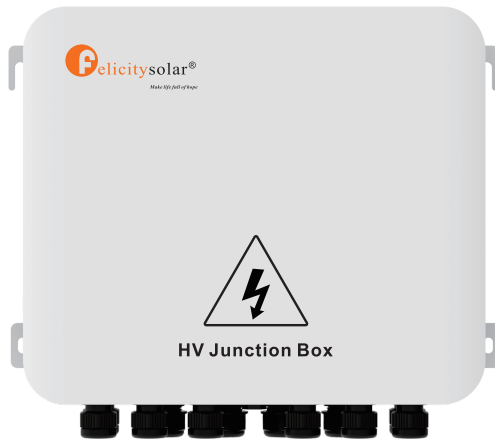


USER MANUAL

HV Junction Box



*Supports parallel connection of up to four high-voltage battery clusters.

Contents

- 1.Introduction..... 1**
- 2. Symbols..... 1**
- 3.Safety..... 1**
 - 3.1 Handling..... 1
 - 3.2 Installation..... 2
- 4.Specifications..... 2**
- 5. Product Features..... 3**
 - 5.1 Overview..... 3
 - 5.2 Dimensions..... 3
- 6.Installation..... 3**
 - 6.1 Packing List..... 3
 - 6.2 Installation Tools..... 4
 - 6.3 Preparation..... 4
 - 6.4 Installation Environment..... 4
 - 6.5 Installation Steps..... 4
 - 6.6 Procedure of Use..... 5
- 7. Wiring Instructions..... 6**
 - 7.1 Terminal cover removal and installation..... 6
 - 7.2 Wiring Overview..... 6
 - 7.3 Grounding Connection..... 8
 - 7.4 Connection Diagram..... 8
- 8. Exclusion..... 10**
- 9.Maintenance..... 10**

Revision History

Revision No.	Revision Date	Revision Reason
1.0	2026.2	First Published

1. Introduction

The document describes the installation, maintenance of the following HV junction box listed below.

- BTCB0402-300-HB

This manual is intended exclusively for qualified personnel. The tasks outlined in this document shall be performed solely by authorized and qualified technicians. After installation, the installer must provide a thorough explanation of the user manual to the end user.

2. Symbols

	Danger! Serious physical injury or even death may occur if the relevant requirements are not followed.
	Caution, risk of electric shock.
	Install the product out of reach of children
	EU WEEE mark: Product should not be disposed of as household waste.
	Instruction manual: Read the instruction manual before starting installation and operation.
	CE mark: The product complies with the requirements of the applicable CE guidelines.
	Earth terminal: The inverter must be reliably grounded.

3. Safety

All work involving this product shall be performed by authorized technicians, and it is imperative that these technicians familiarize themselves with the contents of this manual prior to conducting any maintenance or installation on the system.

3.1 Handling

- Do not expose the product to open flames.
- Do not place the product in direct sunlight.
- Keep the product away from flammable materials.
- Store in a cool, dry and well-ventilated area.
- Do not store the product near water sources.
- Do not apply force on the product.
- Store the product on a flat surface.
- Store the product out of reach of children and animals.

- Do not damage the unit by dropping, deforming, impacting, cutting or penetrating with a sharp object.
- Always wear insulated gloves when handling the HV junction box.
- Do not step on the product or place any foreign object.

3.2 Installation

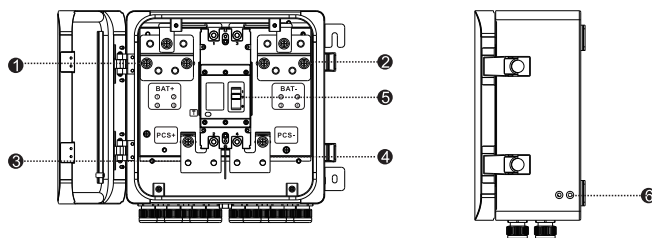
- After unpacking, please check the product for damages and missing parts.
- Make sure that the inverter and battery are completely turned off before commencing installation.
- Do not interchange the positive and negative terminals of the HV junction box.
- Ensure that there is no short circuit between the terminals or with any external device.
- Do not connect different battery types together.
- Do not open the product to repair or disassemble. Only the manufacturer is allowed to carry out any such repairs.
- Do not install the product near water sources or places where the product can get wet.
- Install the product away from children or pets.
- Avoid electromagnetic interference that can compromise the correct operation of electronic equipment.
- The slope of the wall should be within $\pm 5^\circ$.

4. Specifications

Product model	BTCB0402-300-HB
Maximum number of input paths	4-Input 2-Output
Rated voltage of branch (V)	1000
Maximum continuous rated current (A)	240
Maximum peak current (A)	300 (≤ 30 min)
Battery switch	PEMC-H
Shell material	Metal chassis
Protection level	IP65
Operating temperture range	-20°C~60°C
Net Weight (kg)	7.4
Gross Weight (kg)	11.5
Product Dimension (mm)	366×290×152.5
Package Dimensions (mm)	410×382×230
Altitude (m)	≤ 3000
Cooling method	Natural cooling
Installation location	Indoor/Outdoor
Installation method	Wall-mounted

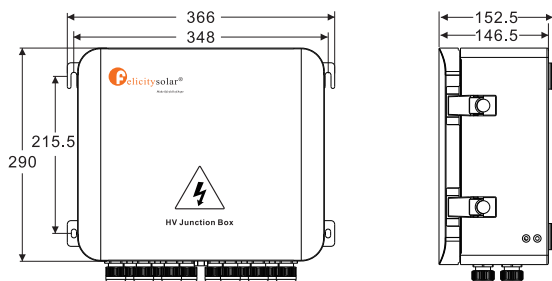
5. Product Features

5.1 Overview



- 1. BAT+ input busbar
- 2. BAT- input busbar
- 3. PCS+ output busbar
- 4. PCS- output busbar
- 5. Circuit breaker (1000V 320A)
- 6. Ground Terminal

5.2 Dimensions

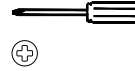
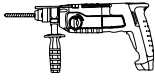


6. Installation

6.1 Packing List

NO.	Name	Description	Quantity	Picture
1	Expansion Screw	Expansion Screw M6X50*4PCS Used for securing the product to the wall.	4	
2	User Manual	User manual	1	
3	Warranty Card	Warranty card	1	
4	Ground Wire	2m, 10AWG, OT-5 mounting hole, yellow-green in color, used to connect the grounding point of the junction box and the grounding point of the inverter.	1	
5	Red power cord	2m, 4AWG, OT-8 mounting hole, used for connecting the HV junction box's PCS+ terminal to the inverter's BAT1+ and BAT2+ terminals.	2	
6	Black power cord	2m, 4AWG, OT-8 mounting hole, used for connecting the HV junction box's PCS- terminal to the inverter's BAT1- and BAT2- terminals.	2	

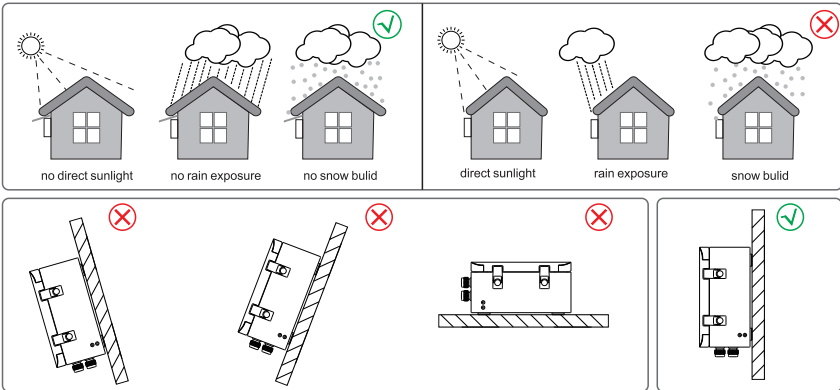
6.2 Installation Tools



6.3 Preparation

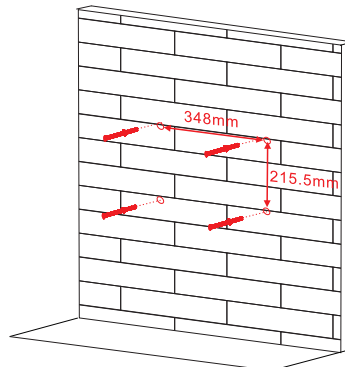
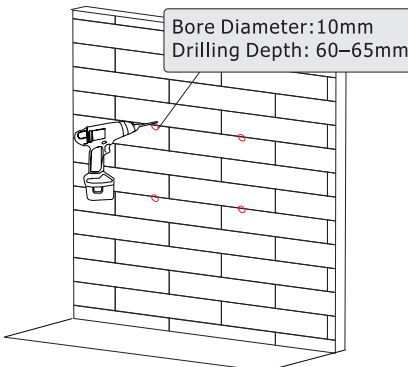
- Avoid direct sunlight, rain exposure and snow accumulation during HV junction box installation and operation.
- Prevent overheating: Keep air flow around the HV junction box unblocked.
- Do not install in areas with flammable gases or combustible substances; avoid electromagnetic interference that may affect the unit's electronic components.
- Mounting wall slope $\leq 5^\circ$; Maintain ≥ 300 mm clearance around the HV junction box.

6.4 Installation Environment

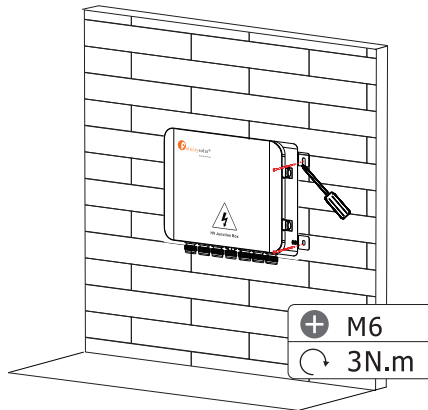


6.5 Installation Steps

1. Select the intended installation location for the HV junction box, place the unit against the wall and mark the positions of the four mounting holes.
2. Drill holes with an electric hammer, ensuring a minimum depth of 60 mm, then insert and fasten the expansion tubes securely.

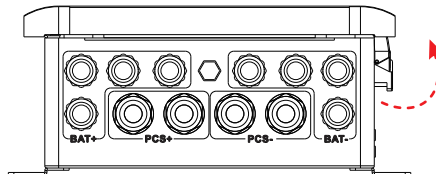


3. Fix the HV junction box to the wall using expansion screws.

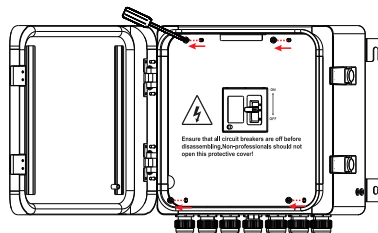


6.6 Procedure of Use

Step 1. Unlock the lock on the right side of the HV junction box.



Step 2. Remove the four screws securing the protective cover.



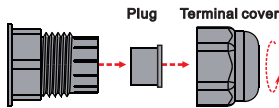
NOTE

1. Ensure that all circuit breakers are off before disassembling.
2. Non-professionals should not open this protective cover.

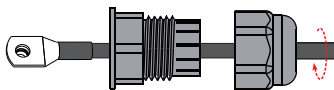
7. Wiring Instructions

7.1 Terminal cover removal and installation.

1.Before starting the wiring, unscrew the terminal cover counterclockwise and remove the center plug to prepare for wiring.



2.After connecting the cables through the terminals, rotate the terminal cover clockwise so that the terminals clamp the cables tightly and ensure waterproof sealing.



7.2 Wiring Overview

- 1. **Battery Side:** Connect the 4 battery clusters in parallel to their corresponding ports.
- 2. **Inverter Side:** Connect both input channels of the inverter to the common terminal block.

Step 1: Connect the Battery Clusters (Parallel Connection)

Connect the positive (+) and negative (-) terminals of each battery cluster to the BAT+ and BAT- ports marked with the same number.

Battery Cluster	Ports to Connect
Cluster 1	Positive → BAT+ ① Negative → BAT- ①
Cluster 2	Positive → BAT+ ② Negative → BAT- ②
Cluster 3	Positive → BAT+ ③ Negative → BAT- ③
Cluster 4	Positive → BAT+ ④ Negative → BAT- ④

Important: Ensure correct polarity and secure all connections.

Step 2: Connect the Inverter to the Common Terminals

The inverter has two sets of DC input terminals. Both must be connected to the system's common terminals PCS+ and PCS-.

Positive Connection:

Connect both the BAT1+ terminal and the BAT2+ terminal to the common PCS+ terminal.

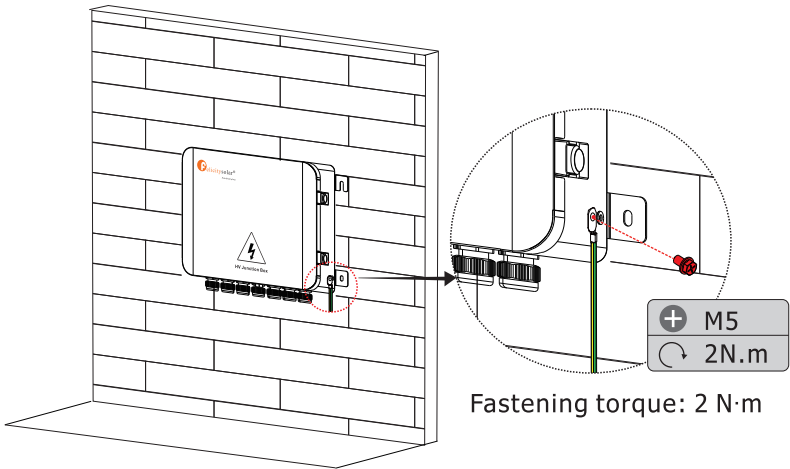
Negative Connection:

Connect both the BAT1- terminal and the BAT2- terminal to the common PCS- terminal.

Connection Summary:

- **Battery Parallel Point (Positive):** BAT+①/②/③/④ → PCS+
- **Battery Parallel Point (Negative):** BAT-①/②/③/④ → PCS-
- **Inverter Inputs (Positive):** BAT1+ & BAT2+ → PCS+
- **Inverter Inputs (Negative):** BAT1- & BAT2- → PCS-

7.3 Grounding Connection



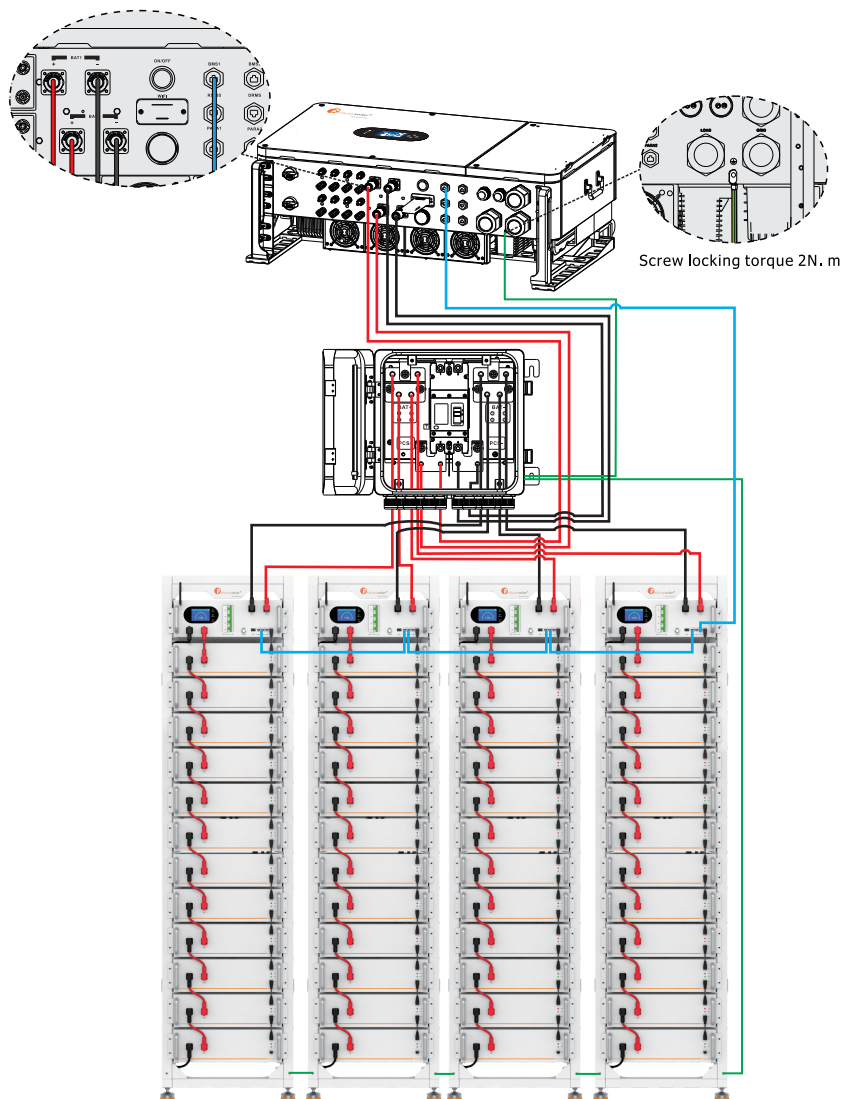
7.4 Connection Diagram

Note: This wiring specification is for the BTCB-0402-300-HB HV junction box only, within the Felicity high-voltage energy storage system. Before connecting, ensure the system's voltage and current parameters match this HV junction box's specifications.

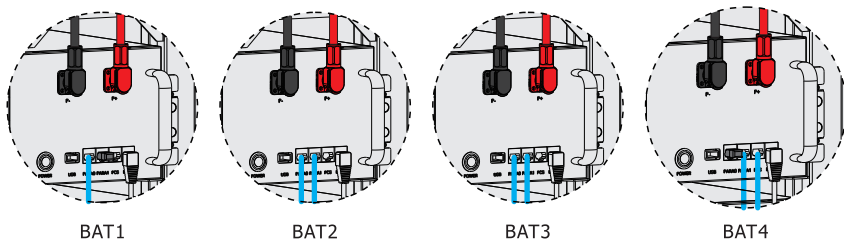
Compatible Battery Clusters: This HV junction box works with the following Felicity high-voltage battery clusters:

- FLH48100UCG1
- FLH48100UCG2
- FLH96050SCG1
- FLH96050SCG2
- FLH96050SCG2-H

For compatibility with other models, please contact our Sales or After-sales Service department. For detailed steps on configuring battery clusters and setting up inverters for parallel operation, please see the separate user manuals for the batteries and inverters.



Battery Pack Communication Port Connection Diagram



8. Exclusion

This warranty does not cover defects or damages caused by:

- Normal wear and tear.
- Improper use, installation, storage, or maintenance.
- Failure to follow the product specifications, safety warnings, or instructions provided.
- Repairs, modifications, or alterations made by anyone other than the manufacturer or its authorized agents.
- External events such as accidents, transportation, force majeure (e.g., lightning, floods, fires, earthquakes), or operation in unsuitable environments.

Specifically, this includes, but is not limited to:

- 1.Damage during transportation or storage.
- 2.Incorrect installation or maintenance.
- 3.Operation in an unsuitable environment.
- 4.Insufficient ventilation.
- 5.Disregard of safety warnings and instructions.
- 6.Unauthorized alterations or repair attempts.
- 7.Events of force majeure.

No warranties other than those expressly stated here apply. The manufacturer is not liable for any consequential or indirect damages arising from the use of this product.

9. Maintenance

1.Regular Inspection: Periodically check the unit for:

- Visible rust, corrosion, water ingress, or excessive dust accumulation.
- Proper function of protective grounding and drainage systems.
- Security and tightness of all DC connections.
- Any burn marks on terminals.

2.Component Replacement: If parts need replacement, use only original or manufacturer-approved identical materials.

3.Handling Damaged Wiring: If electrical connections are damaged (e.g., by mechanical failure, electrical fault, or rodents):

- Immediately disconnect the entire system, or at minimum, the affected section.
- After confirming no other equipment malfunctions exist, replace damaged wires with materials of the exact same specification.

