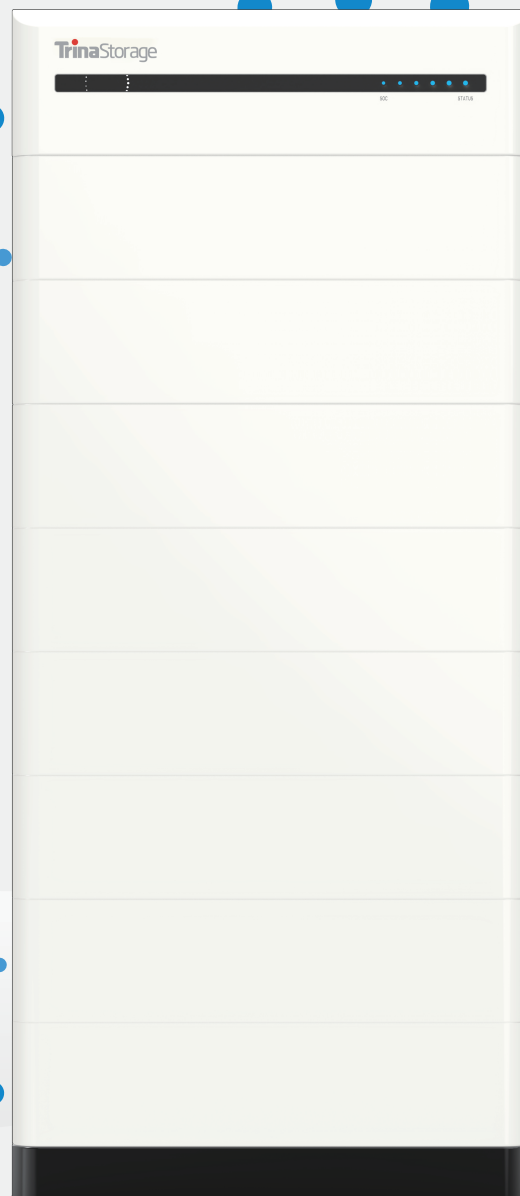


# Nexeos Series TRB (7.5-20)K-HT Battery User Manual

- TRB 7.5K-HT
- TRB 10K-HT
- TRB 12.5K-HT
- TRB 15K-HT
- TRB 17.5K-HT
- TRB 20K-HT



**Copyright © Trina Energy Storage Solutions (Jiangsu) Co., Ltd. 2024. All rights reserved.**

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Trina Energy Storage Solutions (Jiangsu) Co., Ltd.

## **Notice**

The purchased products, services and features are stipulated by the contract made between TrinaStorage and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

# About this document

## Purpose

This document describes the TRB (7.5-20)K-HT BESS (Battery Energy Storage System) in terms of installation, commissioning, configuration, operation, troubleshooting and decommissioning of the product.

You will find the latest version of this document and further information on the product in PDF format at <https://residentialstorage.trinasolar.com>.

Please keep the manual after reading, for future reference.






## Intended Audience

This document is intended for:

- Installers
- Users

## Symbol Conventions

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

Symbol	Description
 <b>DANGER</b>	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
 <b>WARNING</b>	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
 <b>CAUTION</b>	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
 <b>NOTICE</b>	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
 <b>NOTE</b>	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

## Change History

Changes between document issues are cumulative. The latest document issue contains all updates made in previous issues.

### **Issue 01 (2024-06-30)**

This is the first issue.





# Contents

About this document.....	i
Contents .....	iii
1 Safety Information .....	1
1.1 Personal Safety.....	1
1.2 Battery Safety.....	3
1.3 Electrical Safety.....	5
1.4 Environment Requirements .....	6
1.5 Mechanical Safety .....	7
2 Overview.....	9
2.1 Product Introduction.....	9
2.2 Appearance.....	10
2.3 Dimensions .....	10
2.4 LED Indicator .....	11
2.5 Label Description.....	12
2.6 Interfaces and functions.....	14
3 Unpacking and Storage.....	15
3.1 Scope of delivery .....	15
3.2 Product Storage.....	16
4 Installation.....	17
4.1 Requirements for Mounting .....	17
4.1.1 Installation Location Requirements .....	17
4.1.2 Tools .....	18
4.2 Mounting.....	20
5 Electrical Connection.....	26
5.1 System Connection Diagram .....	26
5.2 Connection Ports Description.....	27
5.3 Connecting the Grounding Conductor .....	27

---

5.4 Connecting the Power Cable and Network Cable .....	28
6 Commissioning .....	31
6.1 Inspection before commissioning .....	31
6.2 Commissioning procedure .....	32
7 Decommissioning the Product.....	33
8 Technical Data.....	34
9 Maintenance.....	36
10 Troubleshooting.....	37
11 Recycling and Disposing .....	38
12 EU Declaration of Conformity.....	39
13 Commissioning.....	40
14 Contact .....	41

# 1 Safety Information

## Statement

**Before transporting, storing, installing, operating, using, and/or maintaining the equipment, read this document, strictly follow the instructions provided herein, and follow all the safety instructions on the equipment and in this document.** In this document, "equipment" refers to the products, software, components, spare parts, and/or services related to this document; "the Company" refers to the manufacturer (producer), seller, and/or service provider of the equipment; "you" refers to the entity that transports, stores, installs, operates, uses, and/or maintains the equipment.

The **Danger, Warning, Caution, Notice** and **Note** statements described in this document do not cover all the safety precautions. You also need to comply with relevant international, national, or regional standards and industry practices. **The Company shall not be liable for any consequences that may arise due to violations of safety requirements or safety standards concerning the design, production, and usage of the equipment.**

Not adhering to the prescribed instructions may potentially void the manufacturer's warranty. If in doubt please contact the local TrinaStorage service team.

## 1.1 Personal Safety



**DANGER**

Do not work with power on during installation. Do not install or remove a cable with power on. Transient contact between the core of the cable and the conductor will generate electric arcs or sparks, which may cause a fire or personal injury.

---



**DANGER**

Before installing, operating or maintaining the equipment, remove conductive objects such as watches, bracelets, bangles, rings, and necklaces to prevent electric shocks.

---



**DANGER**

When installing, operating, or maintaining the equipment, use dedicated insulated tools to prevent electric shocks and short circuits.

---



During operations, wear personal protective equipment such as protective clothing, insulated shoes, goggles, safety helmets, and insulated gloves.

---

## General Requirements

- Do not stop protective devices. Pay attention to the warnings, cautions, and precautionary measures on the equipment.
- If there is a likelihood of personal injury or equipment damage during operations, immediately stop, report the case to the supervisor, and take feasible protective measures.
- Do not power on the equipment before it is installed or confirmed by professionals.
- Before handling a conductor surface or terminal, measure the contact point voltage and ensure that there is no risk of electric shock.
- In the case of a fire, immediately leave the building or the equipment area and activate the fire alarm or call emergency services. Do not re-enter the building or affected area until it has been deemed safe by qualified professionals.

## Personnel Requirements

- Only professionals and trained personnel are allowed to operate the equipment.
    - Professionals: personnel who are familiar with the working principles and structure of the equipment, trained or experienced in equipment operations and are clear of the sources and degree of various potential hazards in equipment installation, operation, maintenance.
    - Trained personnel: personnel who are trained in technology and safety, have required experience, are aware of possible hazards on themselves in certain operations, and are able to take protective measures to minimize the hazards on themselves and other people.
  - Personnel who plan to install or maintain the equipment must receive adequate training, be able to correctly perform all operations, and understand all necessary safety precautions and local relevant standards.
  - Only qualified professionals or trained personnel are allowed to install, operate, and maintain the equipment.
  - Only qualified professionals are allowed to remove safety facilities and inspect the equipment.
  - Personnel who will perform special tasks such as electrical operations, working at heights, and operations of special equipment must possess the required local qualifications.
  - Only authorized professionals are allowed to replace the equipment or components.
  - Keep irrelevant people away from the equipment. Only operators are allowed to access the equipment.
-

## 1.2 Battery Safety



### DANGER

Do not short circuit the positive and negative poles of batteries. Battery short circuits can generate high instantaneous current, which may cause battery leakage, overheating, fire, or explosion. To avoid battery short circuit, do not maintain batteries with power on.

---



### DANGER

Do not expose batteries at high temperatures or around heat-generating sources, such as high-temperature sunlight, fires, transformers, and heaters. Battery overheating caused by external heat sources may cause vent opening, leakage, fire, or explosions.

---



### DANGER

Protect battery modules from mechanical vibration, collision, punctures, and strong impact. Otherwise, the modules may catch fire. Do not burn batteries. Otherwise, the batteries may catch fire or explode.

---



### DANGER

To avoid leakage, overheating, fire, or explosions, do not disassemble, alter, or damage batteries, for example, insert sundries into batteries, squeeze batteries, or immerse batteries in water or other liquids.

---



### DANGER

There is a risk of explosion if the model of the replaced battery is incorrect. The battery should be replaced with a battery of the model recommended by the manufacturer.

---

---

 **WARNING**

Before installing battery modules, prepare fire extinguishing facilities, such as firefighting sands and liquid carbon dioxide fire extinguishers, according to the construction regulations. Before operation, ensure that the battery room is equipped with a fire extinguishing system that complies with local regulations.

---

---

 **WARNING**

Before unpacking the battery, ensure that the packing cases are intact and correctly placed according to the labels on the packing cases during their storage and transportation. Do not place a battery upside down, lay it on one side, or tilt it. Stack the battery according to the stacking requirements on the packing cases. Any bumping or falling may damage the battery.

---

---

 **WARNING**

After unpacking the battery, place it in the required direction. Do not place a battery upside down or vertically, lay it on one side, tilt it, or stack it with other batteries. Any bumping or falling may damage the battery.

---

---

 **WARNING**

Install the equipment in an area far away from liquids. Do not install it under areas prone to condensation, such as under water pipes and air exhaust vents, or areas prone to water leakage, such as air-conditioner vents, ventilation vents, or feeder windows of the equipment room. Ensure that no liquid enters the equipment to prevent faults or short circuits.

---

## General Requirements

- If a battery is accidentally exposed to water, do not install it. Move it to a safe place for isolation and contact technical engineers in a timely manner.
  - Keep the battery switch off during installation and maintenance.
-

- When installing batteries, do not place installation tools on the batteries. After the installation is complete, clean up the objects on the batteries and the surrounding area.
- Use batteries of specified models. Using batteries of other models may damage the batteries.
- Note the polarities when installing batteries. Do not short-circuit the positive and negative poles of the same battery or battery string. Otherwise, the battery may be short-circuited.
- Dispose of waste batteries in accordance with local laws and regulations. Do not dispose of batteries as household waste. If a battery is disposed of improperly, it may explode.

---

**NOTICE**

To ensure battery safety and battery management accuracy, use batteries provided by the Company. The Company is not responsible for any battery faults caused by batteries not provided by it.

---

## Battery Leakage

- If a battery leaks, wear goggles, rubber gloves, and protective clothing, power off the equipment in a timely manner, and contact technical support.
- If a battery leaks, protect the skin or eyes from the leaking liquid. If the skin or eyes come in contact with the leaking liquid, wash it immediately with clean water and go to the hospital for medical treatment.
- Electrolyte overflow may damage the equipment. It will corrode metal parts and boards, and ultimately damage the boards.

## 1.3 Electrical Safety

### General Requirements

- Installation, operation and maintenance must be performed in the sequence specified in the manual. Do not change the structure or installation sequence of the equipment without permission.
- Before installing or removing power cables, ensure that the switch is turned off.
- Before connecting power cables, check that cable labels are correct and cable terminals are insulated.
- To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telecommunication network voltage (TNV) circuits.
- A damaged cable must be replaced by the manufacturer or professionals to avoid risks.
- Check equipment connections periodically, ensuring that all screws are securely tightened.
- Do not use water to clean electrical components inside or outside of a cabinet.

- Do not scrawl, damage, or block any labels or nameplates on the equipment. Promptly replace warning labels that have worn out.

## Grounding

- For the equipment that needs to be grounded, install the ground cable first when installing the equipment and remove the ground cable last when removing the equipment.
- Ensure that the equipment is connected permanently to the protective ground. Before operating the equipment, check its electrical connection to ensure that it is reliably grounded.
- Do not operate the equipment in the absence of a properly installed ground conductor.
- Do not damage the ground conductor.

## Cabling

- When selecting, connecting, and routing cables, follow local safety regulations and rules.
- Do not route cables behind the air intake or exhaust vents of the equipment.
- When the temperature is low, violent impact or vibration may damage the plastic cable sheathing.
- Do not perform any improper operations, for example, dropping cables directly from a vehicle. Otherwise, the cable performance may deteriorate due to cable damage, which affects the current-carrying capacity and temperature rise.

# 1.4 Environment Requirements



Despite careful construction, electrical devices can cause fires. This can result in death or serious injury.

- Do not mount the product in areas containing highly flammable materials or gases.
- Do not mount the inverter in areas where there is a risk of explosion.



To prevent damage or fire due to high temperature, ensure that the ventilation vents or heat dissipation systems are not obstructed or covered by other objects while the equipment is running.

## General Requirements

- Ensure that the equipment is stored in a clean, dry, and well-ventilated area with proper temperature
-



and humidity and is protected from dust and condensation.

- Keep the installation and operating environments of the equipment within the allowed ranges. Otherwise, its performance and safety will be compromised.
- Keep away from fire, water sources, heat sources and inflammable and explosive articles.
- The install location must be inaccessible to children.
- Do not install, use, or operate outdoor equipment and cables (including but not limited to moving equipment, operating equipment and cables, inserting connectors to or removing connectors from signal ports connected to outdoor facilities, working at heights, performing outdoor installation, and opening doors) in harsh weather conditions such as lightning, rain, snow, and level 6 or stronger wind.
- Do not install the equipment in an environment with dust, smoke, volatile or corrosive gases, infrared and other radiations, organic solvents, or salty air.
- Do not install the equipment in an environment with conductive metal or magnetic dust.
- Do not install the equipment in an area conducive to the growth of microorganisms such as fungus or mildew.
- Do not install the equipment in an area with strong vibration, noise, or electromagnetic interference.
- Ensure that the site complies with local laws, regulations, and related standards.
- Ensure that the ground in the installation environment is solid, free from spongy or soft soil, and not prone to subsidence.
- Do not install the equipment in a position that may be submerged in water.
- Before installation, operation, and maintenance, clean up any water, ice, snow, or other foreign objects on the top of the equipment.
- When installing the equipment, ensure that the installation surface is solid enough to bear the weight of the equipment.
- After installing the equipment, remove the packing materials such as cartons, foam, plastics, and cable ties from the equipment area.

## 1.5 Mechanical Safety



Ensure that all necessary tools are ready and inspected by a professional organization. Do not use tools that have signs of scratches or fail to pass the inspection or whose inspection validity period has expired. Ensure that the tools are secure and not overloaded.

---

### General Requirements

---

- 
- Repaint any paint scratches caused during equipment transportation or installation in a timely manner. Equipment with scratches must not be exposed for an extended period of time.
  - Do not perform operations such as arc welding and cutting on the equipment without evaluation by the Company.
  - Do not install other devices on the top of the equipment without evaluation by the Company.
  - When performing operations over the top of the equipment, take measures to protect the equipment against damage.
  - Use correct tools and operate them in the correct way.

## 2 Overview

### 2.1 Product Introduction

#### Function

The product must be used only with TrinaStorage hybrid inverters.

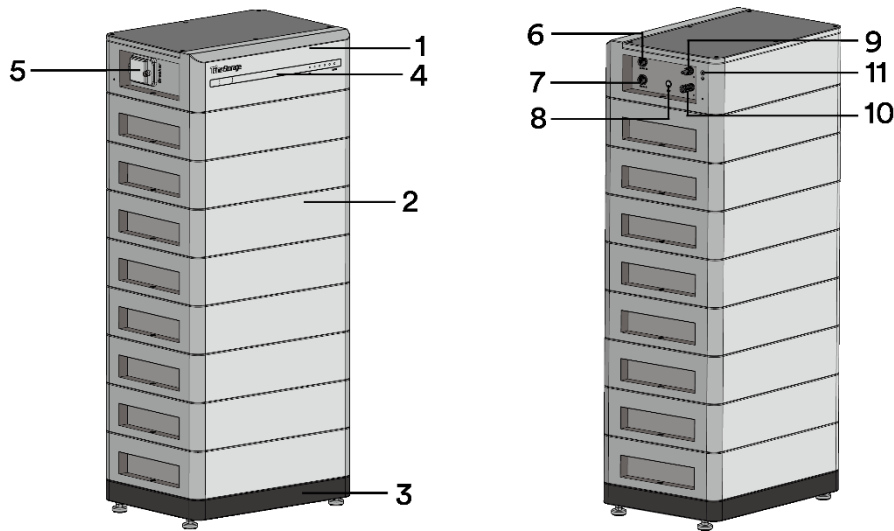
- It is a high voltage Li-ion BESS controlled via a BCU (Battery Control Unit).
- It can be operated in on-grid, off-grid and backup modes with all officially compatible TrinaStorage inverters.
- It is suitable for indoor and outdoor use.
- It must only be used as a stationary equipment.
- Alterations to the product are not allowed unless authorized in writing by TrinaStorage.
- Unauthorized alterations will void the guarantee and warranty claims. TrinaStorage will not be held liable for any damage caused by such unauthorized alterations.
- The product is not suitable for supplying power to life-sustaining medical devices.
- Ensure that no personal injury would lead due to the power outage of the battery system.
- Only use the product in countries where TrinaStorage has authorized its use.
- Use this product only in accordance with the locally applicable standards and directives and the information provided in this document. Any other application may cause personal injury or property damage.
- The type label must remain permanently attached to the product.
- This document does not replace any regional, state, provincial, federal or national laws, regulations or standards that apply to the installation, electrical safety and use of the product.

#### Models

This document involves the following product models:

- TRB 7.5K-HT
- TRB 10K-HT
- TRB 12.5K- HT
- TRB 15K- HT
- TRB 17.5K- HT
- TRB 20K- HT

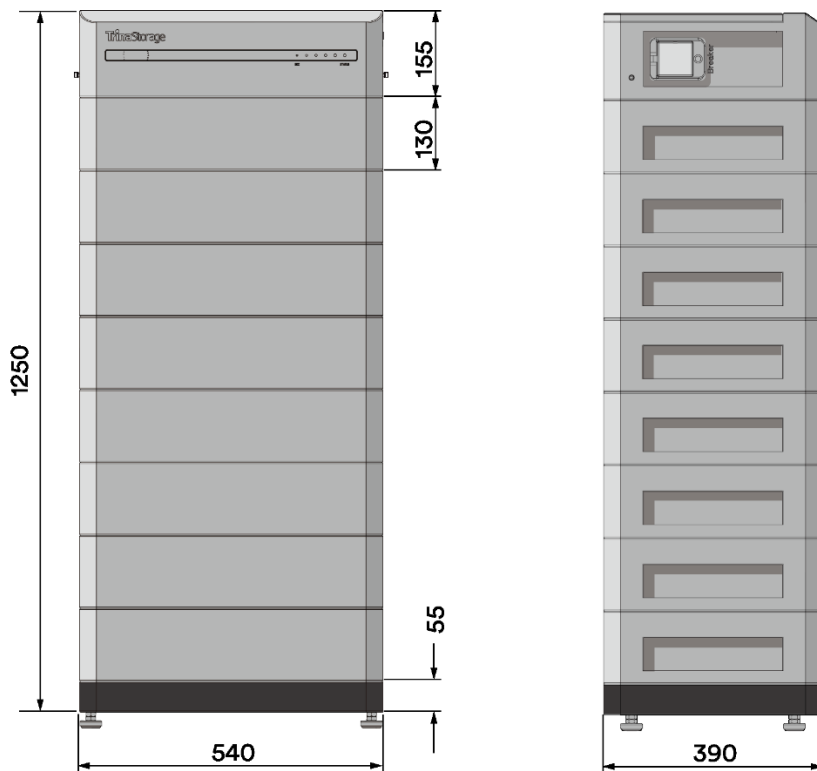
## 2.2 Appearance



Item	Name	Description
1	BCU	Battery control unit.
2	Battery Module	Battery module.
3	Base	The battery base which is used to support the battery.
4	LED indicator	Indicates the current operating state of the battery.
5	Circuit breaker	Disconnects the high voltage from battery module to BCU.
6	Link port out	The interface panel containing the ON/OFF button, DC connectors and the "Link Port In" which is used to connect the BCU to the inverter through CAN interface.
7	Link port in	
8	On/Off	Turns BCU On/Off.
9	P-	Negative battery power output.
10	P+	Positive battery power output.
11	Grounding	Ground terminal.

## 2.3 Dimensions

Dimensions (Unit: mm):









## 2.4 LED Indicator

The LEDs on the BCU indicate the status of the BESS.

LED status definitions:

- Solid ON: LED is permanently illuminated.
- Blinking: LED illuminates for 1 second and turns off for 1 second.
- OFF: LED is off.
- Pulsing: LED illuminates for 1.5 seconds and turns off for 5 seconds.

Function	LED Status	Description
Status	 Blinking	Indicates an alarm.
	 Solid ON	BCU is On, and the battery is waiting to turn on.
	 OFF	Normal state.
	 Solid ON	Indicates a fault.
SOC	 ON	SOC: 80%~100%
	 ON	

	● ON	
	● ON	
	● ON	
SOC	● OFF	SOC: 60%~80%
	● ON	
	● ON	
	● ON	
	● ON	
SOC	● OFF	SOC: 40%~60%
	● OFF	
	● ON	
	● ON	
	● ON	
SOC	● OFF	SOC: 20%~40%
	● OFF	
	● OFF	
	● ON	
	● ON	
SOC	● OFF	SOC: 0%~20%
	● OFF	
	● OFF	
	● OFF	
	● ON	












 **NOTE**

There are five LEDs to indicate the State of Charge (SOC) of the battery. The different status of the LEDs indicates the different working state of the battery.

- Solid on (all bright LEDs according to SOC) indicated discharging state.
- Blinking on (only top bright LED according to SOC) indicated Charging state.
- Pulsing on (all bright LEDs according to SOC) indicate standby state.

## 2.5 Label Description

Symbols on the label:

Symbol	Description
	Beware of a danger zone. This symbol indicates that the product must be additionally grounded if additional grounding or equipotential bonding is required at the installation site.
	Beware of high voltage and operating current. The product operates at a high voltage and current. Work on the product must only be carried out by skilled and authorized personnel.
	Beware of hot explosion. The battery is an electro-chemical device, and there is an explosion risk in extreme cases. Please keep away of it when the danger occurs.
	Beware of danger to children. The battery must be inaccessible to children.
	Flammable. Keep the battery system away from open flames or ignition sources.
	Do not dispose of the product together with household waste. Dispose the product in accordance with local disposal regulations for electronic waste.
	CE marking. The product complies with the requirements of the applicable EU directives.
	Certification mark. The product has been tested by TÜV and obtained the quality certification mark.
	RCM Mark. The product has been tested by TÜV and obtained the quality certification mark. The product complies with the requirements of the applicable Australian standards.
	The battery is recyclable. The battery can be recycled by a professional recycling organization, please refer to the relevant local regulations.
	Observe the documentation.

	Read and understand all documentation supplied with the product.
--	--

## 2.6 Interfaces and functions

The product is equipped with the following interfaces and functions:

- Communication (CAN) Interface - "Link Port"

The "Link Port" is an RJ45 port used for connecting the BCU to an inverter. The product can communicate with the inverter through CAN interfaces. The CAN interfaces can also be used for the parallel operation of the products.

- System startup

Turn on the circuit breaker. When the status indicator turns yellow, press the **ON/OFF** button for at least 3s, all lights will turn on from bottom to top, BESS is in working mode, and the device can be charged and discharged normally.

- System sleep

Press the **ON/OFF** button for at least 5s. Make sure that both the SOC indicator and the status indicator of the BCU are off.

- System shut down

Turn off the circuit breaker. Make sure that both the SOC indicator and the status indicator of the BCU are off.

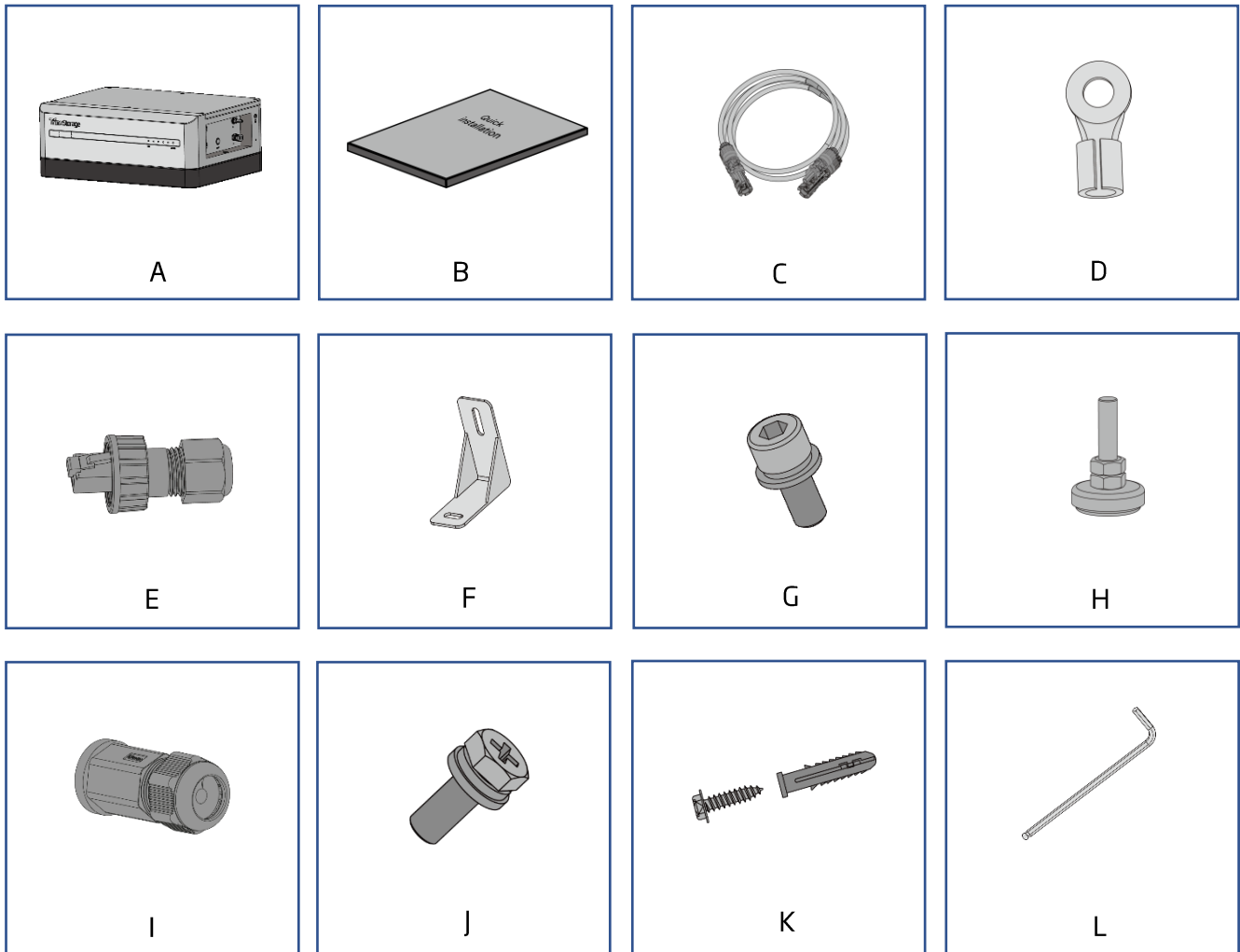


## 3 Unpacking and Storage

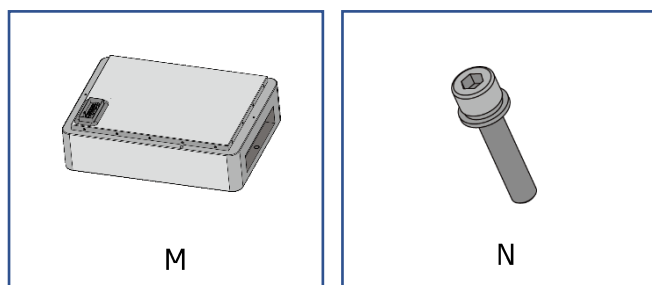
### 3.1 Scope of delivery

Check the scope of delivery for completeness and any visible external damage. Contact your distributor if the scope of delivery is incomplete or damaged.

BCU and base package:



Battery Module Package:



Item	Description	Quantity
A	BCU and Base	1
B	Quick installation guide	1
C	Positive cable and negative cable (L=2m, $\phi=6\text{mm}^2$ )	1
D	Terminal RNB8-6	1
E	Terminating resistor	1
F	L-bracket	2
G	M5X12 Screw	2
H	Foot (At the bottom of the packaging)	4
I	Cable gland	1
J	Hexagon screw ( M6 X 16 )	1
K	Expansion Anchor Bolt ( 8 X 40 )	2
L	Hex Key S=4	1
M	Battery Module	1
N	M5x25 Screw	2

## 3.2 Product Storage

The following requirements should be met if the product is not used immediately:

- Store the battery in the original packing case, and the packing shall not be tilted or inverted.
- Keep the storage temperature at  $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  and the humidity at 5%-95% RH (non-condensing).
- The storage SOC: 25%~50%. Recharge the battery every 6 months to ensure no over-discharge of the battery occurs.
- Place the equipment in a cool, clean and dry place away from direct sunlight and rain.
- Keep the equipment away from flammable, explosive and corrosive materials.
- If the product has been stored for three months or more, inspections and tests should be conducted by qualified personnel before it is used.

## 4 Installation

### 4.1 Requirements for Mounting

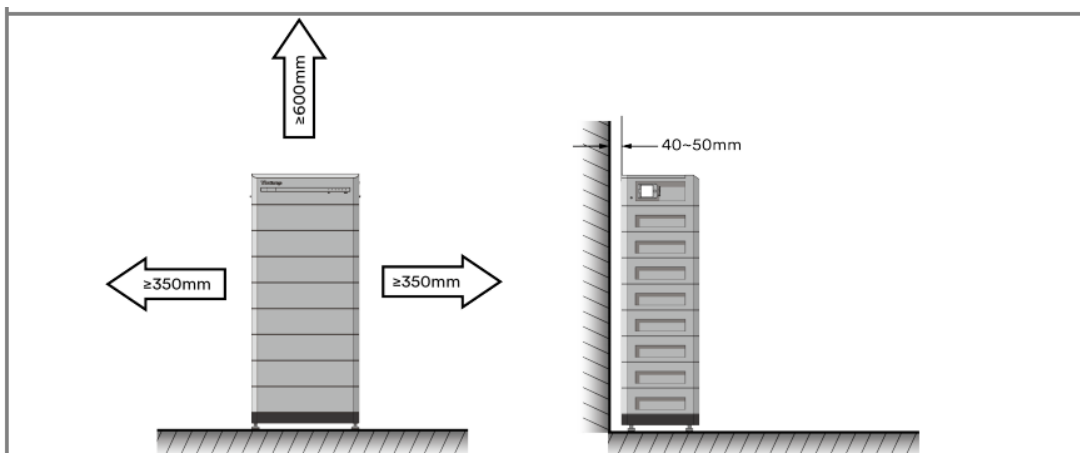
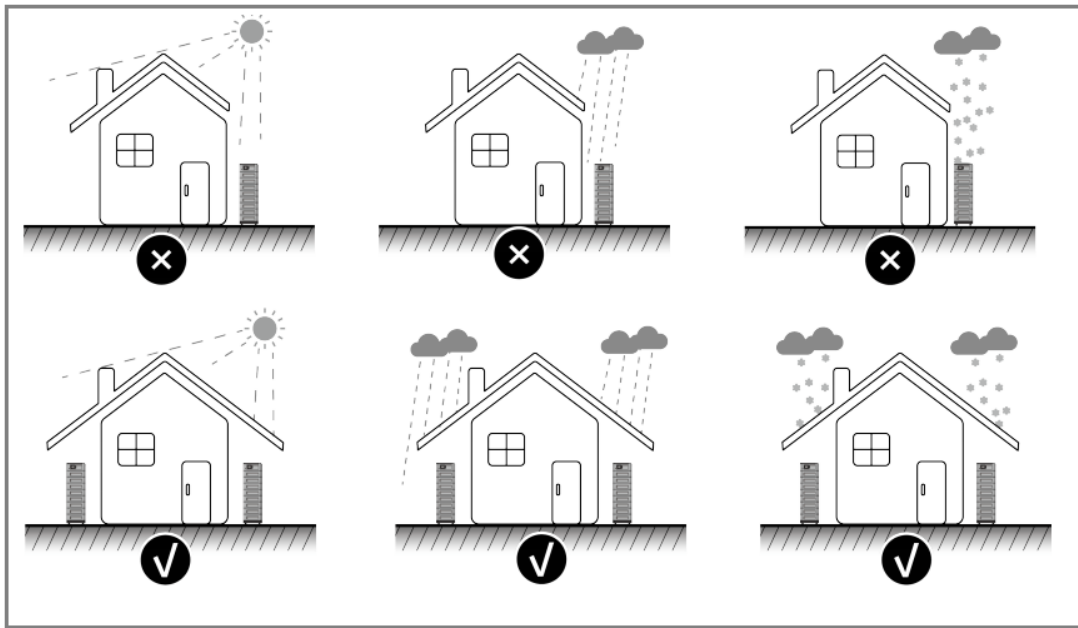
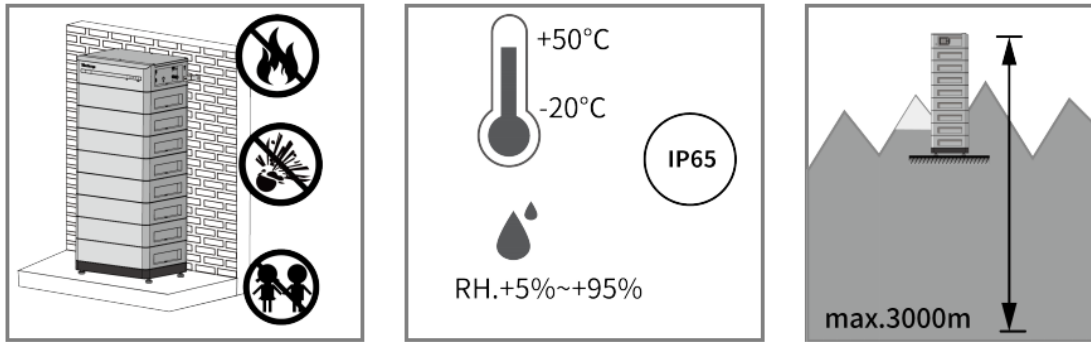
#### 4.1.1 Installation Location Requirements



Danger to life due to fire or explosion.





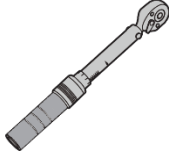
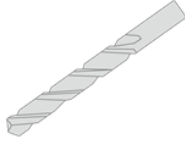
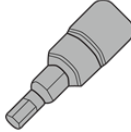

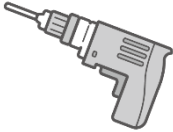


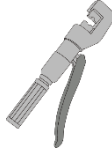


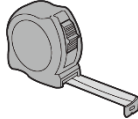

Despite careful construction, electrical devices can cause fires. This can result in death or serious injury.

- Do not mount the product in areas containing highly flammable materials or gases.
  - Do not mount the inverter in areas where there is a risk of explosion.
- 
- A solid support surface must be available (e.g. concrete or masonry).
  - The mounting location must be inaccessible to children.
  - The installation location must be suitable for the weight and dimensions of the BESS.
  - Keep away from conductive (metal) dust.
  - Keep away from water sources, heat sources and inflammable and explosive articles.
  - The installation location must not be close to fire.
  - The product should be mounted such that the LED indicators can be read without difficulty.
  - The circuit breaker of the BESS must always be freely accessible.
  - The altitude of the installation location should be less than 3000 m.
  - The operating temperature should be between  $-20^{\circ}\text{C}$  ~  $+50^{\circ}\text{C}$ .
  - The ambient humidity should be between 5-95%.
  - The mounting location must not be exposed to direct solar irradiation. If the product is exposed to direct solar irradiation, the exterior components may age prematurely and overheating might occur. When becoming too hot, the BESS reduces its power output to avoid overheating, and will reduce its lifetime also.

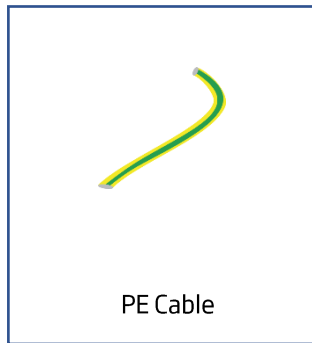
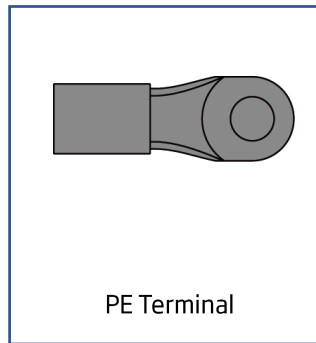
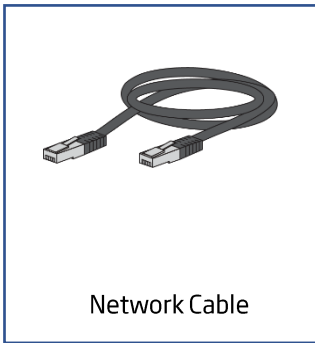


## 4.1.2 Tools

### Installation Tools

 <p>Phillips-screwdriver Specification: M5/M6</p>	 <p>Marker Pen</p>	 <p>Phillips-screwdriver Bit Specification: M5/M6</p>	 <p>Wrench</p>
 <p>Torque Wrench Specification: M8</p>	 <p>Twist Drill (12 mm)</p>	 <p>Hexagon Socket Bit S=4</p>	 <p>Heat Gun</p>
 <p>Electric Drill</p>	 <p>Network Cable Crimping Tool</p>	 <p>Wire Stripper</p>	 <p>Crimping Pliers</p>
 <p>Scissor</p>	 <p>Hammer</p>	 <p>Tape Measure</p>	 <p>Hex Key S=4</p>

## Additional Required Material



## Safety Gear



## 4.2 Mounting



When the battery has been connected to the inverter, and the circuit breaker is ON, the battery will generate high DC voltage which will be presented in the DC cable and live components.

- Do not touch non-insulated parts or cables.
- Do not touch the DC conductors.
- Do not touch any live components of the product.
- Do not open the product.
- All work on the product must only be carried out by qualified personnel who have read and fully understood all safety information contained in this document.
- Disconnect the product from voltage sources and ensure it cannot be reconnected before working on the product.

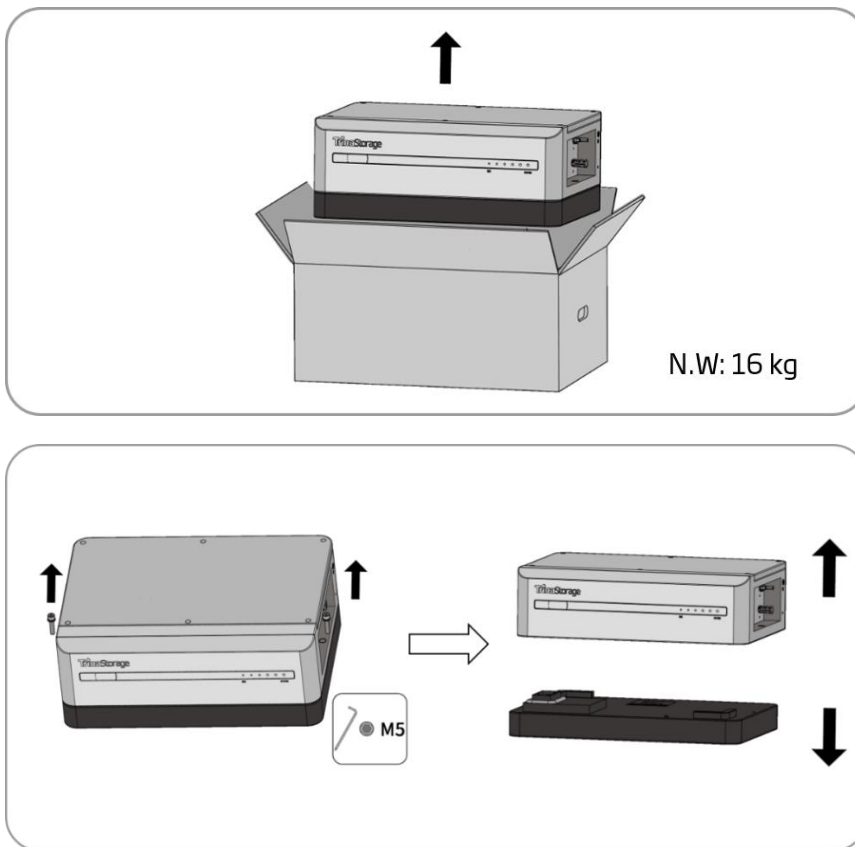
**⚠ WARNING**

Injuries may result if the product is lifted incorrectly or dropped while being transported or mounted.

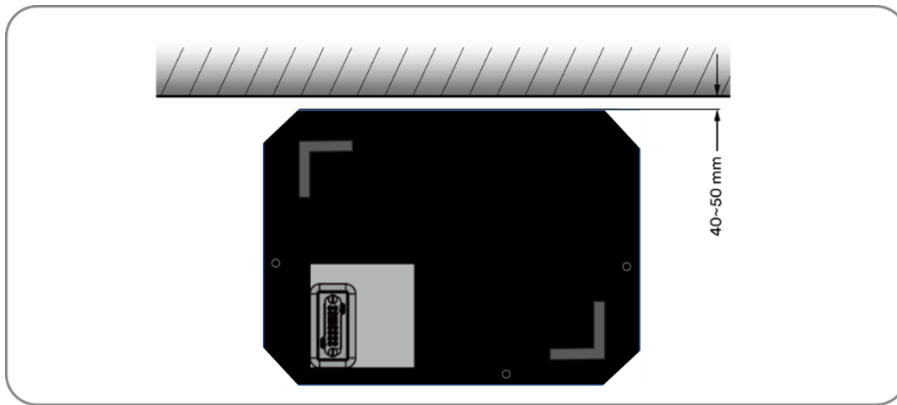
- Lift and transport the product carefully.
- Wear suitable personal protective equipment, in accordance with local regulations, when working on the product.

**Procedure**

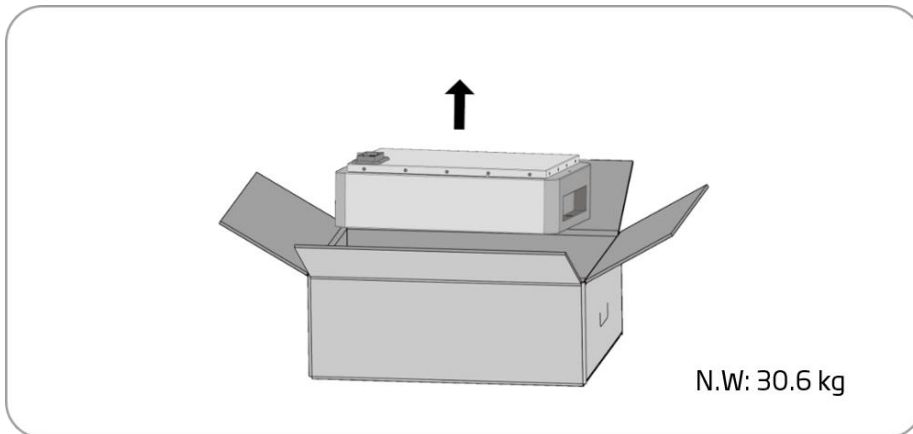
**Step1.** Remove the BCU and the base from the package and then separate the BCU and the base by removing the two screws(M5×25) that hold them together.



**Step2.** Place the base along the wall and ensure a distance of 40~50 mm between the wall and the base. Pay attention to the direction of the base. The power connectors on the base should be on the outside.



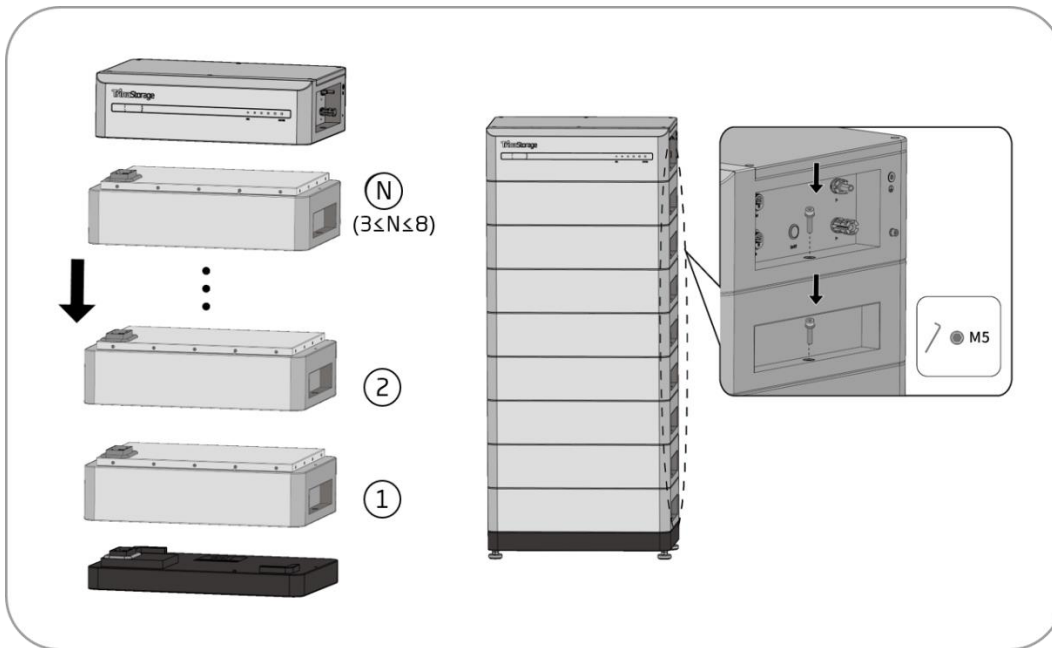
**Step3.** Remove a battery module from the package. Place one battery module on the base and secure the battery module with the supplied screws (M5×25, tightening torque 4 N·m). Pay attention to the direction of the module. The power connectors on the battery module and the base should be on the same side.



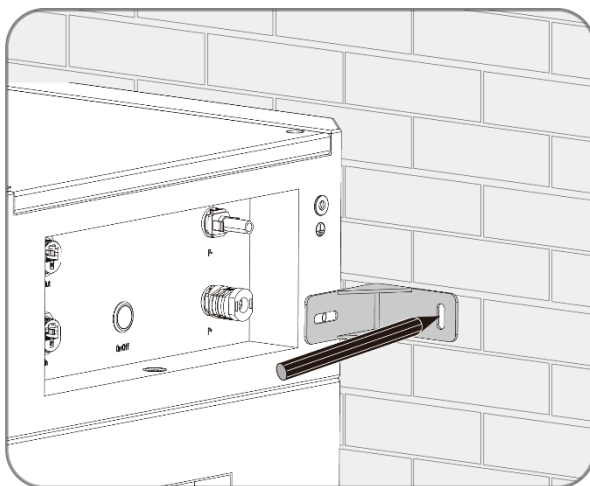
**Step4.** Repeat the operations for the remaining battery modules.

**Step5.** Place the BCU on top of the first battery module and secure the BCU with the supplied screws (M5×25, tightening torque 4 N·m). Pay attention to the direction of the BCU. The power connectors on the battery module and the BCU should be on the same side.



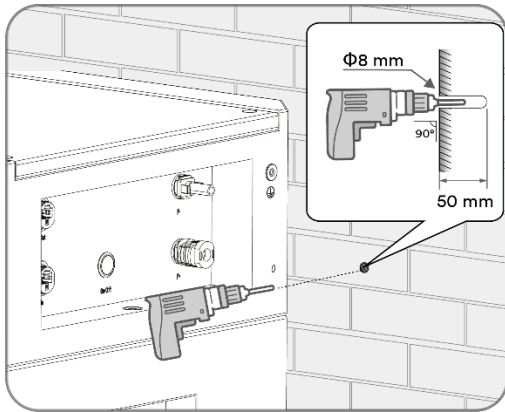


**Step 6.** Hold the L-bracket where it intends to be mounted on the wall and mark the position of the holes. Please make sure that there may be power cables or other supply lines (e.g., gas or water), which could be damaged when drilling the holes.

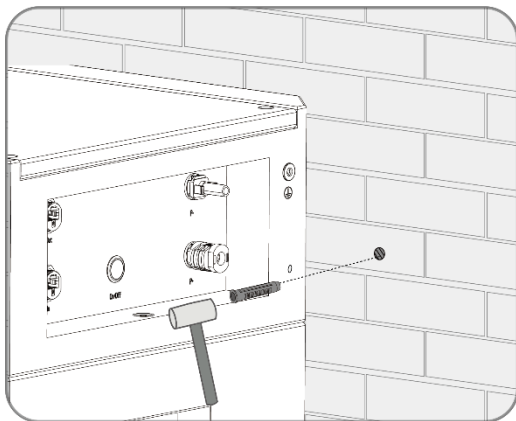


Ensure that power cable or pipes are not damaged when drilling.

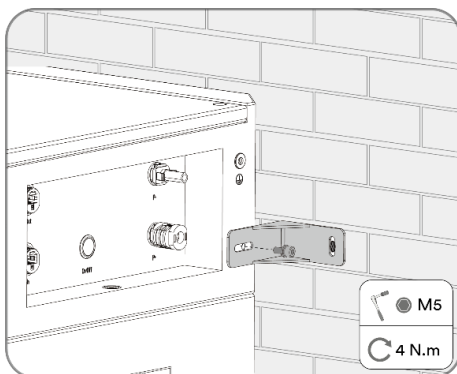
**Step7.** Set the L-bracket aside and drill the marked holes with an 8 mm drill bit. The depth of the holes should be around 50 mm. Repeat on the other side of the BCU.

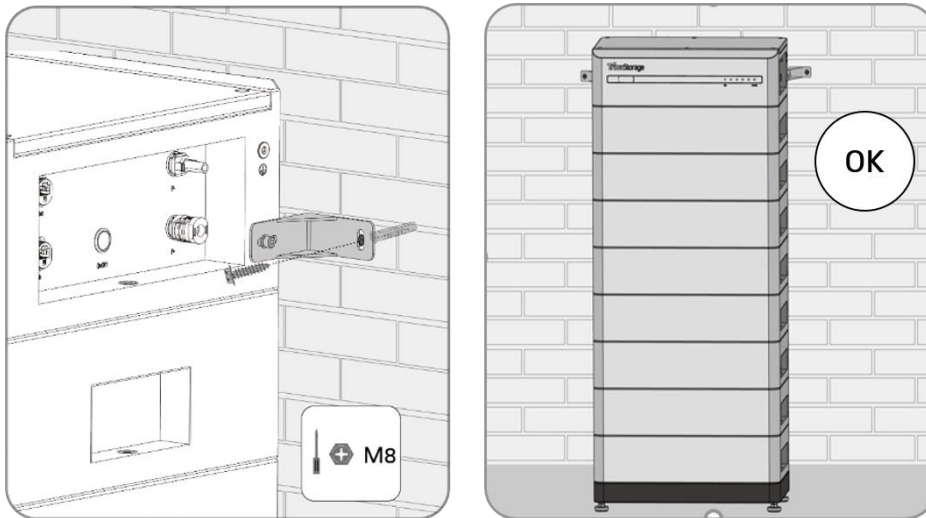


**Step8.** Insert a screw anchor into the hole. Repeat on the other side of the BCU.



**Step9.** Fix the two L-brackets on both sides of the BCU with the supplied screws(M5×12), using a Ratchet wrench (4mm) to tighten it (torque: 4 N·m).

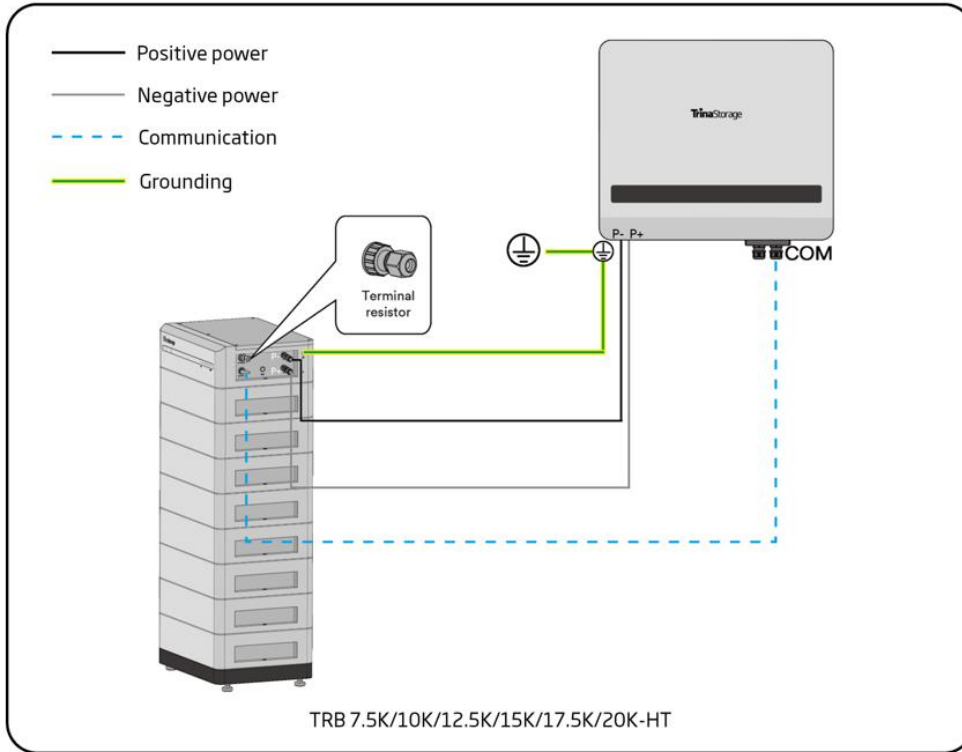




**Step10.**Secure the hanger using screws(M8×40).

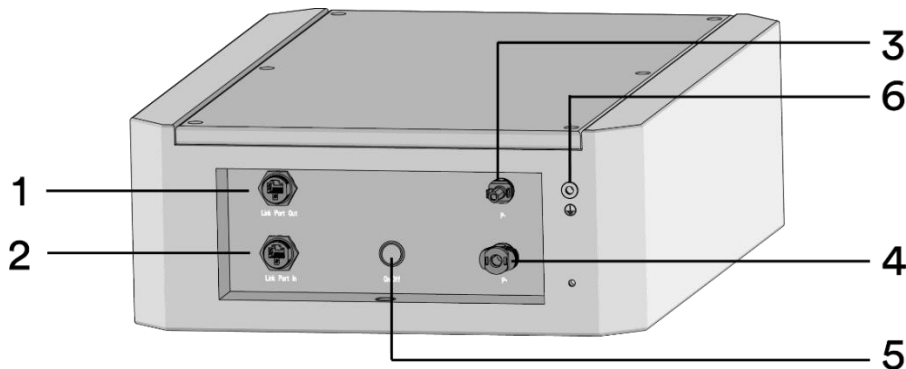
# 5 Electrical Connection

## 5.1 System Connection Diagram



## 5.2 Connection Ports Description

The connection ports of the BCU are shown on the figure below:



1	Link Port Out	2	Link Port In
3	P- (negative battery power output)	4	P+ (positive battery power output)
5	On/Off Button	6	Grounding Terminal

## 5.3 Connecting the Grounding Conductor

Requirements for the secondary protection ground cable are as follow:

Item	Description
1	Terminal SC10-6 or OT10-6 or DT10-6
2	Grounding cable cross-section: 6mm <sup>2</sup> copper
3	Heat shrink tubing

### Procedure

**Step1.** Ensure the circuit breaker of the BCU is off.

**Step2.** Strip the grounding cable to a length (L) approximately 2-3 mm longer than the crimping area of the ring terminal (E).

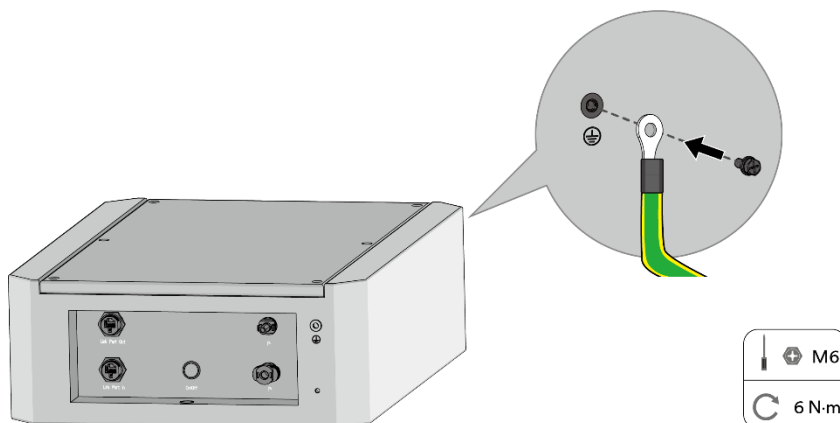
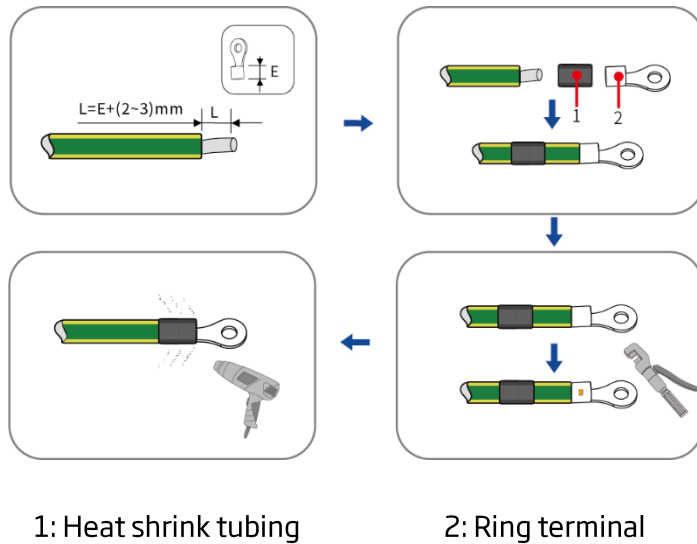
**Step3.** Slide the heat shrink tubing over the cable.

**Step4.** Crimp the cable onto the ring terminal with appropriate crimping pliers.

**Step5.** Slide the heat shrink tubing to cover both the cable and the crimped section of the ring terminal.

**Step6.** Use a heat gun to shrink the heat shrink tubing onto the cable and the ring terminal.

**Step7.** Fix the grounding terminal with the screw(M6×16) using a Philips-screwdriver and tighten torque 6 N·m.



## 5.4 Connecting the Power Cable and Network Cable

**Additional material required (not included in the scope of delivery):**

- One network cable (Cat5, Cat5e or higher), see below for the minimum requirements.

**Network cable requirements:**

- Cable category: Cat5, Cat5e or higher
- Connector type: Metal shielded RJ45 of Cat5, Cat5e or higher

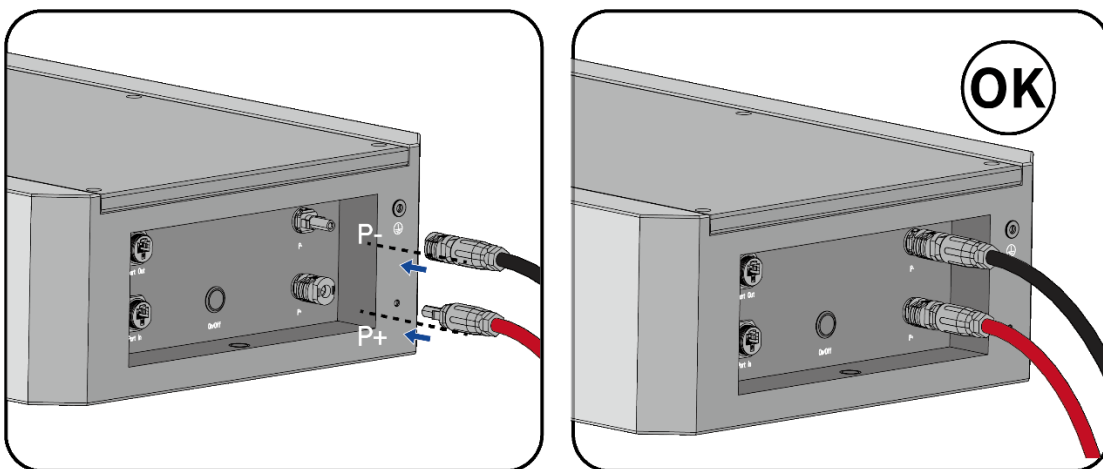
- Shielding: Yes
- UV-resistant for outdoor use
- Straight-through wired cabled
- Maximum cable length: 20 m

 **NOTE**

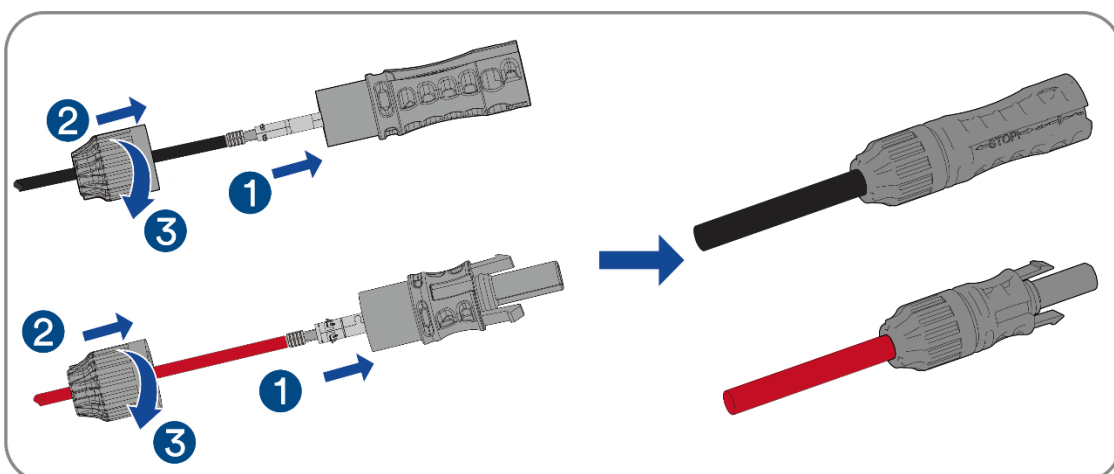
Do not use a "CROSSOVER" cable.

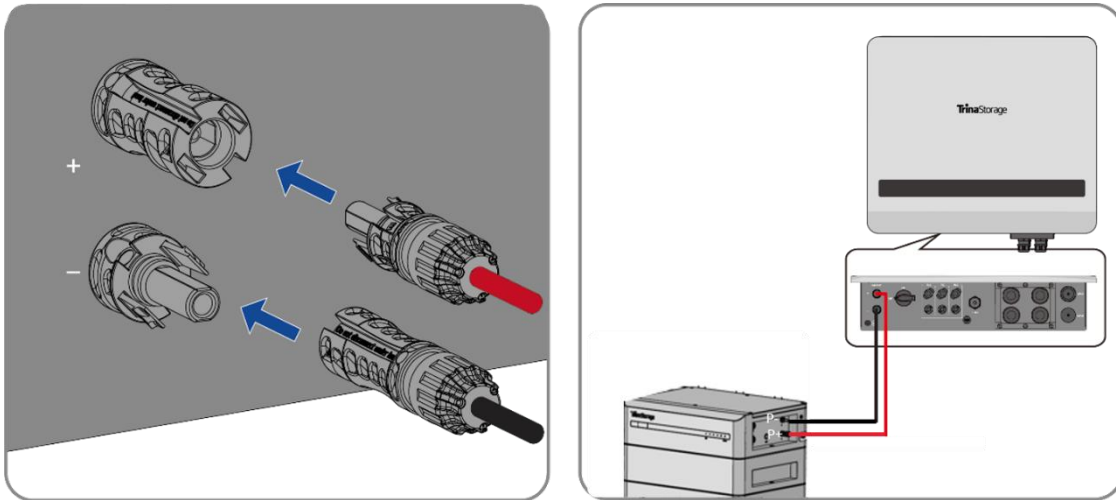
**Procedure**

**Step1.** Connect the supplied power cables to the DC connectors on the BCU. (P+ cable connect to the P+ terminal and P- cable connect to the P- terminal).

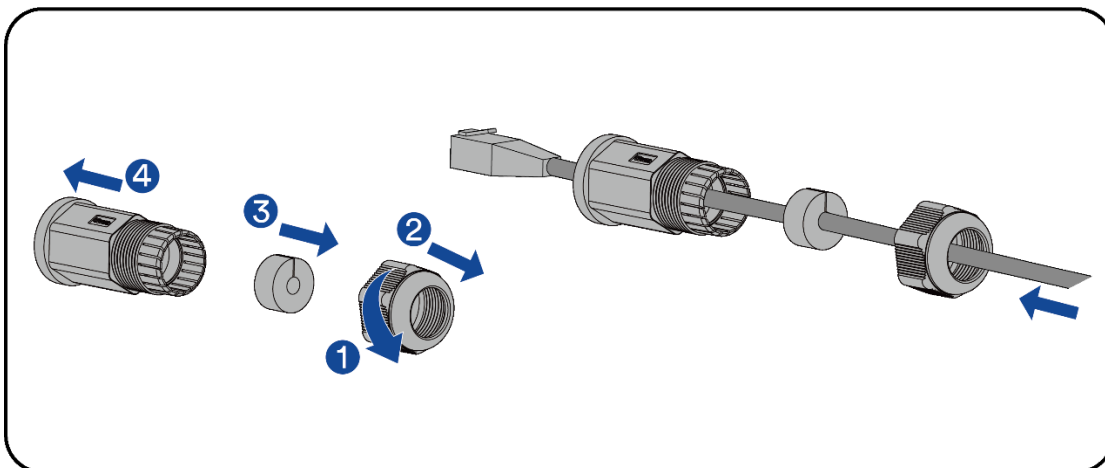


**Step2.** Add the connector from the inverter package to the opposite ends of the power cables and connect them to the inverter battery input connectors.



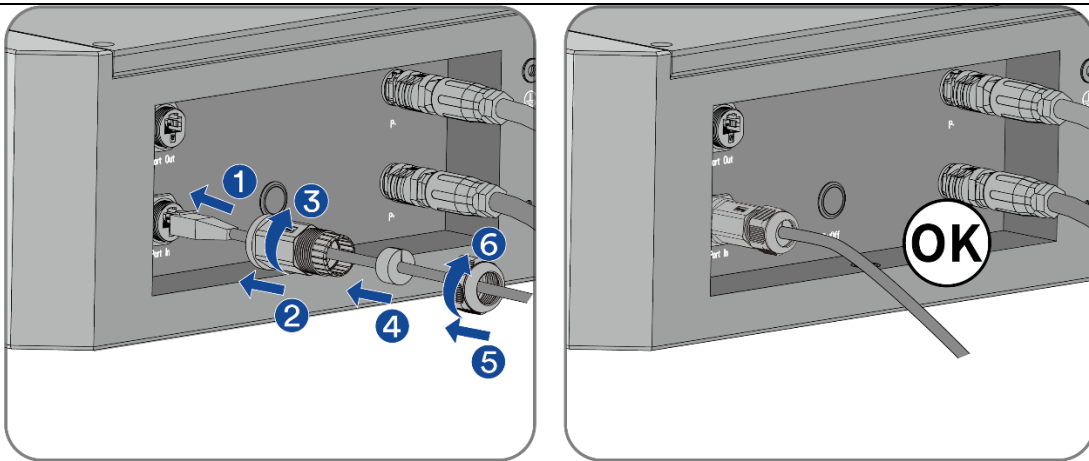


**Step3.** Split the RJ45 connectors. Lead the network cable through the cable gland and insert it into the insulator until it snaps into place.

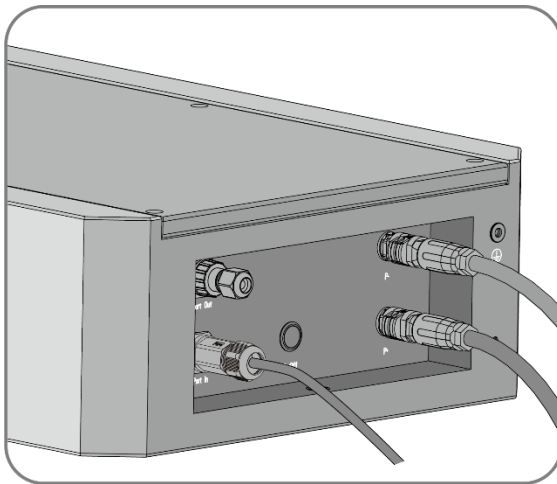


**Step4.** Connect the "Link Port In" of the BCU to the BMS port of the inverter using a shielded CAT 5 (or higher) ethernet cable. Tighten the cable gland and the insulator.





**Step5.** Connect the terminating resistor to the “Link Port Out” of the BCU.



## 6 Commissioning

### 6.1 Inspection before commissioning

Check the following items before commissioning the BESS:

- Make sure the inverter is compatible with the battery.
- Make sure the inverter is correctly mounted as TrinaStorage’s guidelines, please refer to the inverter manual.
- Make sure the battery is properly installed and secured (refer to this manual).
- Make sure the circuit breaker between the battery system and the inverter is off.
- Make sure the communication cables and DC cables are correctly and securely connected.

- Make sure the ground terminal on the BESS is grounded.
- Make sure the DC power cables have been installed with the correct polarity.

## 6.2 Commissioning procedure

If all of the items mentioned above have been met then proceed as follows to commission and start-up the battery for the first time.

### Procedure

- Step1.** Turn the circuit breaker on the BCU to the "ON" position.
- Step2.** Wait for the status LED to turn yellow and press the ON/OFF button for 5s. The BESS will enter into working mode.
- Step3.** Check whether the battery indicator of the inverter is on.
- Step4.** Start inverter according to inverter start-up procedure.
- Step5.** Commission the inverter according to the inverter commissioning procedure using the TrinaStorage MyNex APP.
- Step6.** Read the battery status information using the MyNex APP and confirm that the BESS is communicating with the inverter, observe the LED's on the BESS to determine the current status.

### NOTE

Recommended standard charging and discharging procedure as follow:

- Charging at a constant current with 0.5C until the SOC reaches 80%, and then charging to 100% SOC with 0.25C at 25°C.
- Discharging at a constant current with 0.6C until the SOC reaches 0% at 25°C.

## 7 Decommissioning the Product

### WARNING

Injuries may result if the battery module is lifted incorrectly or dropped while being transported or installed.

- Transport and lift the battery module carefully. Take the weight of the battery module into account.
- Wear suitable personal protective equipment for all work on the battery system.

### DANGER

The DC cables connected to the battery system may be live. Touching the DC conductors or the live components leads to lethal electric shocks.

Do not touch non-insulated cable ends.

### Procedure

**Step1.** Switch off the inverter by first turning off the AC circuit breaker downstream of the AC output of the inverter and second by turning off the inverter DC switch.

**Step2.** Switch off the BESS.

**Step3.** Switch off any external DC switches between the inverter and the BESS if there are any.

**Step4.** Take off the nuts on the cable glands on the BESS operating panel.

**Step5.** Remove all cables from the BESS.

**Step6.** Loosen the screws on L-brackets between the BCU and the wall and remove the L-brackets.

**Step7.** Loosen the screws between BCU and the battery modules and base.

Before lifting the battery module, ensure that the screws on both sides of them are removed.

**Step8.** Tighten the nuts on the cable glands on the operating panel.

**Step9.** Remove the BCU from the battery modules and then the battery modules from the base.

If the battery system is to be stored or shipped, pack the system using the original packaging or packaging that is suitable for the weight and dimensions of the system.

Dispose of the battery system in accordance with the locally applicable battery disposal regulations.

## 8 Technical Data

Model	TRB 7.5K-HT	TRB 10K-HT	TRB 12.5K-HT	TRB 15K-HT	TRB 17.5K-HT	TRB 20K-HT
Battery type	LFP					
Nominal capacity	2.56 kWh					
Usable capacity	90%					
Nominal voltage	51.2 V					
Operating voltage	40~58.4 V					
Max. charge current	25 A					
Max. discharge current	30 A					
Weight	30.6 kg					
Dimensions (W×H×D)	540 mm × 130 mm × 390 mm					
Operating temperature range	Charge: 0 °C ~+50 °C Discharge: -20 °C ~+50 °C					
Relative humidity range	5~95%, non-condensing					
Altitude	<3000m					
Cooling type	Natural convection					
Installation method	Floor standing					
Ingress protection rating	IP65					
Communication	CAN					
Certifications and standards	IEC62619, IEC62040-1, IEC62477-1, IEC61000-6-1/2/3/4, UN38.3					
Number of battery modules	3	4	5	6	7	8
Number of High-voltage (HV) box	1	1	1	1	1	1
Nominal capacity	7.68 kWh	10.24 kWh	12.8 kWh	15.36 kWh	17.92 kWh	20.48 kWh
Nominal Voltage	153.6 V	204.8 V	256 V	307.2 V	358.4 V	409.6 V

Operating Voltage	120 V ~ 175.2 V	160 V ~ 233.6 V	200 V ~ 292 V	240 V ~ 350.4 V	280 V ~ 408.8 V	320 V ~ 467.2 V
Dimension (WxDxH)	540x390x 600 mm	540x390x 730 mm	540x390x 860 mm	54x390x 990 mm	540x390x 1120 mm	540x390x 1250 mm
Total weight	107.8 kg	138.4kg	169 kg	199.6 kg	230.2 kg	260.8 kg
Total width	540 mm					
Total depth	390 mm					
Total height	600 mm	730 mm	860 mm	990 mm	1120 mm	1250 mm

## 9 Maintenance

### Cleaning

It is recommended that the battery system be cleaned periodically. If the enclosure is dirty, please use a soft, dry brush or a dust collector. Liquids such as solvents, abrasives, or corrosive liquids should not be used to clean the enclosure.

### Maintenance

The battery module should be stored in an environment with a temperature range between -20°C ~ +45°C, and charged regularly according to the table below with no more than 0.5C to the SOC of 30% after a long time of storage.

Temperature	Relative humidity	Storage time	Original SOC
Below -20°C	/	Not allowed	/
0~25°C	35%~85%	≤ 6 months	25% ≤ SOC ≤ 50%
-20~45°C	35%~85%	≤ 1 months	25% ≤ SOC ≤ 50%
Above 45°C	/	Not allowed	/

#### NOTICE

- Charge the over-discharged system within 7 days when the temperature is above 25°C.
- Charge the over-discharged system within 15 days when the temperature is below 25°C.

## 10 Troubleshooting

If any alarm or fault occurs during installation and operation of the battery, please contact our Service Department. You can reach us via the APP, hotline, email and website. All contact details can be found on <https://residentialstorage.trinasolar.com>.

## 11 Recycling and Disposing

Dispose of the packaging and replaced parts according to the rules applicable in the country where the device is installed.

 **NOTE**

Do not dispose of the product together with the household waste.





## 12 EU Declaration of Conformity



Within the scope of the EU directives:

- Electromagnetic compatibility directive 2014/30/EU (L 96/79-106, March 29, 2014)(EMC)
- Restriction of the use of certain hazardous substances 2011/65/EU (L 174/88, June 8, 2011) and 2015/863/EU (L 137/10, March 31, 2015) (RoHS)

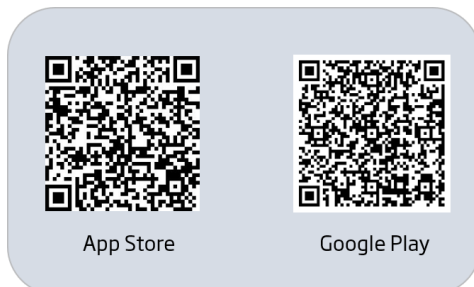
Trina Energy Storage Solutions (Jiangsu) Co., Ltd. confirms herewith that the inverters described in this manual are following the fundamental requirements and other relevant provisions of the above-mentioned directives.

The entire EU Declaration of Conformity can be found at <https://residentialstorage.trinasolar.com>.

## 13 Commissioning

If you have any technical problems concerning our products, please contact Trinastorage service.

Scan the QR codes following to download TrinaStorage MyNex APP:



You can commission the product via the APP and you will be guided through the process.

Installation and commissioning videos can be found on <https://residentialstorage.trinasolar.com>.

## 14 Contact

In case you need further support, please contact our Service Department. You can reach us via the APP, hotline, email and website. All contact details can be found on <https://residentialstorage.trinasolar.com>.

Trina Solar (Germany) GmbH  
Werner-Eckert-Straße 4  
81829 München



# TrinaStorage

Leading the Energy Transition through Storage.