TADIRAN

Tadiran TAD-HV5.12 EU

Operating Manual

Stackable

Cost effective

Easy to install

Emergency backup power

Single phase/three phase available

Foreword

Thank you for choosing the products of MARS UNION LLC. In order to ensure your legal rights and interests and use this product safely and correctly, please read the user manual carefully before installation and use.

Disclaimer

- This user manual contains a series of contents such as installation, operation methods, common troubleshooting and technical indicators. When installing, using, or maintaining the product, you must read this chapter carefully and follow the safety precautions specified in this chapter. We don't take responsibility for any injury or loss caused by illegal operation;
- Please keep the operation manual properly for future reference;
- The contents of the manual will be continuously updated, corrected and upgraded. If it does not conform to the actual product, please refer to the actual product you purchased, or obtain the latest version of the manual through the sales channel.

Version	Date	Records
V1.0	2024.10.30	Initial Release

Contents

1 Safety Instructions

DANGER!

- The battery system is a high voltage system, please turn off the power before operating the equipment in the system, soas to avoid danger!
- The wiring work must be carried out by qualified electrical engineers, otherwise there is the risk of electric shock or damage to the system!
- Do not touch live parts or DC cables, which may cause electric shock and endanger your life!
- Before wiring, make sure that the power supply is disconnected, otherwise there is a risk of electric shock or fire!
- The installed cable must meet the requirements and the distribution part must comply with safety codes!
- During normal operation, do not directly open the shell of the machine, otherwise it will cause electric shock!
- After opening the shell, there is still residual power inside the machine, do not touch the exposed part of the line directly, so as not to cause electric shock!
- Maintenance and overhaul must be carried out by professional maintenance personnel in accordance with local regulations. Users should not disassemble the machine by themselves, which will cause electric shock and damage to the product!

WARNING!

- If the battery module leaks electrolyte, avoid contact with the leaking liquid or gas. Electrolyte is corrosive and contact with it may cause skin irritation and chemical burns. If a person is exposed to the leaked material:

  Inhalation: Evacuate the contaminated area immediately and seek immediate medical attention!

  Eye contact: After rinsing with running water, seek medical attention immediately!

  Skin contact: Wash the affected area thoroughly with soap and water and seek immediate medical attention!

  Ingestion: Induce vomiting, and seek immediate medical attention!
- This product in the process of handling, should avoid strong vibration, fall, bump, it is strictly prohibited to invert the packing box, unpacking and handling do not loseaccess ories and instructions, warranty card and so on!

  Do not hit, pull, drag or step on the battery module!

  Do not insert unrelated objects into any part of the battery module!

  Do not immerse the battery module in water or seawater!

  Do not come into contact with strong oxidants!

  Do not short circuit the battery module!

  Do not store the battery module at high temperatures (over 50° C)!

  Do not store the battery module in direct sunlight!

  Do not store the battery module in high humidity!
- Do not use the battery module if it is defective or has cracks, breaks, or other damage that prevents it from working! And contact the after-sales service department of " MARS UNION LLC " within 48 hours!

CAUTION!

- Unpacking inspection, if the product is found damaged or missing parts can not be installed, otherwise it may fail!
- When the packing list does not match the actual name, please do not install and contact the supplier in time!
- The risk of personal injury due to the weight of the battery module! Personal injury may occur if the battery module is improperly lifted or dropped during transportation or installation!
  Handle and lift with care!
  Wear appropriate personal protective equipment throughout the battery system's operation!
- If the battery is not installed within one month of receiving it, the battery needs to be charged to more than 50% SOC before it can be maintained!

2 Product Introduction

2.1 Product Introduction

- This document describes the product introduction, application scenarios, installation, commissioning, and maintenance of the Tadiran TAD-HV5.12 EU high voltage energy storage battery system (battery system for short).
- The energy storage battery system is mainly composed of the control box and the battery Pack.

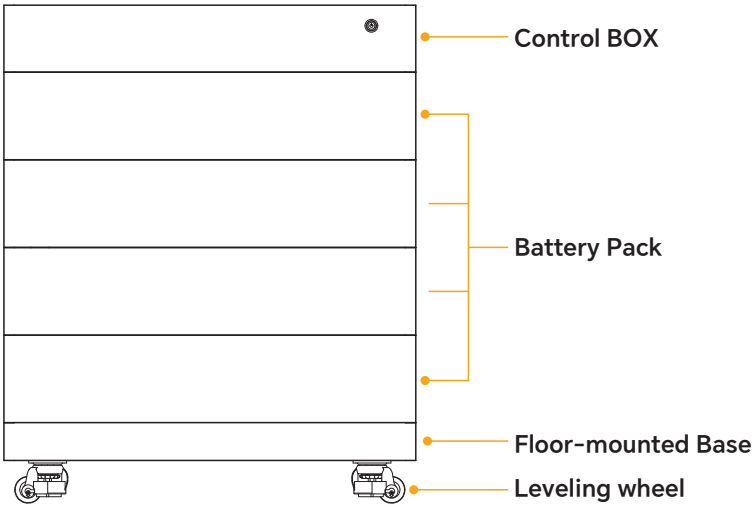
Battery capacity expansion is as follows:

Tadiran TAD-HV5.12 EU ×2	Tadiran TAD-HV5.12 EU ×3	Tadiran TAD-HV5.12 EU ×4
		

2.2 Logo Description

Mark	Instructions	Mark	Instructions
	Potential risks exist after the device is running. Take proper precautions when operating the device.		Keep away from children!
	Beware of electric shock!		Please read the product manual carefu lly before operating the equipment!
	Watch out for heavy objects!		Do not dispose of the battery system w ith domestic waste, and comply with th e e-waste disposal regulations applica ble to the installation site!
	Batteries contain corrosive electrolytes! Please avoid contact with leaking material!		Equipment should be placed in the right place and recycled in accordance with local environmental regulations!
	Do not expose the battery to high temperature, open flame!		Protection grounding mark indicates the position of the PGND cable connection.

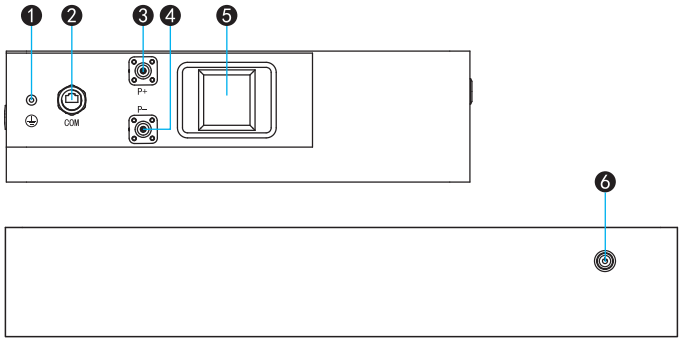
2.3 Introduction to Battery System



NOTICE!

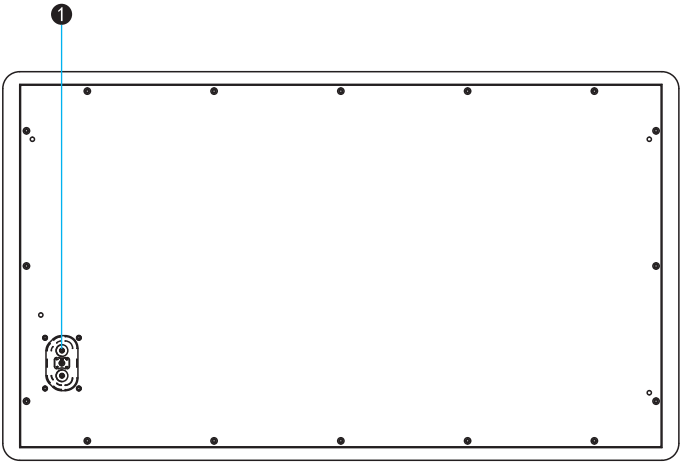
- Up to 4 batteries and 1 BCMU can be installed per cluster battery system
- Ensure that the BCMU is always mounted above the battery.
- This document uses four batteries as an example to describe how to install and connect cables.

2.4 Introduction to Control Box



Serial number	Instructions
1	Ground interface
2	RJ45 – port (PCS)
3	Dc output (P+) to inverter BAT (+)
4	Dc output (P–) to inverter BAT (–)
5	Air switch
6	Power switch

2.5 Introduction to Batteries



Serial number	Instructions
1	Quick plug connector

2.6 Technical Parameters

Model				
Number of battery packs		2	3	4
Nominal Energy (kWh)		10.24	15.36	20.48
Usable Energy (90% DOD) (kWh)		9.22	13.82	18.43
Rated Voltage (V)		204.8	307.2	409.6
Working Voltage Range (V)		172.8~233.6	259.2~350.4	345.6~467.2
Dimensions (W*H*D)(mm)		800*545*460	800*715*460	800*885*460
Weight (kg)		164	224	284
Rated Capacity (Ah)		50		
Rated Charge / Discharge Current (A)		25 / 50		
Maximum Continuous Charge / Discharge Current (A)		25 / 50		
Operating temperature (℃)	Charge	0~50		
	Discharge	-10~55		
WIFI frequency range (MHz)		2400~2483		
Humidity		20~60% (No condensed water)		
Protective Class		Class I		
IP Rating		IP54		
Operating condition		Indoor		
Cooling type		Natural cooling		
Cycle Life (25℃, 0.5C, 90%DOD)		>6000 cycles		
Communication		CAN / RS485 / Wifi		
Warranty		10 years		

3 Product Storage and Packaging

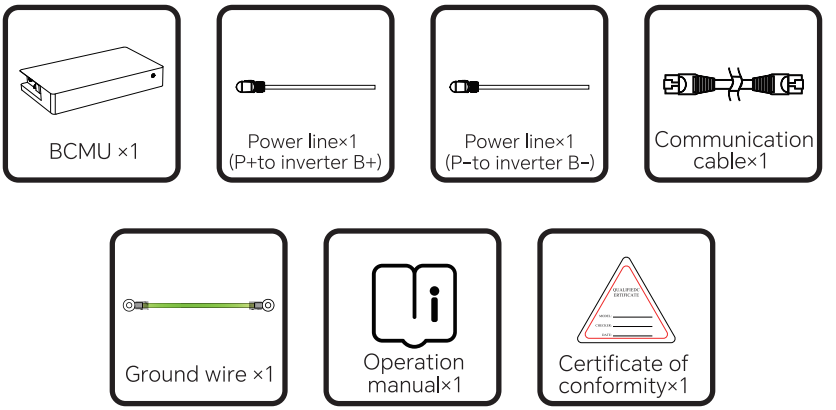
3.1 Product storage environment

If the device is not installed immediately after unpacking, ensure that the storage environment meets the following conditions:

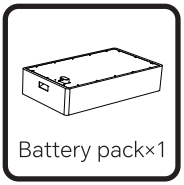
- If the device is not installed and used within 3 days after unpacking, use the original packing case. If the original packing is not available, please use cartons of the same size as below:
  - Load more than 60kg;
  - Completely closed。
- Store SOC: 25%~50%SOC, Charge and discharge cycle every 3 months.
- Storage temperature range: 0℃~35℃。
- Humidity range: 0~90%No condensation。
- The device should be stored in a cool place, away from high temperature and direct sunlight
- Keep the device away from inflammable, explosive, and corrosive materials.
- Do not rain the device.

3.2 Product packaging information

BCMU:



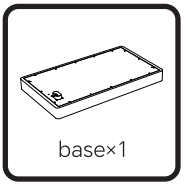
Battery:


Battery pack×1


M6Locating pin×4

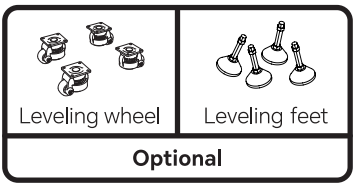

Certificate of conformity×1

Base:


base×1


M6Locating pin×4


Certificate of conformity×1



· Open the package, check whether the product is deformed or damaged during transportation, and check the number and type of related accessories;

· Please read carefully And save product installation instructions;

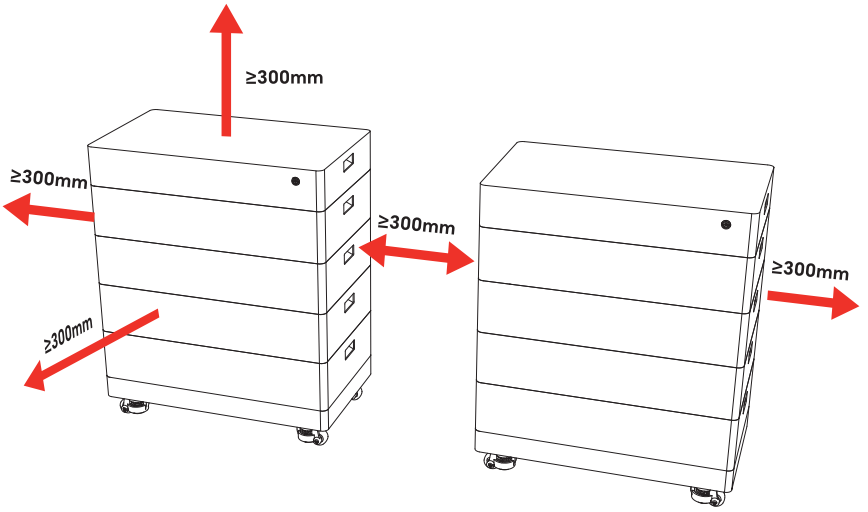
· It is recommended not to unpack the package before the unit arrives at the installation site.

4 Product installation

4.1 Installation Environment

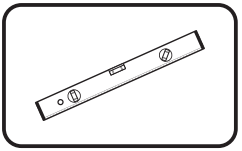
- The battery system must be installed on a flat ground with sufficientload-bearing capacity; If the ground is uneven or does not have enough bearing capacity, it needs to be guaranteedby other means (such as making an other foundation, increasing the bearing board, etc.)!
- The battery system works best at a temperature of 20~45 ° C!
- Do not install in direct sunlight, rain environment!
- Do not install near high temperature heat source or low temperature environment!
- Do not install in areas with extreme ambient temperature changes!
- Do not install in an environment with strong interference!
- Do not install in areas accessible to children!
- Do not install in areas prone to water accumulation!
- Do not place inflammable and explosive materials around the equipment!

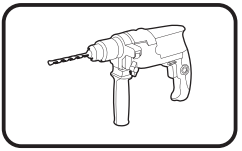
4.2 Installation clearance

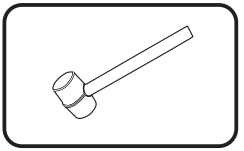


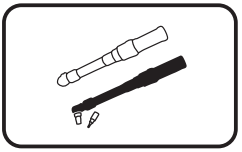
4.3 Installation Tools

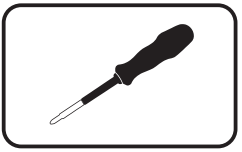
• To protect the safety of operators and installers, select and use appropriate tools and measuring instruments that are certified for accuracy.

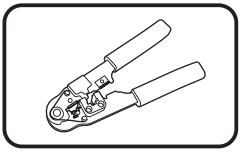

Spirit level

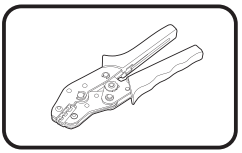

Hammer drill

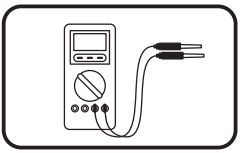

Hammer


Insulation torque wrench set


Screwdriver


RJ45 Crimping tool

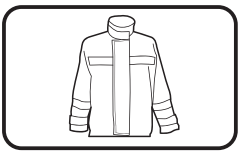

Crimping pliers

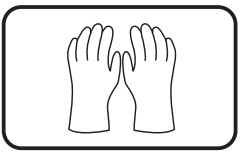

Multimeter

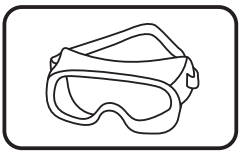

Pen

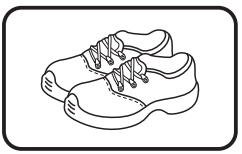
Note: The specific tools used depend on the actual situation on site.

• The battery has voltage, please wear the appropriate arc flash safety protection suit (gloves, clothing, and mask) before installation.


Arc protection suit


Insulating gloves


Goggles


Safety shoes

• During operation, noise may exceed the legal threshold (< 70dBA), and appropriate ear protectors must be worn.

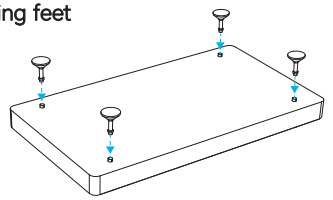
4.4 Product installation

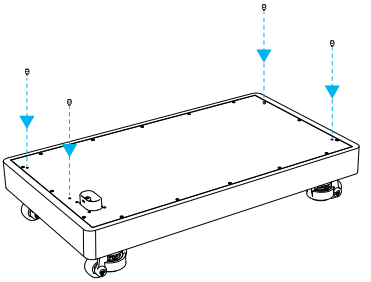
NOTICE!

- The product has a certain weight, please handle it carefully during installation to avoid injury and property damage caused by product falling!

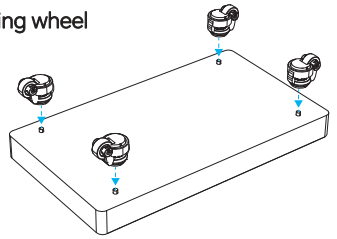
1. Remove battery, BCMU and base.
2. Install the horizontal adjusting wheel or leveling foot cup on the bottom bracket and screw on the positioning pin (using the horizontal adjustment wheel as an example).

Leveling feet

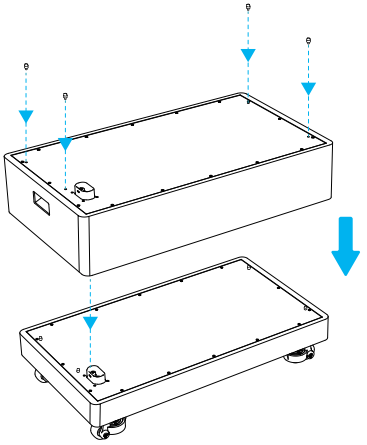


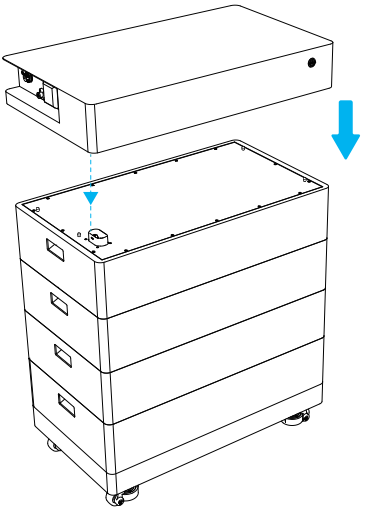


Leveling wheel



3. Align the positioning holes at the bottom of the battery with the positioning pins, and stack the batteries in sequence.
4. Stack the BCMU on top of the battery.





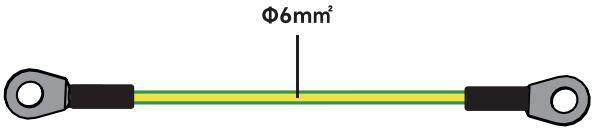
4.5 Electrical connection

NOTICE!

- When installing a device, install the PGND cable first. When removing the device, remove the PGND cable at the end!
- PGND conductor cross-sectional area: 6mm^2. The wire must meet the outdoor use standards!

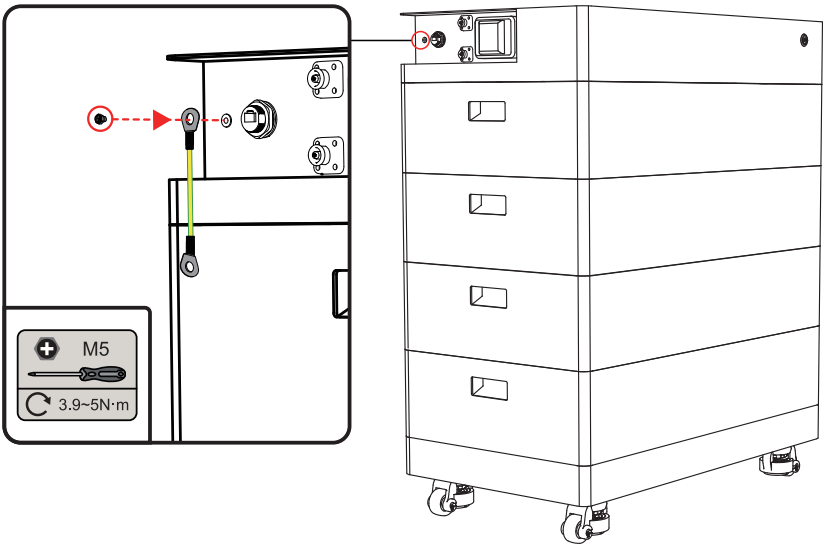
4.5.1 Ground connection

1. Take out ground wire.



2. Connect the ground wire to the battery and BCMU.

· The terminal ground cable must be connected to a reliable ground point.



4.5.2 Power line connection

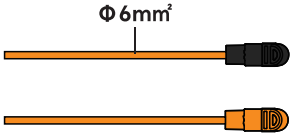
NOTICE!

- Batteries are connected to each other in fast-plug mode
- There is no isolation switch in a single battery, do not short circuit the positive and negative battery terminals during installation!
- The battery system is a high voltage system, please turn off the power before connecting the power line to avoid danger!
- Power conductor cross-sectional area: 6mm² square meters. The wire must meet the outdoor use standards!

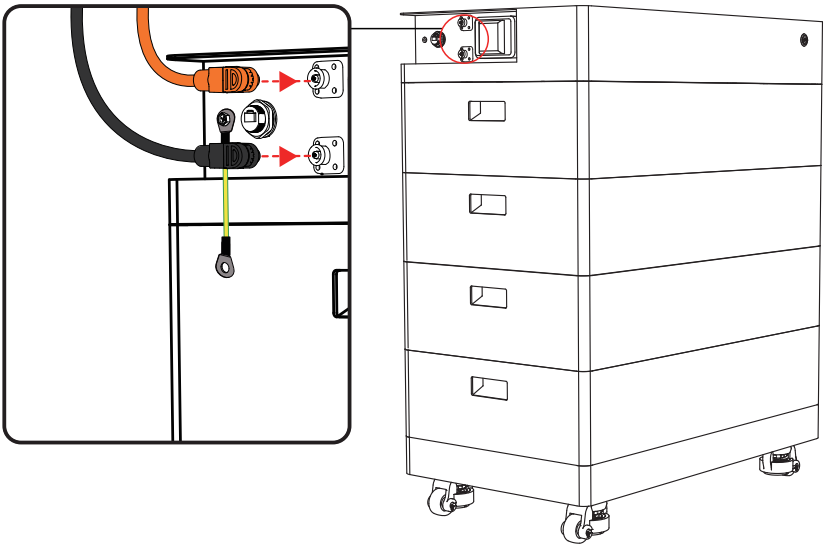
2. Remove the power cable and communication cable.

Battery and BCMU (P- to B-): **P-**

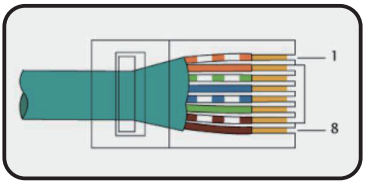
Battery and BCMU (P+ to B+): **P+**



Power line connection diagram:

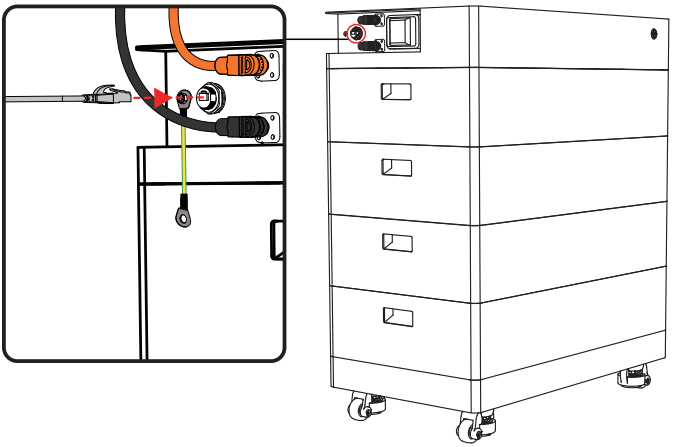


4.5.3 Communication line connection



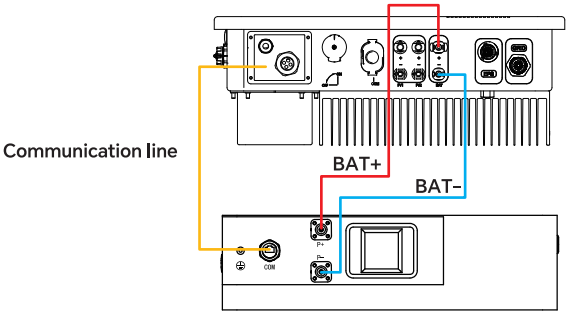
Pin	1	2	3	4	5	6	7	8
Feature	NC	NC	NC	CANH	CANL	NC	NC	NC

Communication line connection diagram:



4.5.4 Inverter connection

Inverter connection diagram:



· The inverter shown in the figure is an example. For details about the cable ports, see the actual inverter.

5 System operation

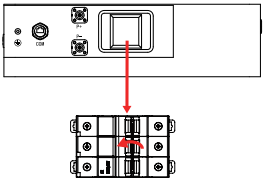
5.1 Inspection before power-on

NOTICE!

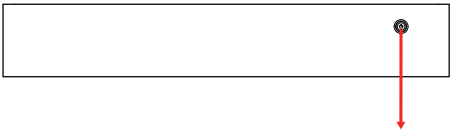
When powering on the battery system, ensure that the following items are checked to prevent system damage:

- The equipment is firmly installed, the installation position is easy to operate and maintain, the installation space is easy to ventilation and heat dissipation, and the installation environment is clean and tidy!
- The PGND cable, power cable, communication cable, and terminal resistance are connected correctly and firmly!
- Cable bundling meets the requirements of cable routing, reasonable distribution, no damage!
- The unused port has been blocked!

5.2 Power-on of the system



· Closed circuit breaker



· Turn on the DC switch on the BCMU

5.3 Indicator light

NOTICE!

BMS Indicator Description:

· When there is a BMS level 2 fault that needs to be alerted,
Blinking red: On for 1S, off for 1S, or on for 1S

· When there is a BMS level 3 fault that needs to be alerted,
Blinking red :0.5S on /0.5s off /0.5s on cycle;

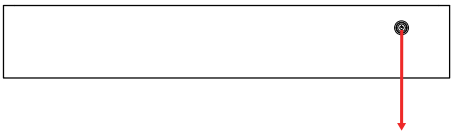
· Level 2 and level 3 exist at the same time, level 3 is preferred;

· Note that the normal full charge does not alarm and is not regarded as a fault.

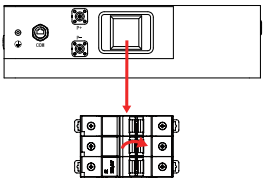
Power display (BCMU):

Indicator status	Instructions
The green light is on	SOC ≥ 60%
Steady yellow light	60% > SOC ≥ 30%
The red light is steady on	30% > SOC

5.4 System power-off



· Turn off the DC switch on the BCMU



· Break circuit breaker

6 Maintenance

- If the battery is not in use, it is necessary to fully charge the battery every 3 months and discharge it to 25% ~ 50%.
- Check the wall hanger every 6 months to see if it is loose. If so, tighten it.
- Check the shell every 6 months for damage, if so, please repaint or contact the after-sales service center.
- Check whether the exposed cable is worn every six months. If yes, replace the cable or contact the after-sales service center.
- Every 6 months, check whether there is debris accumulation around the battery, if so, please clean up, so as not to affect the heat dissipation of the battery.
- Check every 6 months for water or pests to avoid long-term intrusion of the battery.

NOTICE!	· If you find problems that may affect the battery or energy storage inverter system, please contact the after-sales personnel in time, and it is prohibited to disassemble! · If it is found that the copper wire inside the conductive wire is exposed, high pressure is dangerous, do not touch! Please contact after-sales personnel, prohibit private disassembly! · In case of other emergencies, please contact the after-sales personnel at the first time, operate under the guidance of the after-sales personnel, or wait for the on-site operation of the after-sales personnel! No private operation!

TADIRAN

MARS UNION LLC

Tel: +380 63 41 98 567

Web: https://tadiranair.com.ua

Add: building 47, office 33
Kashtanova str., Dnipro
49081, Ukraine