
- Unauthorized disassembly of the HYX-E50-LR product is strictly prohibited.

6.2 Installation Preparation

6.2.1 Site Preparation

The intended installation site for the HYX-E50-LR product must meet the following requirements:

⚠ DANGER

- The installation location must not be directly exposed to sunlight or rain.
- Flammable or explosive materials must not be stored around the installation area.
- The wall and floor must be capable of supporting the weight of the HYX-E50-LR product.

NOTE

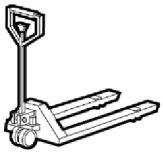
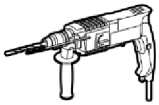
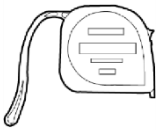
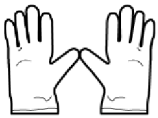
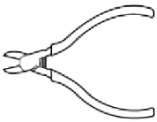
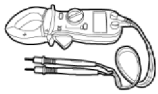
The HYX-E50-LR product is a rack-mounted device and must be installed inside a standard 19-inch equipment rack.

6.2.2 Tool Preparation

Use insulated installation tools to prevent electric shock.

If non-insulated tools are used, wrap exposed metal parts with insulating tape to ensure proper insulation.

The table below lists the tools required before installation:

Electric Screwdriver	Manual Pallet Jack	Impact Drill	Socket Wrench Set
			
Tape Measure	**Adjustable Wrench**	**Torque Wrench**	**Claw Hammer**
			
Safety Goggles	**Safety Helmet**	**Insulated Footwear**	**Anti-static Gloves**
			
Phillips Screwdriver	**Diagonal Pliers**	**Clamp Meter**	**Multimeter**
			

6.2.3 Packing List

After opening the packaging and removing the product, first inspect the included accessories.

The packing list is shown below:

Table 13. Packing List

Item	Material / Part Name	Quantity
1	HYX-E50-LR Battery Module	1
2	Dry-Contact Terminal Connector	1
3	Wall-mounted panels(one on each side)	2
4	M8*60mm stainless steel expansion screws	4
5	M5*10mm hexagonal crossshaped stainless steel screw	8
6	Communication wiring harness	1
7	Power positive electrode wiring harness	1
8	User manual	1

9	Power negative electrode wiring harness	1
10	Crystal Head	2

Table 14. Optional Packing List

Item	Material / Part Name	Quantity
1	Flxed Mounting Lug	2
2	Torx M4*10mm Samll Countersunk Head Screw	6
3	Stacking Bracket	4
4	M4*14mm hexagon socket cross-head screw	8

6.2.4 Unpacking and Acceptance

After on-site receipt, inspect the shipping box for integrity and verify the contents promptly. If the box is slightly damaged, sign for receipt while confirming the packing list and note the extent of damage. If the damage is severe, refuse acceptance.

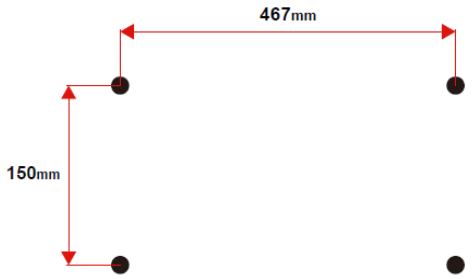
Once all goods are received, proceed with unpacking and inspection. If any discrepancy is found between the received items and the packing list, contact our company promptly.

6.3 Installation

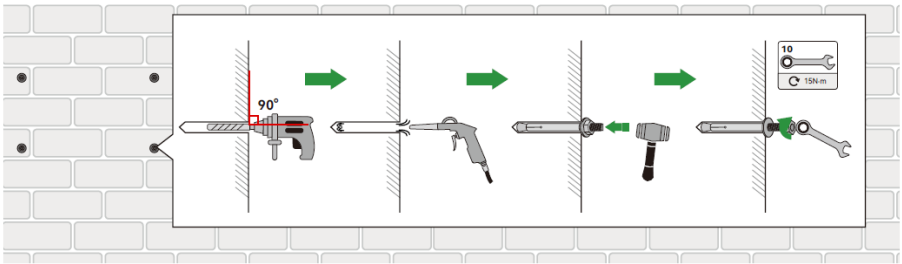
6.3.1 Battery Module Installation

6.3.1.1 Wall-Mounted Installation Method

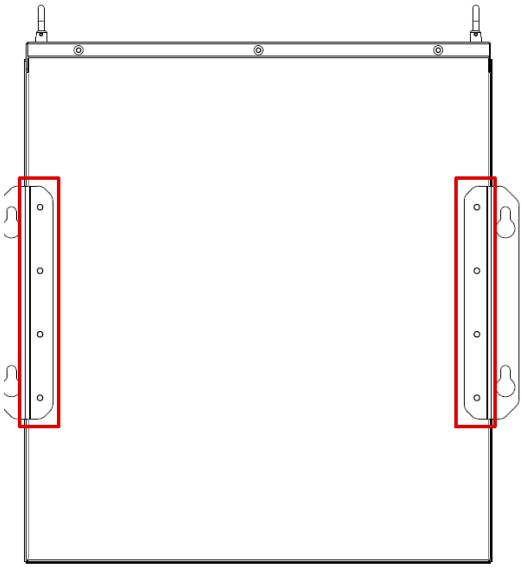
- Drilling dimensions for wall mounting



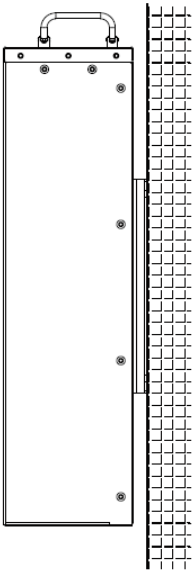
- M8×60 mm stainless steel expansion screw installation diagram



● Secure the brackets to the battery pack using the eight M5×10 mm hex head cross-tip-screws (included accessories). Torque: 6 N·m.



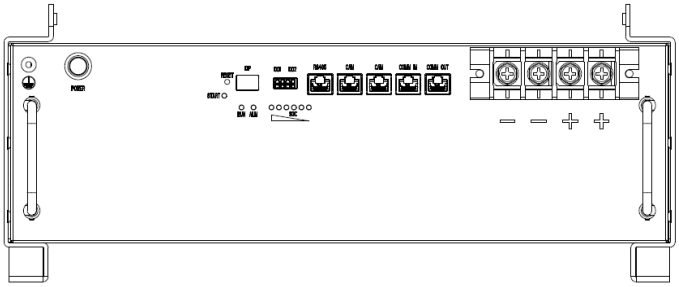
● Mount the battery pack onto the wall, fix it with the expansion screws, and then tighten.



6.3.1.2 Floor-Mounted Installation Method

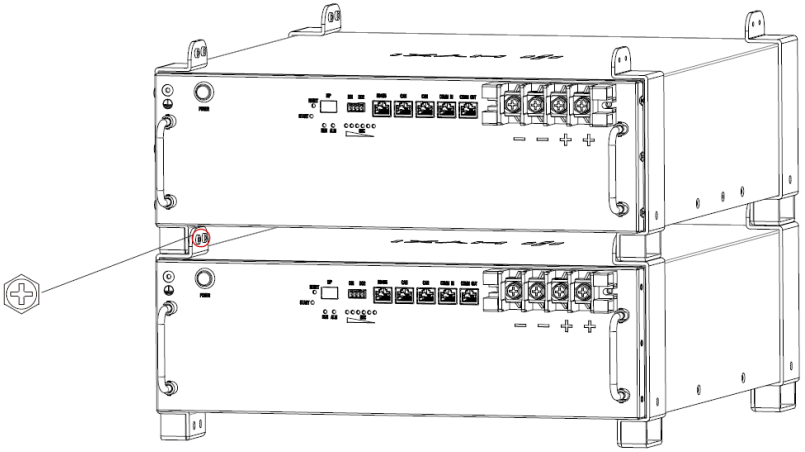
- Placement of the first battery pack:

Mount the stacking brackets on the four sides of the battery pack,then place it steadily and horizontaily on the ground.



- Placement of the second battery pack:

Stack the second battery pack on top of the first one,then fasten the brackets between the two packs tightly with eight M4*14mm hexagon socket cross-head screws combined with spring washers (three-in-one assembly).



6.3.2 Cable Connection

ATTENTION

Use insulated installation tools to prevent electric shock.

- Steps

1. Connect the grounding point of the battery module to the cabinet grounding point using the grounding cable. (Tightening torque: 2.5 ± 0.5 N·m)

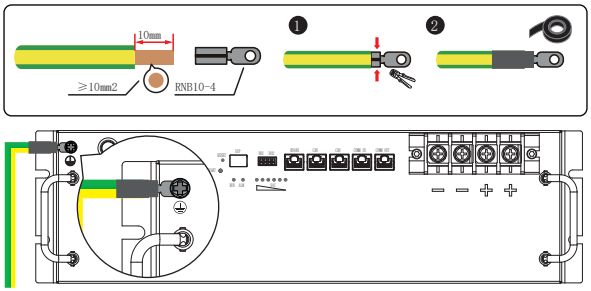


Figure 9. Grounding Connection

Type	Recommended Wire Gauge	Wire Temperature Rating	Terminal Model	Source
PE	10mm²	90 °C or higher	RNB10-4	Customer-supplied

2. Connect the positive and negative power cables from the battery module's power terminals to the distribution unit or circuit breaker of the switching power supply. (Tightening torque: 4.5 ± 1N·m)

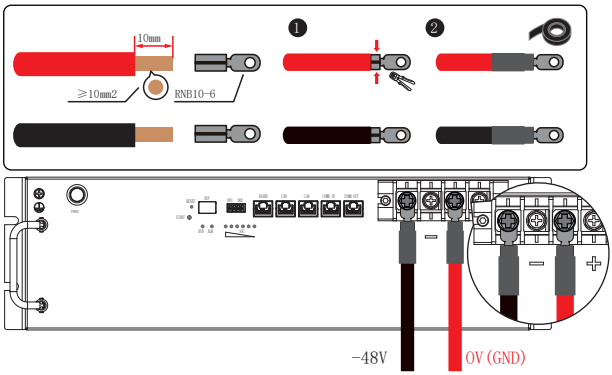


Figure 10. Power Cable Connection

Type	Recommended Wire Gauge	Wire Temperature Rating	Terminal Model	Source
Input +/Input –	10mm²	90 °C or higher	RNB10-6	User-supplied

3. Connect the communication cables between battery modules.

- Communication cable preparation: Crimp RJ45 connectors on both ends of the Ethernet cable. Refer to Tables 3.4.4/3.4.5 for pin assignments and usage.
- Connect one end of a battery communication cable to the COM IN port of one battery module.
- Connect the other end of the same cable to the COM OUT port of another battery module.
- Following the steps above, continue to connect and complete the communication cabling for the remaining battery modules.

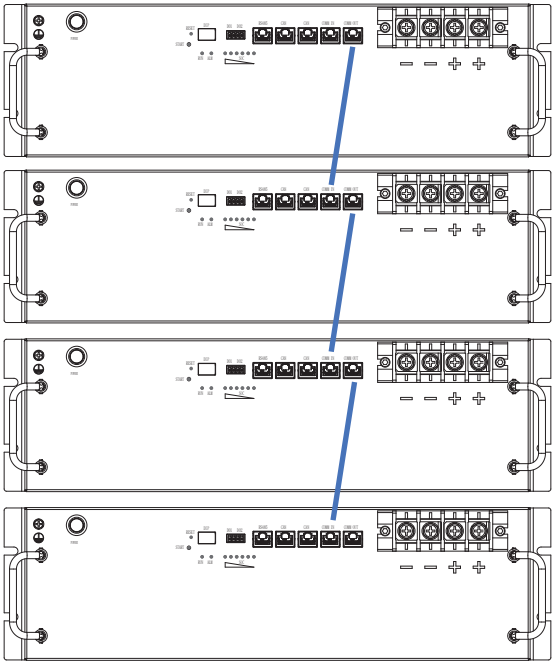


Figure 11. Communication Cable Connection Between Battery Modules

4. Connect the battery module communication cable to the monitoring unit of the switching power supply or FSU:

- The battery module whose communication cable is unplugged from the BAT1 port is the master battery module.
- All other battery modules are slave modules.
- Connect the communication cable between the RS485 or CAN port of the master battery module and the corresponding port of the switching power supply or FSU monitoring unit.

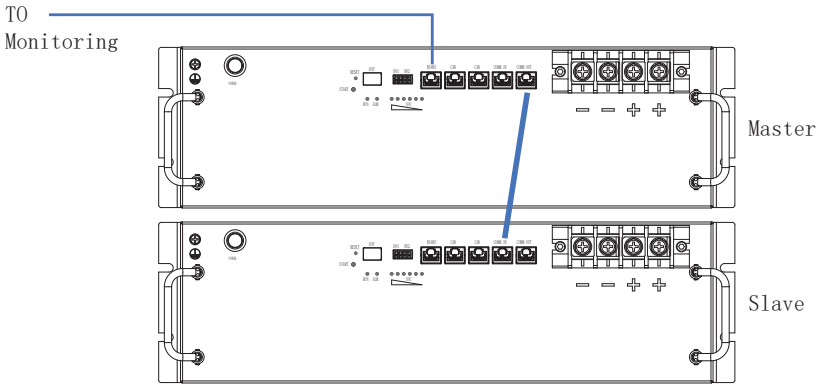


Figure 12. Communication Cable Connected to Monitoring Device

6.3.3 Labeling Identification

1. The grounding cable terminals are properly labeled.
2. The positive and negative power cable terminals are properly labeled.
3. The communication cable terminals are properly labeled.

1.1.1 Installation Verification

ATTENTION

Do not power on the battery module(s) until installation verification is complete.

● Steps

1. Inspect and confirm that the grounding cables of the battery modules are correctly connected.

2. Inspect and confirm that the positive and negative power cables of the battery modules are correctly and securely connected to the distribution unit or battery circuit breaker of the switching power supply.

ATTENTION

- The positive terminal of the battery module must be connected to the ground (0V) busbar of the distribution unit or switching power supply.
- The negative terminal of the battery module must be connected to the -48V busbar of the distribution unit or switching power supply.
- The ground terminal of the battery module must be connected to the grounding terminal of the rack.

1. Inspect and confirm that the communication cables between battery modules are correctly connected.

2. Inspect and confirm that the communication cable between the master battery module and the monitoring unit is correctly connected.

7 Operation

This product is designed for industrial use and must be operated under the guidance of qualified personnel. Regular maintenance and management shall be performed in accordance with the relevant operating instructions. Ensure the product is powered off before any installation or maintenance activity.

ATTENTION

Before powering on the battery module for commissioning, users must strictly perform the installation checks described below.

7.1 Powering On the Battery Module

1. Start the power supply equipment (switching power supply / rectifier) connected to the HYX-E50-LR battery module.
2. Check the parameter settings on the power supply equipment (switching power supply / rectifier).
3. Press and hold the 'POWER' button for 3 seconds, then release to activate the battery module.

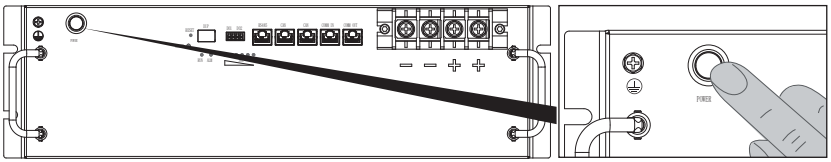


Figure 13. Battery Module Power Button

4. Verify that the output voltage of the battery module is between 42V and 54V.
5. Measure and confirm that the positive and negative voltages at the distribution unit or switching power supply inside the cabinet are correct.
6. Check the LED indicators: the 'RUN' indicator should be lit, the 'ALARM' indicator should be off, and the 'SOC' indicators should be illuminated.
7. Turn off the battery circuit breaker corresponding to the battery module in the power supply equipment.
8. Repeat steps 3 to 7 to power on the remaining battery modules in sequence.

7.2 Powering Off the Battery Module

1. Press and hold the 'POWER' button for 3 seconds, then release to deactivate the battery module.
2. Check the LED indicators: the 'RUN' indicator should be off, the 'ALARM' indicator should be off, and the 'SOC' indicators should be off.
3. Turn off the battery circuit breaker or fuse on the distribution unit or switching power supply.
4. Repeat step 1 through 2 to power off the remaining battery modules in sequence.

8 Transportation and Storage

8.1 Transportation

The HYX-E50-LR battery module is suitable for transport by road, sea, and air. During transit, it must be shaded from direct sunlight and protected from water ingress. Handle with care during loading and unloading to prevent dropping, rolling, or heavy compression. Avoid direct exposure to rain, snow, and mechanical impact.

Recommended initial State of Charge (SOC) values before shipment for different transport modes are as follows:

- Air transport: 5%~20%
- Sea transport: 30%~50%
- Road transport: 30%~50%

8.2 Storage

If the battery system is not to be used immediately, the following storage requirements must be met:

1. Keep the original packaging intact.
2. The battery module should be stored indoors in a clean, dry, and well-ventilated area at approximately 30% State of Charge (SOC).
3. Ambient temperature shall be maintained between -20 °C and 55 °C, relative humidity shall not exceed 75%, and the storage location must be fire-resistant, heat-protected, and free from corrosive substances.
4. Conduct regular inspections. If insect, rodent, or packaging damage is found, replace the packaging material promptly.
5. After long-term storage, the equipment must be inspected and tested before being put into service.

Table 15. Storage Requirements

Storage Temperature	Recharge Interval	Recharge Procedure
-20~55°C	Every 3 months	Perform a standard charge-discharge cycle, then adjust the SOC to approximately 30 %.

9 Handling and Unloading Instructions

9.1 Handling Requirements

- Handling and unloading of the energy storage equipment must comply with local laws, regulations, and relevant industry standards.
- Rough handling may cause short circuits of the batteries or damage to components inside the enclosure, which may further lead to electrolyte leakage, casing cracking and even fire or explosion hazards.

9.2 Prohibited Conditions During Handling and Transportation

The following conditions are strictly prohibited during handling and transportation:

- Exposing the equipment directly to rain or snow, or submerging it in water.
- Dropping the equipment or subjecting it to mechanical impact.
- Placing the equipment upside down or tilted on its side.

9.3 Handling and Positioning

- A single battery module weighs 42 kg. Without dedicated handling tools, at least two operators are required to perform the handling work in coordination.
- When handling and installing battery modules, at least two operators shall work together using the handles provided with the product.

⚠ WARNING

- The battery module is heavy. Handle carefully when unpacking and removing the equipment.
- At least two operators are required to cooperate, using the handles on the module itself, to complete the positioning and installation.

Heavy Lifting Safety

- Plan ahead and use the right method to prevent crush injuries and strains.
- Use protective gloves when using handing equipment.

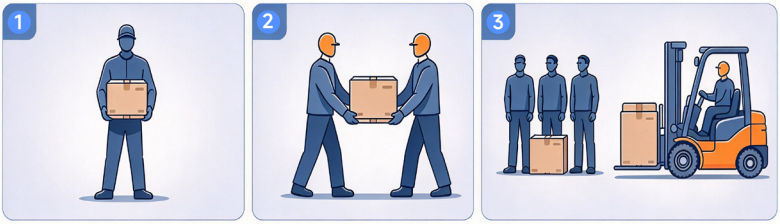


Figure 14. Heavy Lifting Safety

10 Maintenance

ATTENTION

- Personnel performing the following tasks must be professionally trained. Before operating or maintaining the battery module, wear anti-static work clothing, anti-static gloves, and an anti-static wrist strap, and remove conductive items such as jewelry and watches to prevent electric shock or burns.
- Internal maintenance of the battery module shall be performed using insulated tools and shall only be carried out by authorized personnel from HYXI or its authorized distributors.
- When only installation or maintenance of the battery module is involved, press the battery module's 'POWER' button to power it off. When working with the switching power supply, ensure its power switch remains in the off position.

10.1 Monthly Maintenance

Users shall perform a visual inspection of the battery module each month. Details are provided in the table below.

Table 16. Monthly Maintenance

Item	Reference Standard	Recommended Action for Abnormalities
Battery Appearance	Clean, free of stains. Terminals intact and undamaged. Casing complete, without dents, cracks, or punctures. No signs of leakage. No deformation or swelling of the housing.	Clean the exterior with a soft cloth if soiled. If damage, leakage, or deformation is observed, photograph the issue and replace the faulty battery module. Contact HYXI promptly for other abnormalities.
Operating Environment	Ambient temperature range: 0 °C to 55 °C. Humidity: ≤95% RH。	If temperature or humidity is out of range, check the cooling system status.

10.2 Quarterly Maintenance

Refer to the table below for quarterly maintenance of the battery module.

Table 17. Quarterly Maintenance

Item	Reference Standard	Recommended Action for Abnormalities
Cables	Check that connection wires show no signs of aging and insulation is free of cracks. Bolts at cable connections are tight.	Replace faulty cables. Tighten loose screws.

10.3 Annual Maintenance

It is recommended to perform trend analysis on recorded data (battery module and environmental parameters).

11 Troubleshooting

No.	Fault Name	Possible Cause	Troubleshooting Steps
1	Input Bus Overvoltage / Undervoltage Fault	Abnormal bus voltage	• Check whether cables are damaged or improperly connected. • Check whether the bus voltage is abnormal.
2	Communication Fault	Communication interruption	• Check if communication cables between modules are loose or faulty. • Check the power supply.
3	DC Overcurrent Fault	DC current exceeds limit	• Check for short circuits or cable damage on the DC side. • If the issue remains unresolved, contact the manufacturer.
4	DC Voltage High / Low Fault	Abnormal battery voltage	• Check if the DC input voltage is abnormal.
5	Insulation Resistance Low Alarm	Insulation resistance too low	• Check for cable damage or possible electrical leakage. • If the issue remains unresolved, contact the manufacturer.

12 Warranty Terms

Except for the circumstances listed below and any specific contractual provisions, users may request reasonable warranty and maintenance services from HYXI or its authorized distributors.

● Battery failures caused by unauthorized disassembly, maintenance, or other operations conducted without permission from HYXI or its authorized distributors are not covered under warranty.

● Damage to the battery resulting from negligence during storage or transportation is excluded from warranty coverage.

● Damage caused by battery overload or continuous operation beyond the specified electrical parameters is not covered by warranty.

● Any adverse consequences arising from unauthorized testing of the battery without permission from HYXI or its authorized distributors are not covered under warranty.

● Consequences resulting from improper operation or incompatible supporting equipment that are not attributable to the battery itself are not covered by warranty.

● Damage to the battery caused by natural disasters, force majeure, or uncontrollable factors (such as earthquakes, typhoons, tornadoes, volcanic eruptions, floods, lightning strikes, heavy snow, war, etc.) is not covered under warranty.

● Products with altered, illegible, or removed serial numbers are not eligible for warranty service.

13 Disclaimer

The purchased product and its features shall be as stipulated in the commercial agreement between HYXI and the customer. All or part of the products, services, and functions described in this document may not be included in the purchase or scope of use. Unless otherwise agreed in the contract, all statements, information, and recommendations in this document are provided "as is" without any express or implied warranty, guarantee, or representation.

Information in this document is subject to change without notice. While every effort has been made to ensure accuracy in the preparation of this document, none of the statements, information, or recommendations herein shall constitute any express or implied warranty.

Version: UM_HYX-E50-LR_V1.1-202610_EN
The manual is subject to change without notice while the product is being improved.

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