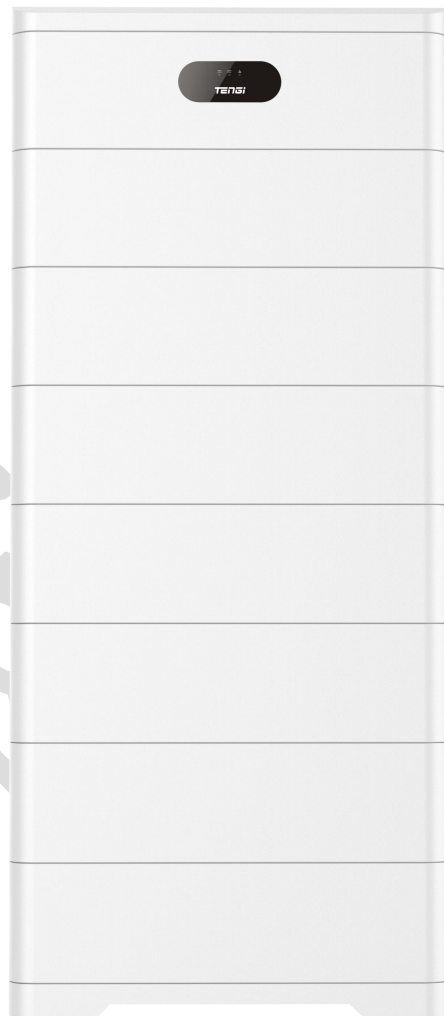




ZXJC-GY01 High Voltage Series User Manual



Zhengzhou Tengi Power Co., Ltd

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Tenggi POWER

Foreword

All the information in this document is the property of the device manufacturer and is not allowed to be reproduced in any commercial manner. Specifications in this document are subject to change without notice.

The equipment manufacturer will not take any direct or indirect responsibility for battery system damage or property loss caused by the following situations.












- Modification, refitment or replacement of battery system components without the authorization of the equipment manufacturer.
- Equipment damage caused by failure to comply with the relevant requirements of the battery system user manual.
- Damage to equipment caused by improper use or misuse.
- Maintenance procedures did not follow the required standards.
- Equipment damage caused by force majeure, such as: earthquake, storm, lightning, fire, etc.
- Equipment damage caused by any external factors.

1. Safety Instructions

- The battery system is a high-voltage system. Before operating the equipment in the system, please turn off the power to avoid danger, and strictly abide by all safety precautions in this manual and safety signs on the equipment.
- Only professionals are allowed to operate the battery system. When performing high-voltage operations, please use special insulated tools.
- Do not use if batteries or control box are visibly defective, damaged, or missing. If you need to replace the battery or add a battery, please contact the after-sales service.
- Be careful and consider its weight when lifting the battery or control box, and wear gloves when handling the battery.
- Do not hit, pull, drag, or step on the device, and do not place extraneous objects into any part of the battery module.
- Make sure that the device is placed steadily and cannot be tilted. Toppling the device may cause damage to the device and personal injury.
- During use, keep away from heat and fire sources, do not drop the battery, and prohibit dropping or impacting the battery.

- It is forbidden to directly weld the battery and pierce the battery with nails or other sharp objects.
- It is forbidden to turn the battery upside down, and avoid knocking, throwing, stepping on and bending the battery, etc.
- To avoid danger, do not short-circuit the battery.
- Please dispose of waste batteries safely and properly, and do not throw them into fire or water.
- If the battery leaks and the electrolyte enters the eyes, please do not rub the eyes. Rinsing the eyes with clean water, and send to a doctor immediately, otherwise it will hurt the eyes.
- If the battery emits abnormal smell, heat, discoloration, deformation and other abnormalities during use and storage, the power should be cut off immediately. If the surface temperature of the battery is high, remove the battery from the device after the battery has cooled down.
- Under extreme conditions, the battery may smoke. In this case, measures to isolate the battery from the air can be taken, such as covering the sand, or using a carbon dioxide fire extinguisher or a dry powder fire extinguisher. Do not use water, and deal with it after the smoke has dissipated.

Table 1-1 Description of symbols

symbol	describe	symbol	describe
	There is a potential hazard when the equipment is in operation		There is danger of electricity, please make sure that the power is cut off when operating
	Keep the device away from naked flames or sources of ignition		Do not disassemble the battery pack
	Do not short the battery		Do not extinguish fire with water
	Recycle in accordance with local environmental regulations		The device cannot be treated as domestic waste. Please dispose of the device according to local laws and regulations or send it back to the device manufacturer.
	TUV certification mark		CE mark
	Protective earth mark, used to indicate the connection position of the protective earth wire.		

2. Product introduction

2.1 System introduction

This document mainly introduces Zhongxi High Voltage ZXJC-GY01 series products (hereinafter referred to as: battery system). ZXJC-GY01 series includes ZXJC-GY01-05, ZXJC-GY01-10, ZXJC-GY01-15, ZXJC-GY01-20, ZXJC-GY01-25, ZXJC-GY01-30, ZXJC-GY01-35. The last two digits of the battery system name represent the power, and the unit is kWh.

The battery system is mainly composed of ZXJC-BAT01 battery (hereinafter referred to as: battery), ZXJC-CN01 control box (hereinafter referred to as: control box), base and top cover. The battery is divided into a base battery and an intermediate battery. There is a grounding bolt at the bottom of the base battery, which is placed under the intermediate battery on the base. Figure 2-1 is the battery system diagram of ZXJC-GY01-15, in which 1 is the base, 2 is the base battery, 3 is the middle battery, 4 is the control box, and 5 is the top cover.

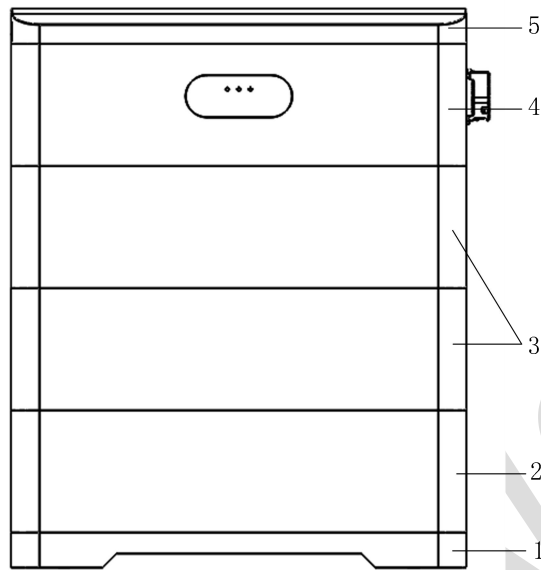


Figure 2-1 ZXJC-GY01-15 battery system

The composition of different battery systems of the ZXJC-GY01 series is shown in Table 2-1, and the relationship of battery stack positions inside different battery systems is shown in Figure 2-2.

Table 2-1 Composition of different battery systems of ZXJC-GY01 series

battery system	Number of base batteries	Intermediate battery quantity	Number of control boxes	base quantity	top cover
ZXJC-GY01-05	1	0	1	1	1
ZXJC-GY01-10	1	1	1	1	1
ZXJC-GY01-15	1	2	1	1	1

ZXJC-GY01-20	1	3	1	1	1
ZXJC-GY01-25	1	4	1	1	1
ZXJC-GY01-30	1	5	1	1	1
ZXJC-GY01-35	1	6	1	1	1

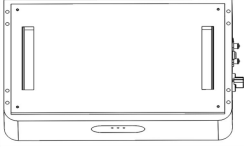









2.2 List of accessories

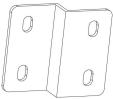




1) Before unpacking the outer packaging of the battery system, please check whether the outer packaging is damaged and check the model of the battery system. If there is any abnormality, please do not open the packing box and contact the after-sales service as soon as possible.

2) After unpacking the battery system, please check whether the product delivery is complete according to the packaging information. If there is any abnormality, please contact the after-sales service as soon as possible.

Table 2-2 List of accessories

serial number	name	quantity	picture	Remark
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serial number	name	quantity	picture	Remark
1.	control box	1		
2.	base battery	see table 1		
3.	intermediate battery	see table 1		
4.	base	1		
5.	top cover	1		
6.	red power connector	1		
7.	black power connector	1		
8.	communication connector	1		
9.	Expansion bolts 12 × 150	5 sticks		Prepare 1 set
10.	Expansion bolt	10 roots		ZXJC-GY01-20 and below battery system

serial number	name	quantity	picture	Remark
	M6 × 50	14		ZXJC-GY01-25 and above battery system
11.	fixed bracket	5		ZXJC-GY01-20 and below battery system
		7		ZXJC-GY01-25 and above battery system
12.	Ground terminal	2		Prepare 1
13.	Inner hexagon screw M5*8	5		Prepare 1
14.	ground wire	1		Connecting the base battery to the base
15.	user manual	1		

3. Component introduction

Taking ZXJC-GY01-15 battery system as an example to introduce product components and installation.

3.1 Base introduction

1 is the ground screw, 2 is the main body of the base, 3 is the cascading threaded hole of the cabinet, and 4 is the floor fixing hole.

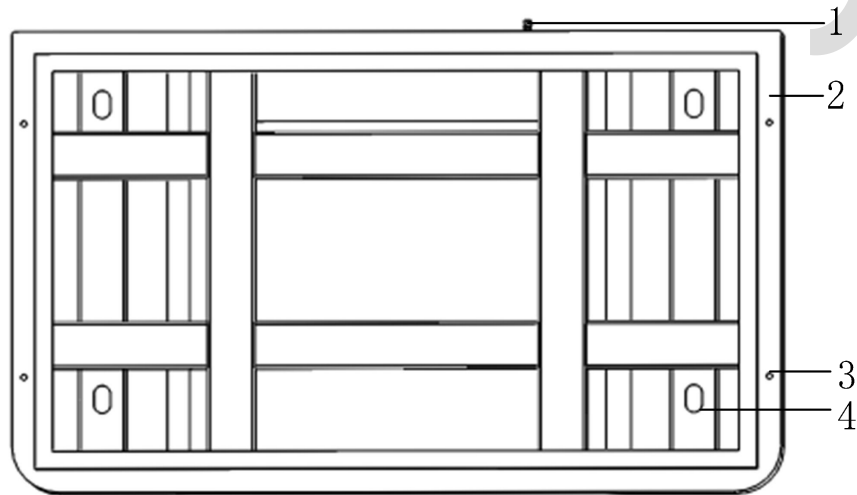


Figure 3-1 Base

3.2 Battery Introduction

3.2.1 Base battery

As shown in Figure 3-2, 1 is the blind-mate connector, 2 is the case cover, 3 is the handle, and 4 is the battery box.

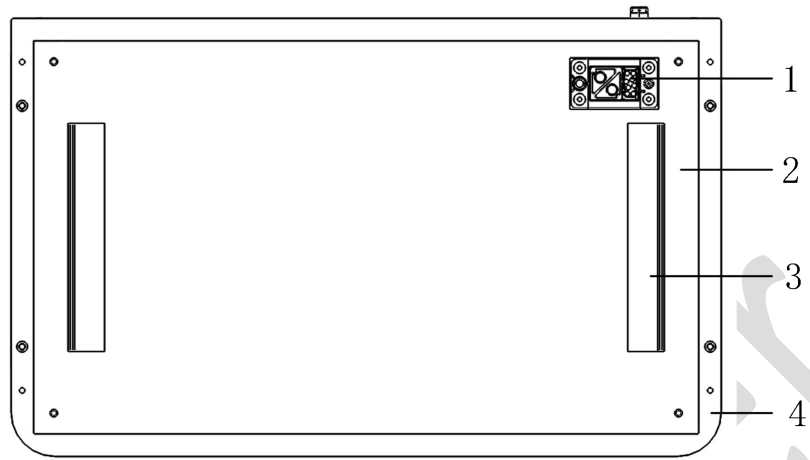


Figure 3-2 Top surface of base battery

As shown in Figure 3-3, 1 is the box, and 2 is the grounding bolt.

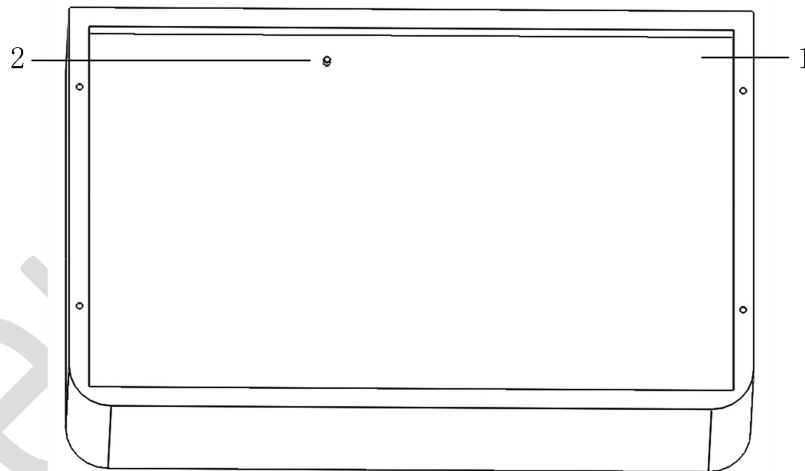


Figure 3-3 Bottom surface of base battery

3.2.2 Intermediate battery

As shown in Figure 3-4, 1 is the blind-mating connector, 2 is the cover, 3 is the handle, and 4 is the battery box.

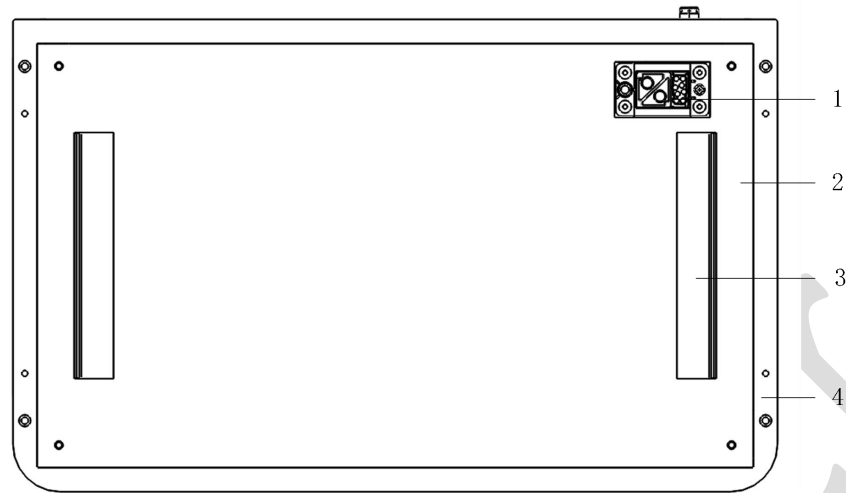


Figure 3-4 Top surface of middle battery

As shown in Figure 3-5, 1 is the battery box, and 2 is the blind-mating connector.

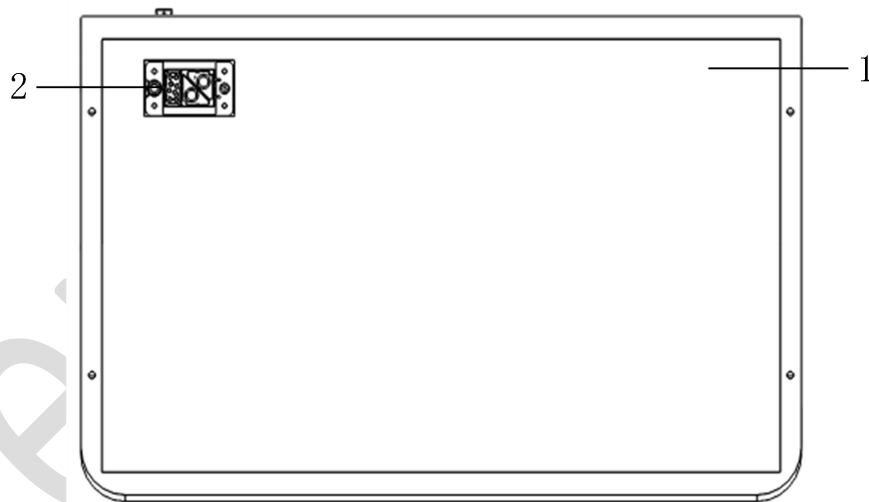


Figure 3-5 The bottom surface of the middle battery

3.3 Introduction of control box

1 is the battery box cover, 2 is the handle, 3 is the cascade through hole, 4 is the box body, 5 is the display screen, 6 is the

communication interface, 7 is the control switch, 8 is the power negative pole, 9 is the power positive pole, and 10 is the open circuit switch.

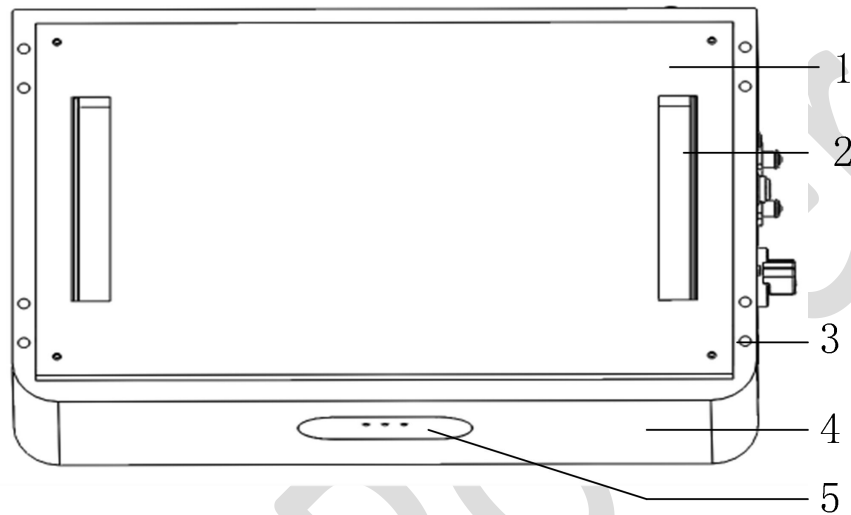


Figure 3-6 Control box

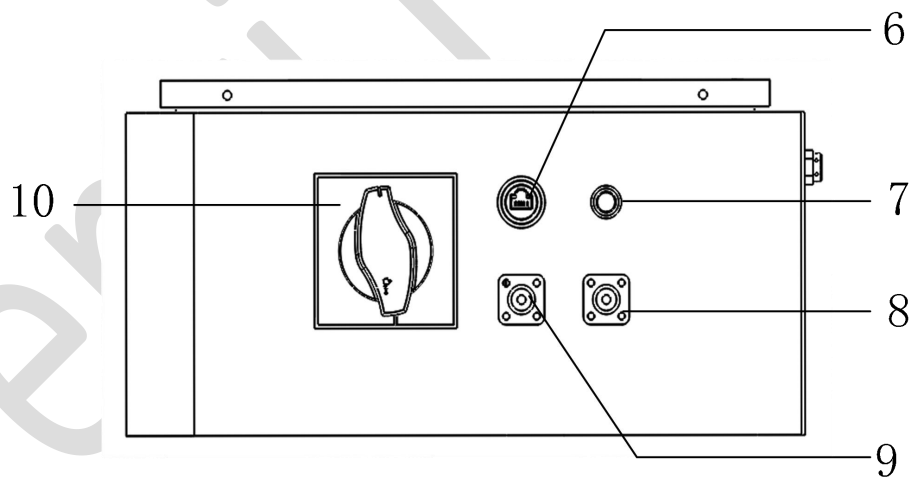


Figure 3-7 Control box operation surface

3.4 Top Cover Introduction

1 is the main body of the top cover, and 2 is a fixing hole.

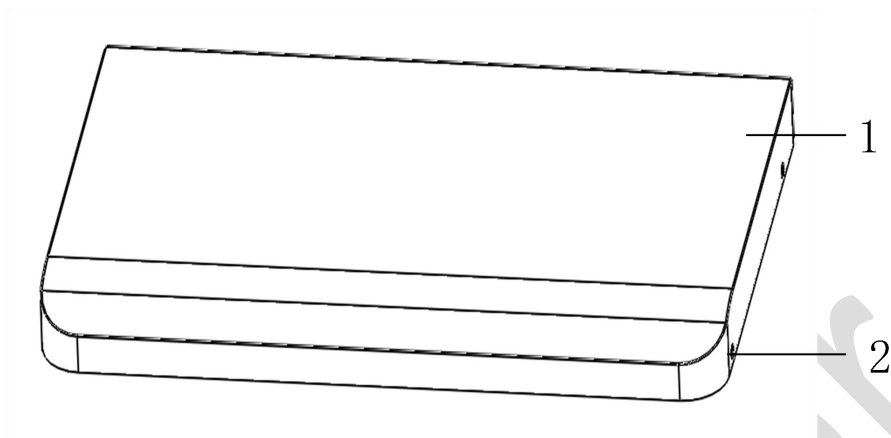


Figure 3-8 Top cover

3.5 Size introduction

As shown in Figure 3-9, the battery system is 400mm deep and 650mm wide. After installation, the height of the base and top cover is 50mm, and the height of a single battery is 175mm.

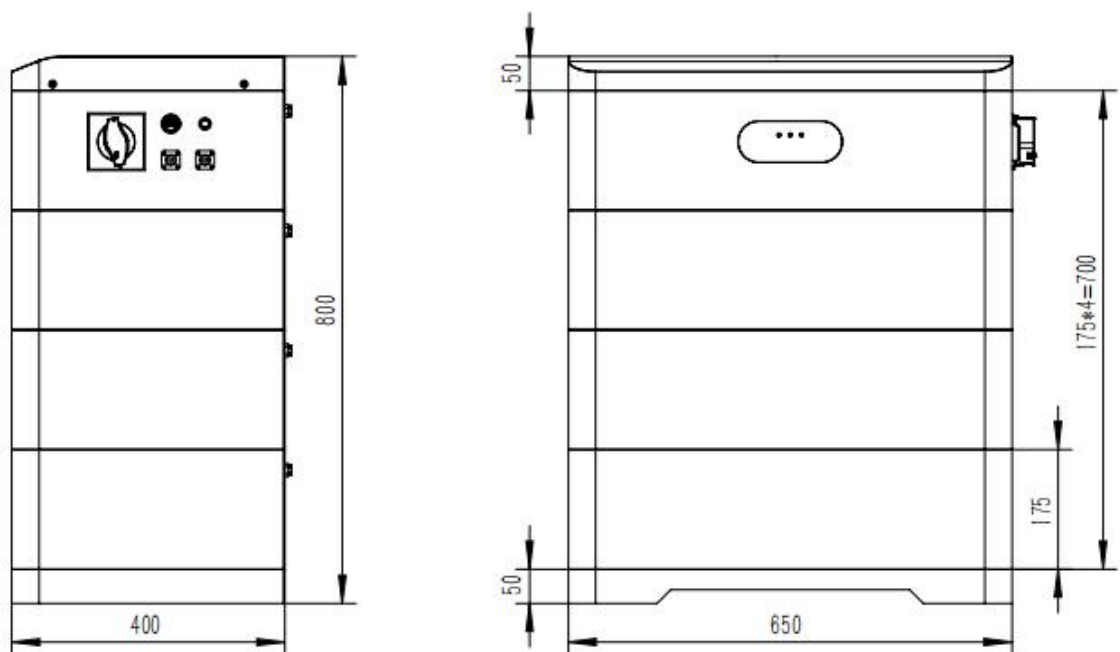


Figure 3-9 Dimensions

4. System installation

4.1 Installation environment

➤ The battery system needs to be installed on a flat ground with sufficient load-bearing capacity; if the ground does not have sufficient support and is not flat enough, it needs to be guaranteed by other means (such as making a foundation, adding a load-bearing plate, etc.).

➤ Avoid installing in places where there is direct sunshine and rain.

➤ Avoid installing near high-temperature heat sources or low-temperature cold sources.

➤ Avoid installing in areas with extreme changes in ambient temperature.

➤ Avoid installing in strong interference environment.

➤ Avoid installing in places where children can touch.

➤ Avoid installing in areas prone to water accumulation.

➤ Do not place flammable, explosive, or corrosive items around the device .

4.2 Precautions

➤ Before installation, check that the ground is flat and not inclined.

- Make sure the base is perpendicular to the ground.
- Make sure the base, battery, control box, and top cover are close to the wall, and the upper arc faces outward when placed.
- When placing the upper battery, make sure that the upper and lower holes are aligned.
- to drop the battery or the control box, etc.
- fixing bracket should be installed on the left and right sides facing the battery display screen and avoid installing on the same side.

4.3 Installation steps

When drilling holes on the ground or walls, cover the equipment with cardboard or other shelters to prevent dust from falling. Before installation, firstly connect the ground wire in the accessory to the base battery. When installing, put one end of the ground wire lug on the ground bolt of the base battery, and then tighten the nut.

4.3.1 Floor installation (standard configuration)

Step 1: Take out the battery, base, control box, top cover and fixing bracket.

Step 2: Place the base close to the wall with a distance of 22mm from the wall, use a marker pen to mark the hole position on the

ground, and remove the base.

Step 3: Use a percussion drill to drill holes in the ground. (Aperture: 16 mm, depth: 116 mm).

Step 4: Tighten the expansion bolts to ensure that the base is firmly installed.

Step 5: Install the base battery to the base.

Step 6: Install other batteries according to the battery serial number from bottom to top. Numbers 1 and 2 in Table 4-1 represent the base battery and the middle battery respectively.

Table 4-1 Location of battery system components

Product number	Cabinet number (from bottom to top)
ZXJC-GY01-05	Base, 1, control box
ZXJC-GY01-10	base, 1, 2, control box
ZXJC-GY01-15	base, 1, 2, 2, control box
ZXJC-GY01-20	base, 1, 2, 2, 2, control box
ZXJC-GY01-25	base, 1, 2, 2 , 2, 2, control box
ZXJC-GY01-30	base, 1, 2, 2, 2 , 2, 2, control box
ZXJC-GY01-35	base, 1, 2, 2, 2 , 2, 2, 2, control box

Step 7: Install the fixing bracket on the back of the battery with a bold number and place it on other batteries. Use a marker pen to align the mounting hole of the fixing bracket and mark the hole

position on the wall and remove the battery with a bold number.

Step 8: Use a percussion drill to punch holes in the wall. (Aperture: 8mm, depth: 40mm).

Step 9: Tighten the expansion bolts to ensure that the intermediate box is firmly installed.

Step 10: Install other batteries sequentially from bottom to top.

Step 11: Install the control box on top of the battery, making sure it's seated securely.

Step 12: Install the fixing bracket at the control box, use a marker pen to mark the hole position on the wall, and remove the control box.

Step 13: Use a percussion drill to drill holes in the wall, same as Step 8.

Step 14: Tighten the expansion bolts to ensure that the control box is installed firmly.

Step 15: Place the top cover, tighten the screws from the side, and fix the top cover and the control box.

4.4 Electrical connection

4.4.1 Ground connection

Installing the battery system, the protective ground wire must be installed first; when the battery system is removed, the protective

ground wire must be removed last. Please prepare your own protective ground wire. The cross-sectional area of the protective ground wire conductor is 6 mm^2 .

Step 1: Make the Ground Wire

Put the heat-shrinkable tube through the ground wire first, and then peel off the outer sheath of the ground wire. The stripped length is 1 to 2mm longer than the length of the wire lug crimping wire, and the bare end of the ground wire is inserted into the wire lug. Solid heat shrinks tubing.

Step 2: 1 is the base battery ground screw, 2 is the base ground screw. First put the grounding wire on the base battery into the base grounding screw, then put the prepared grounding wire into the grounding screw at the same time, put the nut on it, and tighten it. Connect it to the ground wire of the base, and then connect 2 to self-prepared ground wire from the base to the environment ground.

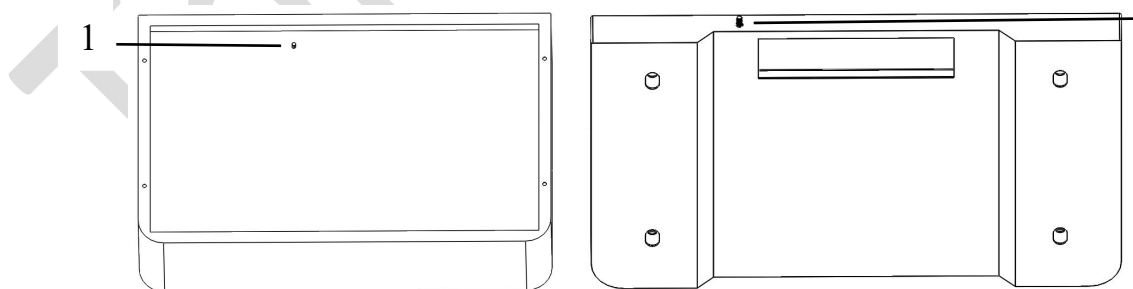


Figure 4-1 Ground bolt

4.4.2 Power line connection

The battery system is a high-voltage system. Before connecting the power line, please turn off the power to avoid danger. Please prepare your own DC input cables. The red power connector corresponds to the red sheathed wire harness, and the black power connector corresponds to the black sheathed wire harness. The wire must meet the standards for outdoor use. Recommended manual hydraulic crimping pliers tool, crimping height 7mm, die 25 mm² (or AWG 4). After tightening the back case, make sure there are no gaps in the connection.

Step 1: Select the 4AWG/25MM² cable and pass through the end cap and the cable sealing body in turn (note the direction of the sealing body, the step faces the direction of the end cap).



Figure 4-2 threading

Step 2: Strip the wires. The length of the stripped wires is 13±0.5mm. Note that the core wires should not be damaged by stripping the cables.

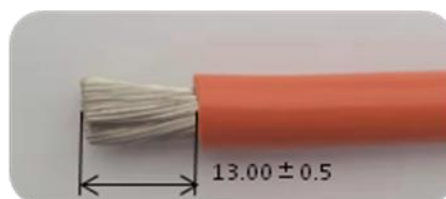


Figure 4-3 Stripping

Step 3: Put the core wire into the crimp terminal and crimp it.

Note: ① Do not crush or damage the wire insulation during crimping operation; ② Do not press the insulation coating into the contact terminal; ③ The width of the crimping knife edge is 8~10mm.



Figure 4-4 crimping

Table 4-2 Crimp parameters

Cable Specifications	Crimp height H (mm)	Cable pull-off force (N)	Applicable wire outer diameter (mm)
4AWG/25MM ²	7.5±0.1	≥1900	9.8~10.5

Step 4: Install the sealing body to the position shown in the figure;



Figure 4-5 Sealing body installation

Step 5: Screw the tail cap to the end with a torque of 1~1.5N m (It is recommended to add a heat shrinkable tube with an outer

diameter of 21MM and a length of about 50MM on the tail and the cable to prevent the tail cable from being excessively bent and causing the insulation layer to shrink back and affect the waterproof performance of the tail).



Figure 4-6 Heat shrink tube

4.4.3 Communication line connection

Step 1: Please refer to the following interface definition for the communication line on the battery side.

Table 4-3 Definition of communication lines

PIN	definition	icon
4	h	<p>RJ45水晶接头</p>
5	L	
1, 2, 3, 6, 7, 8	N/A	

Step 2: Remove the tail sheath of the communication connector, insert the RJ45 head of the communication cable into the communication connector, and pass the tail of the network cable (the tail should be in the state of bare network cable) through the tail sheath.



Figure 4-7 Communication cable threading

Step 3: Tighten the sheath of the network part according to the direction shown in the figure to complete the connection of the network cable of the communication connector.



Figure 4-8 Assembling the communication connector

Step 4: Unscrew the dust-proof cover of the communication interface on the control box, align the communication connector with the communication interface on the control box, and tighten the communication connector according to the direction shown (facing the control box clockwise).



Figure 4-9 Pair connector

5. System operation

5.1 Check before power on

When the battery system is powered on, please check the following items to prevent system damage.

- The equipment is firmly installed, the installation location is convenient for operation and maintenance, the installation space is convenient for ventilation and heat dissipation, and the installation environment is clean and tidy.
- The protective ground wire, power wire, and communication wire are connected correctly and firmly.
- The cable binding meets the routing requirements, the distribution is reasonable, and there is no damage.

5.2 Power on the battery system

Step 1: Close the circuit breaker switch, turn the switch clockwise to the ON position, and connect the external power line of the battery system.



Figure 5-1 Circuit breaker switch Figure 5-2 Control switch

Step 2: Press the control switch, after pressing, the switch is recessed. At this time, the running light is green, indicating that the system is powered on successfully.

5.3 LED Status

Table 5-1

symbol	content	color	Way	meaning
=[Charge	red, yellow, green	always on	Light on means charging, light off means not charging Red light: SOC \leq 33.3% Yellow light: SOC \leq 66.6% Green light: SOC $>$ 66.6%

] =	discharge	red, yellow, green	always on	Light on means discharge, light off means no discharge Red light: SOC \leq 33.3% Yellow light: SOC \leq 66.6% Green light: SOC $>$ 66.6%
⌂	run	red, green	flashing	Red light means abnormal, green light means normal

5.4 Power off the battery system

When shutting down the battery system, follow these steps:

1. Press and release the control button switch, the button switch pops up, and the running light goes out, indicating that the battery system has been powered off.
2. Turn the circuit breaker switch counterclockwise to the OFF position to cut off the external power line of the battery system.

6. Storage and maintenance

6.1 Storage

- 1) If the device is not installed within 3 days after unpacking, it is recommended to store the device in the packing box.
- 2) When not in use for a long time, perform standard charge and discharge maintenance on the battery every six months, and store the battery at SOC 30% state of charge.
- 3) Store at -20 °C ~ 45 °C for no more than 1 month.
- 5) The storage humidity should be less than 70%RH.
- 6) The device should be stored in a cool place out of direct

sunlight.

7) Equipment storage should be kept away from flammable, explosive, corrosive and other items.

6.2 Maintenance

Carry out maintenance and inspection of the battery system every 6 months. The inspection items mainly include:

- Check whether the installation bracket is loose, if so, please tighten the corresponding position.
- Check whether the shell is damaged, if so, please touch up the paint or contact the after-sales service.
- Check whether the exposed wires are worn. If so, please replace the corresponding wires or contact after-sales service.
- Check whether there is debris accumulation around the battery, if there is, please clean it, so as not to affect the heat dissipation of the battery.
- Check for water or pests to avoid long-term intrusion into the battery.

If you find exposed copper wires or other problems that may affect the battery system, please contact the after-sales personnel. It is forbidden to touch the exposed copper wires or disassemble them without permission.

TENGI

Company: Zhengzhou Tengji Power Co., Ltd

After sales: 0371-67817156

E-mail: tyxny@126.com / info@tengipower.com

Website: www.tengipower.com

Address: Zhengzhou, China

