

PowerHome-H1 Series

User Manual

Content

1. About this manual	3
1.1 Applicability	3
1.2 Target group	3
1.3 Symbols used	3
1.4 Acronyms and abbreviations	4
2. Safety	4
2.1 General safety	4
2.2 Important safety instructions	4
2.3 Explanation of symbols	5
3. Introduction	6
3.1 Product overview	6
3.2 Components	7
4. Technical Specifications	8
5. Installation	9
5.1 Unpacking	9
5.2 Check for transport damage	10
5.3 Installation precaution	10
5.4 Space requirement	11
5.5 Preparation	11
5.6 Installation steps	12
5.7 Electrical wiring connection	15
5.7.1 Internal electrical connection of the battery	15
5.7.2 External electrical connection of the battery	16
5.7.3 Earth connection	16
5.7.4 Battery power cable connection	17
5.7.5 Battery communication connection	18
5.8 External protective cover installation	19
5.9 Overview for all battery clusters connectionist	20
5.9.1 Cobles connection	20
6. Power the battery on and off	21
6.1 Switch on the system for single battery cluster	21
6.2 Switch on the system for multiple battery clusters	22
6.3 Switch off the system	22
6.4 LED indicator	23
7. Troubleshooting and maintenance	23
7.1 Troubleshooting	23
7.2 Maintenance	24
8. Decommissioning	24
8.1 Dismounting the battery	24
8.2 Packaging	24
8.3 Storage	24
8.4 Disposal	25

Notice

This manual contains important safety instructions, installation, electrical connections, commissioning, maintenance, and troubleshooting of the equipment.

Save the manual!

This manual must be stored carefully and be available at all times.

Copyright Declaration

All rights to the content of this manual are owned by Dunext Technology Co., Ltd. (hereinafter called as 'Dunext'). Any corporation or individual should not plagiarize, partially or fully copy it, and reproduce or distribute it in any form or means without prior written permission from Dunext.

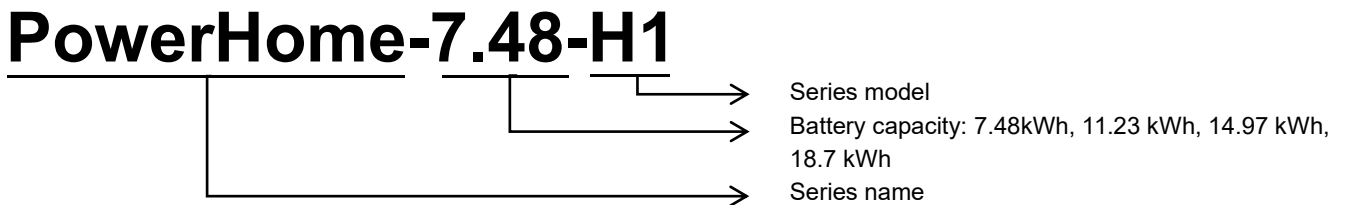
Dunext reserves the right of final interpretation. This manual may be updated according to user's or customer's feedback. The information in this manual is subject to change without notice. Every effort has been made to ensure the accuracy of the contents of this manual, but nothing mentioned herein expresses or implies any other information. Please check our website at <http://www.dunext.com> for latest version.

1. About this manual

1.1 Applicability

Please read the product manual carefully before installation, operation, or maintenance of the PowerHome-H1 Series. This manual contains important safety instructions and installation instructions that must be followed during installation and maintenance of the equipment.

Designation explanation of the PowerHome-H1:






1.2 Target group

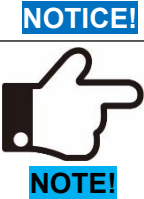

This manual is intended for technical professionals for installation, commissioning and maintenance of the PowerHome-H1 Series. The technical personnel should have the following skills:

- Knowledge of how batteries work and are operated.
- Knowledge of how an inverter works and is operated.
- Knowledge of and adherence to the locally applicable connection requirements, standards, and directives.
- Knowledge of and adherence to this document and the associated system documentation, including all safety instructions.
- Training in dealing with the hazards associated with the installation and operation of electrical equipment and batteries.
- Training in the installation and commissioning of electrical equipment.
- Failure to do so will make any manufacturer's warranty, guarantee or liability null, and void unless you can prove that the damage was not due to non-compliance.

1.3 Symbols used

The following types of safety instructions and general information appear in this document as described below:

	<p>'Danger' indicates a hazard with a high level of risk that, if not avoided, will result in death or serious injury.</p>
	<p>'Warning' indicates a hazard with a medium level of risk that, if not avoided, will result in death or serious injury.</p>
	<p>'Caution' indicates a hazard with a low level of risk that, if not avoided, could result in minor or moderate injury.</p>

NOTICE 	'Notice' indicates a situation that, if not avoided, could result in equipment or property damage.
	'Note' provides tips that are valuable for the optimal operation of your product.

1.4 Acronyms and abbreviations

B	BAT	battery
	BMC	battery master controller
D	DOD	depth of discharge
L	LED	light emitting diode
P	PV	photovoltaic
R	RBS	rechargeable Li-ion battery stack
S	SOC	state of charge



2. Safety



2.1 General safety

The PowerHome-H1 Series battery is for residential and works with a PV system. It is a high-voltage Li-ion battery storage system with a control module on itself. It can be operated in on-grid, off-grid, and backup modes with compatible inverters. The battery system could be connected to the Internet through a network cable for maintenance and firmware updating. Read safety instructions carefully prior to any work and observe them at all times when working on or with the PowerHome-H1 Series battery. Incorrect operation or work may cause:

- ◆ Injury or death to the operator or a third party;
- ◆ Damage to the battery or other properties.



2.2 Important safety instructions








	<ul style="list-style-type: none"> ◆ Danger to life due to electric shock when live components or DC cables are touched. <p>The DC cables connected to an inverter may be live. Touching live DC cables results in death or serious injury due to electric shock.</p> <p>Disconnect the battery system and inverter from voltage sources and make sure it cannot be reconnected before working on the device.</p> <p>Do not touch non-insulated parts or cables.</p> <p>Do not remove the terminal block with the connected DC conductors from the slot under load.</p> <p>Wear suitable personal protective equipment for all work on the battery system.</p> <p>Observe all safety information of the inverter</p>
	<ul style="list-style-type: none"> ◆ RBS Leakage. <p>If the RBSs leak electrolytes, contact with the leaking liquid or gas should be avoided. The electrolyte is corrosive, and the contact may cause skin irritation and chemical burns. If one is exposed to the leaked substance, do these actions:</p> <ul style="list-style-type: none"> • Inhalation: Evacuate the contaminated area, and seek medical help immediately. • Eye contact: Rinse eyes with flowing water for 15 minutes and seek medical help immediately. • Skin contact: Wash the affected area thoroughly with soap and water and seek medical help

	<p>immediately.</p> <ul style="list-style-type: none"> • Ingestion: Induce vomiting and seek medical help immediately. ◆ The RBSs and its components should be protected from damage when transporting and handling. • Do not impact, pull, drag, or step on the RBSs. • Do not insert unrelated objects into any part of the RBSs. • Do not throw the RBS into a fire. • Do not soak the RBSs in water or seawater. • Do not expose to strong oxidizers. • Do not short circuit the RBSs. • The RBSs cannot be stored at high temperatures (more than 50°C). • The RBSs cannot be stored directly under the sun. • The RBSs cannot be stored in a high humidity environment. • Do not use the RBSs if it is defective, or appears cracked, broken or otherwise damaged, or fails to operate • Do not attempt to open, disassemble, repair, tamper with, or modify the RBSs. The RBSs are not user-serviceable. • Do not use cleaning solvents to clean the RBSs
 <p>CAUTION!</p>	<ul style="list-style-type: none"> ◆ Risk of injury due to weight of the RBS <p>Injuries may result if the RBS is lifted incorrectly or dropped while being transported or installed.</p> <ul style="list-style-type: none"> • Transport and lift the RBS carefully. Take the weight of the RBS into account. • Wear suitable personal protective equipment for all work on the battery system. <ul style="list-style-type: none"> ◆ If the battery is not installed within one month after receiving the battery, the battery must be charged till the SOC is more than 50% for maintains.
<p>NOTICE</p> <p>NOTICE!</p>	<ul style="list-style-type: none"> ◆ Firefighting Measures <p>The RBSs may catch fire when it is put into the fire. In case of a fire, please make sure that an ABC or carbon dioxide extinguisher is nearby. Water cannot be used to extinguish the fire.</p> <p>Full protective clothing and self-contained breathing apparatus are for the firefighters to extinguish the fire.</p> <p>Damage to the battery system due to under voltages</p> <p>If the battery system doesn't start at all, please contact Dunext after-sales service within 48 hours. Otherwise, the battery could be permanently damaged.</p>
 <p>NOTE!</p>	<p>Electrical installation and maintenance must be carried out by competent electricians according to local regulations.</p>

2.3 Explanation of symbols

Symbols on the type label:

Symbol	Explanation
	<p>TÜV mark</p>
	<p>Do not disconnect or disassemble by untrained personnel</p>

	Do not short circuit.
	Do not expose the battery to open flame, heat or sparks, as there is a risk of fire or explosion.
	Keep the RBSs away from children.
	Observe the documents Observe all documents supplied with the system.
	Warning! Metal parts of the batteries are always under voltage. Do not short-circuit the batteries! In case of a short-circuit may flow very high currents and cause burns. By Touching conductive parts can cause cardiac arrhythmia and shock.
	The battery contains corrosive electrolytes. Please avoid contact with the leaked substance.
	WEEE designation Do not dispose of the system together with the household waste but in accordance with the disposal regulations for electronic waste applicable at the installation site.

3 Introduction

3.1 Product overview

The PowerHome-H1 series battery can be integrated with high voltage hybrid inverter for PV energy storage system.

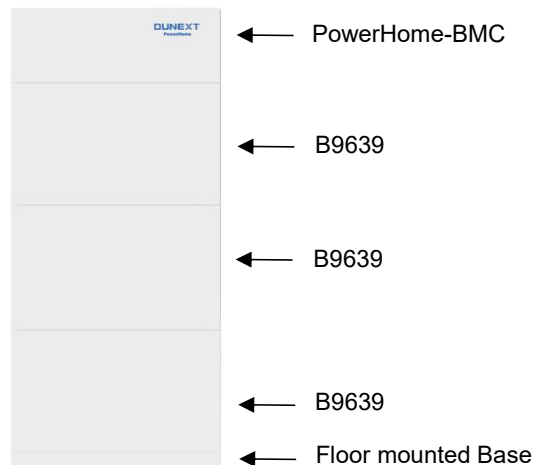


Figure 3-1 PV Energy Storage System (PowerHome-11.23-H1 is used as example)

Note: The PowerHome-H1 series battery consists of a battery master controller and some rechargeable battery stacks. BMC model name is PowerHome-BMC. RBS model name is B9639.

Battery Capacity Description:

The battery supports power and capacity expansion. One BMC supports a maximum of five RBS expansion modules.

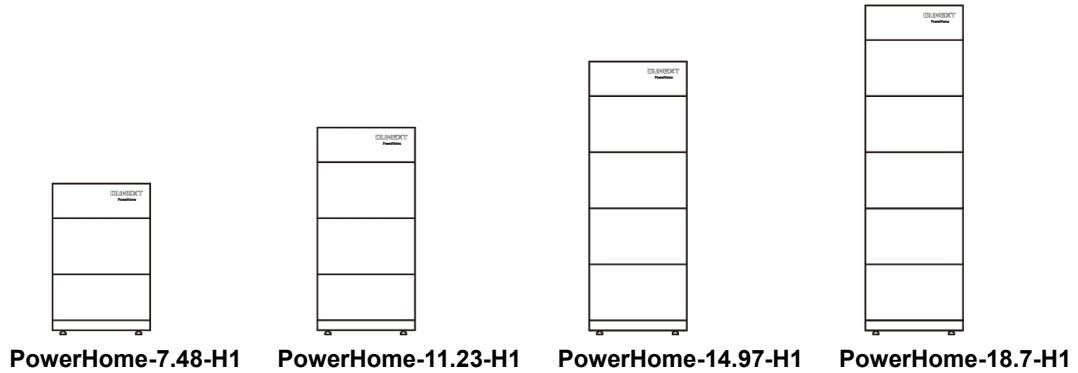


Figure 3-2 Battery cluster stacking demonstration

3.2 Components

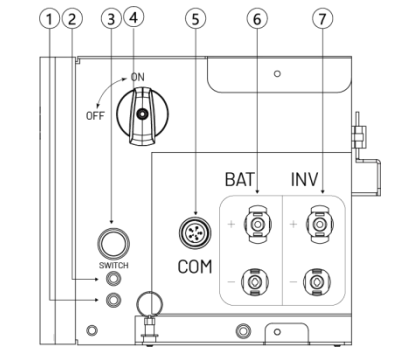
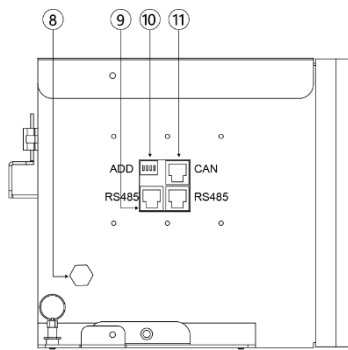
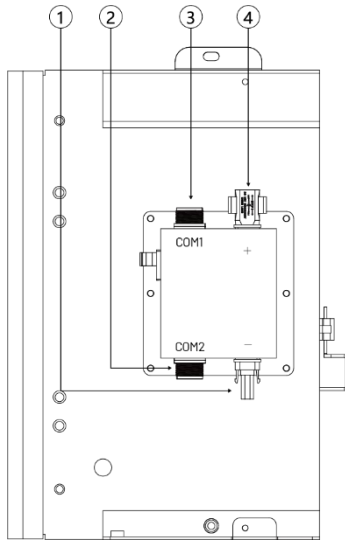


Figure 3-3 Right view of PowerHome-BMC

Figure 3-4 Left view of PowerHome-BMC



- (1) Alarm LED
- (2) Running LED
- (3) Start button
- (4) DC switch
- (5) Communication port
- (6) Battery terminals connect with B9639 (BAT+/BAT-)
- (7) Battery terminals connect with hybrid inverter (INV+/INV-)
- (8) Ventilator valve
- (9) RS485 port (For battery parallel connection)
- (10) ADD switch
- (11) CAN port



- (1) BAT- connector
- (2) COM 2
- (3) COM 1
- (4) BAT+ connector

Figure 3-5 Right view of B9639

4. Technical Specifications

Model	PowerHome-7.48-H1	PowerHome-11.23-H1	PowerHome-14.97-H1	PowerHome-18.7-H1
Electrical Parameters				
Number of Modules	2	3	4	5
Nominal Energy ^[1] [kWh] Usable Capacity	7.48	11.23	14.97	18.7
Nominal Voltage [V]	192	288	384	480
Voltage Range [V]	162 ~ 216	243 ~ 324	324 ~ 432	405 ~ 540
Maximum Charge / Discharge Current ^[2] [A]	30 / 30			
Depth of Discharge	90%			
Cooling	Natural			
General Data				
Battery Technology	LiFePO4			
Size (W * H * D) [mm]	561 * 902 * 217	561 * 1228 * 217	561 * 1554 * 217	561 * 1880 * 217
Weight [kg]	86.8	124.1	161.4	198.7
Number of Battery Units	2	3	4	5
Enclosure	IP65 (Indoor or Outdoor)			
Installation Type	Floor Stand			
Operating Temperature Range ^[3] [°C]	-10 ~ +50			
Communication	CAN, RS485			
Cycle Life	6000@ 80% DOD / 25°C / 0.2C / 60% EOL			
Warranty ^[4] [years]	10			

Model	PowerHome-7.48-H1	PowerHome-11.23-H1	PowerHome-14.97-H1	PowerHome-18.7-H1
Operating Altitude [m]	≤2000			
Certification				
Certificates	UN38.3, EN / IEC 62619, IEC 62040, EN 62477, EN 61000-6-1 / -3			

[1] Nominal Energy: 100% DOD, 0.2C charge & discharge at + 25°C (test conditions).

[2] The recommended charging and discharging current is 25 / 30A.

[3] Ambient temperature : charging (0 ~ +40°C), discharging (-10 ~ +50°C).

[4] Conditions apply: refer to Dunext PowerHome Battery Warranty Policy.

5. Installation

5.1 Unpacking

Check the delivery for completeness. Contact your dealer at once if anything is missing or damage.

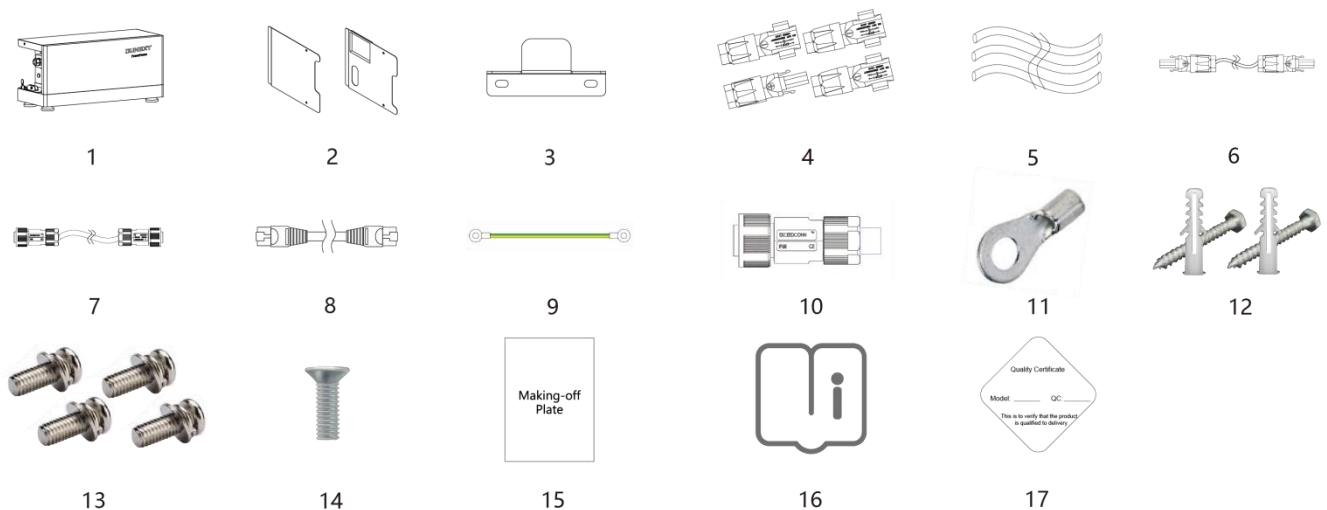


Figure 5-1 Product and accessories of PowerHome-BMC

No.	Name	Quantity
1	Battery Master Controller (PowerHome-BMC) with floor-mounted base	1
2	BMC protective cover	2
3	Bracket	1
4	Battery Connectors(1* positive,3*negative)	4
5	DC input power cable(inverter to battery, 1.5m, B- to B-, 2m)	3
6	DC input power cable (B+ to B+)	1
7	Signal cable(BMC to RBS)	1
8	Signal cable(1.5m)	1
9	Ground cable	1
10	Communication terminator resistor	1
11	Ring terminal(for 10AWG cable)for grounding	1
12	Expansion tubes & Expansion screws	2
13	M5*10 pan head combination screws	4
14	M4*7.5 flat head screws	1
15	Making-off plate	1
16	User Manual	1

No.	Name	Quantity
17	Quality Certificate	1

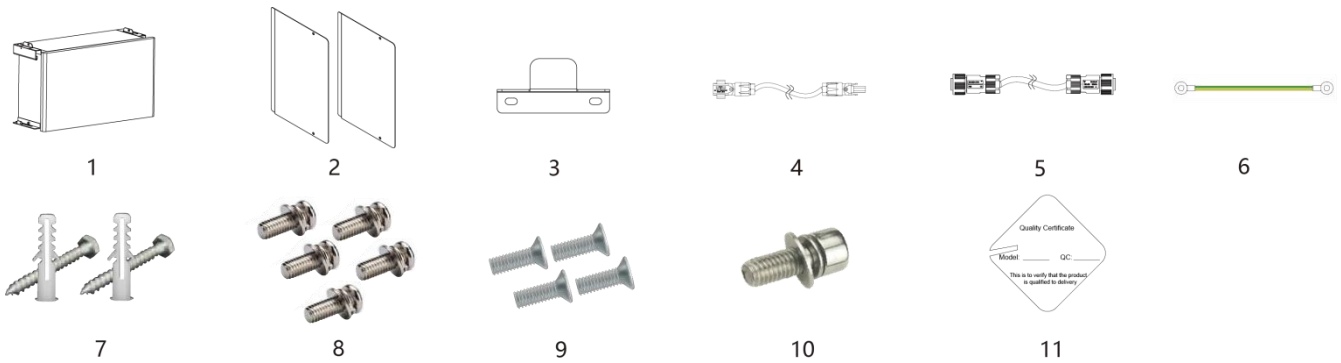


Figure 5-2 Product and accessories of B9639

No.	Description	Quantity
1	Rechargeable Battery Stack(B9639)	1
2	RBS protective cover	2
3	Bracket	1
4	DC input power cable(B+ to B-)	1
5	Signal cable(RBS to RBS)	1
6	Ground cable	1
7	Expansion tubes& Expansion screws	2
8	M5*10 pan head combination screws	5
9	M4*7.5 flat head screws	4
10	M5*12 hexagon socket head cap screw	1
11	Quality Certificate	1

Open the package and pick the product, check that if there is any distortion or impaired during the transportation. Meanwhile, check that if the relating accessories and the materials are here, you can see the accessories list in the table.

The instruction manual is an integral part of the unit and should therefore be read and kept carefully.

It is recommended that the packaging should not be removed until the unit is located in the installation site.

5.2 Check for transport damage

Check if the PowerHome-H1 series battery has some visible external damage, such as cracks in the housing, if any damage is found, please contact with your dealer immediately.

5.3 Installation precaution

The PowerHome-H1 series battery is designed for outdoor installation (IP65).

- A solid support surface must be available (e.g., concrete or masonry).
- The installation location must be inaccessible to children.
- The installation location must be suitable for the weight and dimensions of the battery system.
- The installation location must not be exposed to direct solar irradiation.
- The installation location must not be close to the fire.
- The altitude of the installation location should be less than 2000m.
- The ambient temperature should be between -10°C ~ $+55^{\circ}\text{C}$.
- The ambient humidity should be between 5-95%.

5.4 Space requirement

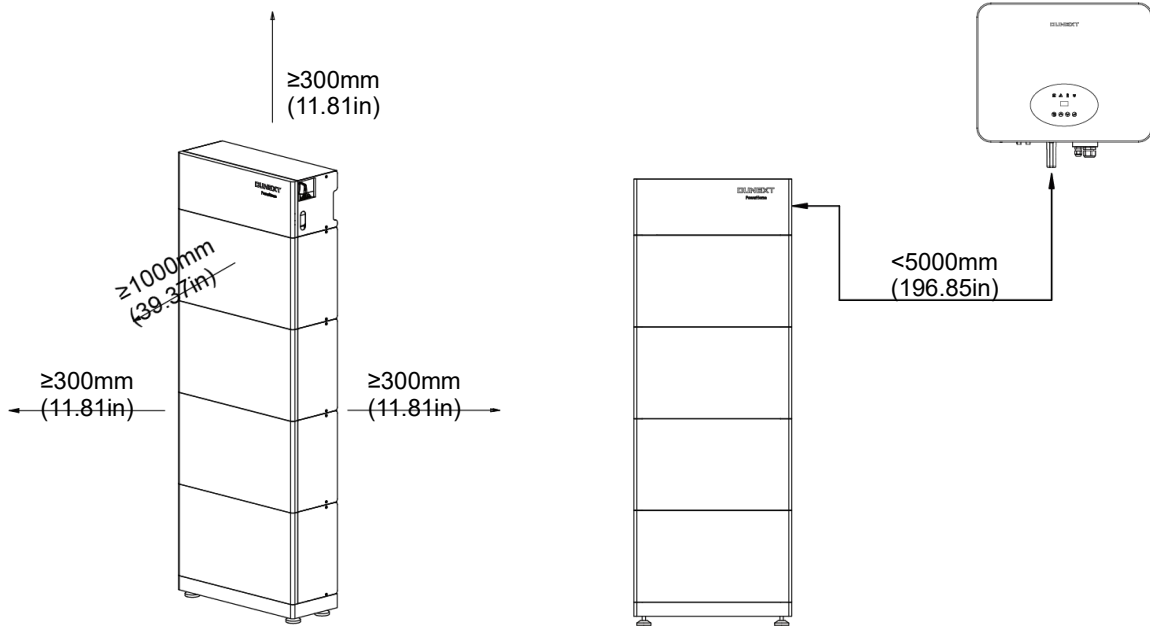



Figure 5-3 Installation space

5.5 Preparation

No.	Tool	Model	Function
1		Level	Make sure the bracket is properly installed
2		Two-Speed hammer drill	Drill holes on the wall
3		Hammer	Hanging the bracket
4		Impact wrench set	Hanging the bracket
5		Screwdriver	Wiring
6		RJ45 crimping tool	Crimping plier for PV cable

No.	Tool	Model	Function
7		Crimping plier	Crimping tool for insulated electrical connectors

5.6 Installation steps

1. Take the BMC and base out of the package.
2. Loose the two screws with screwdriver.

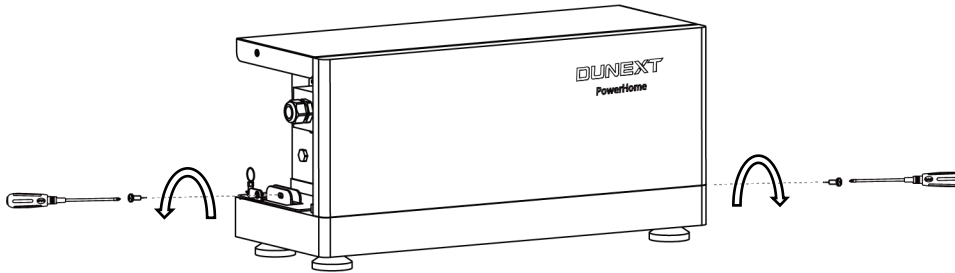


Figure 5-4

3. Take the BMC from the base.
4. Put the installed base and feet along the wall, and keep the distance of 20mm (0.79in) between the wall and the base. Adjust the height of the threaded leveling legs according to the site conditions and measure with a level to ensure that the base remains level.

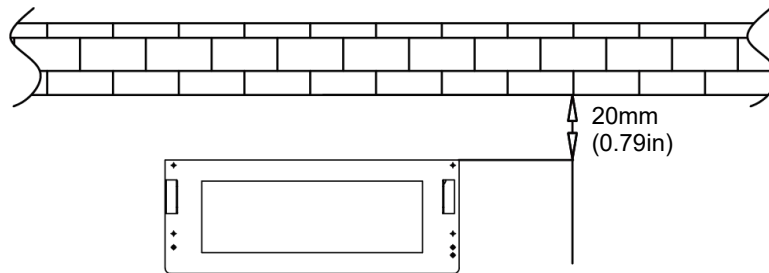


Figure 5-5

5. Align the marking-off plate with the upper surface of the base. Don't ignore the height of the threaded leveling legs.

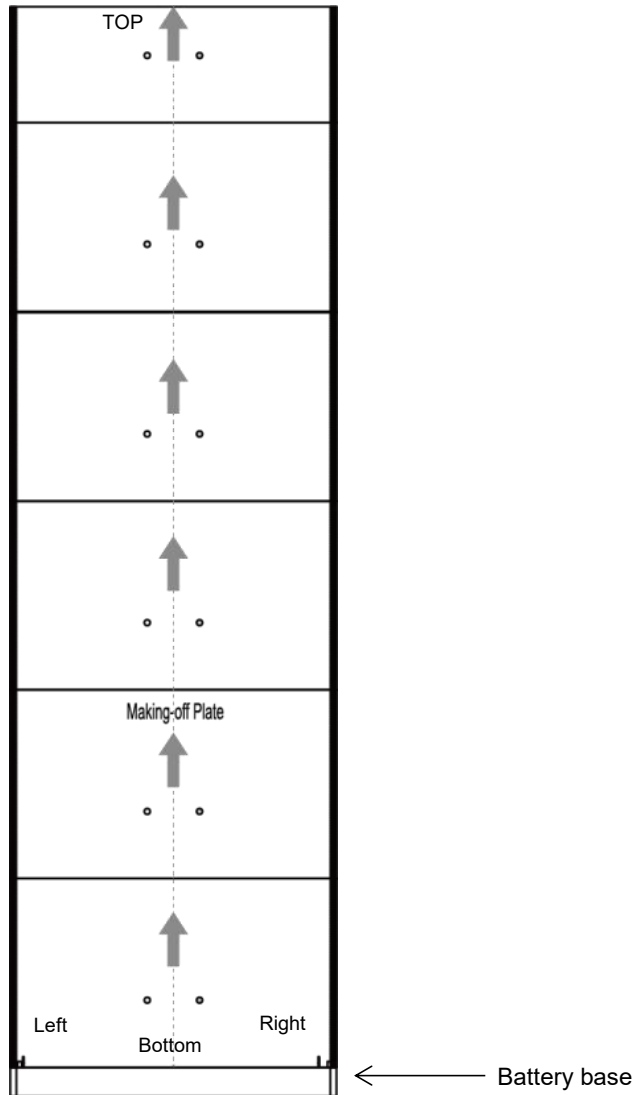


Figure 5-6

6. Drill holes with $\Phi 10$ driller carefully, make sure the holes are deep enough (at least 45mm) for installation, and tighten the expansion tubes.
7. Install the expansion tubes in the holes and tighten them. Install the wall bracket by using the expansion screws in the screw package.
8. Take a RBS from the package out. Hang the RBS on the bracket, pull the latches on the left and right sides, and put the RBS on the base. Pay attention to the direction of the RBS.
9. Repeat the operations for other RBSs.
10. Put the BMC on top of the RBSs.

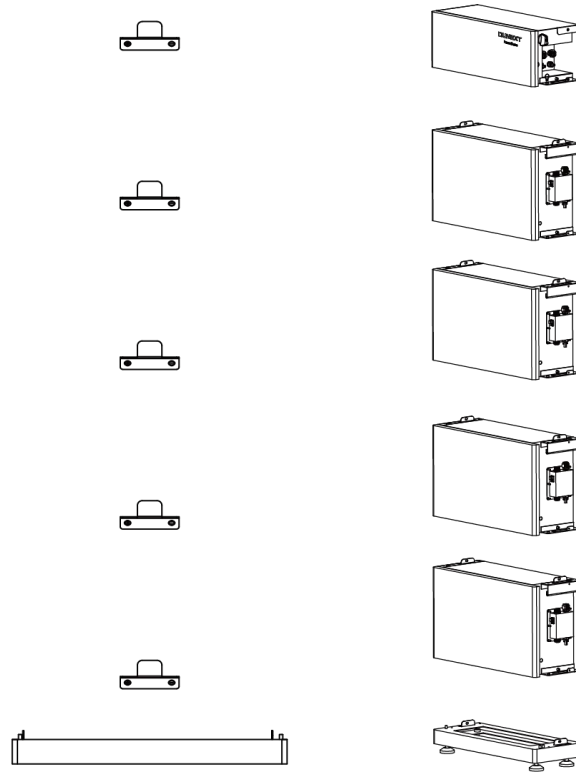


Figure 5-7

11. Secure RBS to RBS and BMC to RBS with M5 screws.

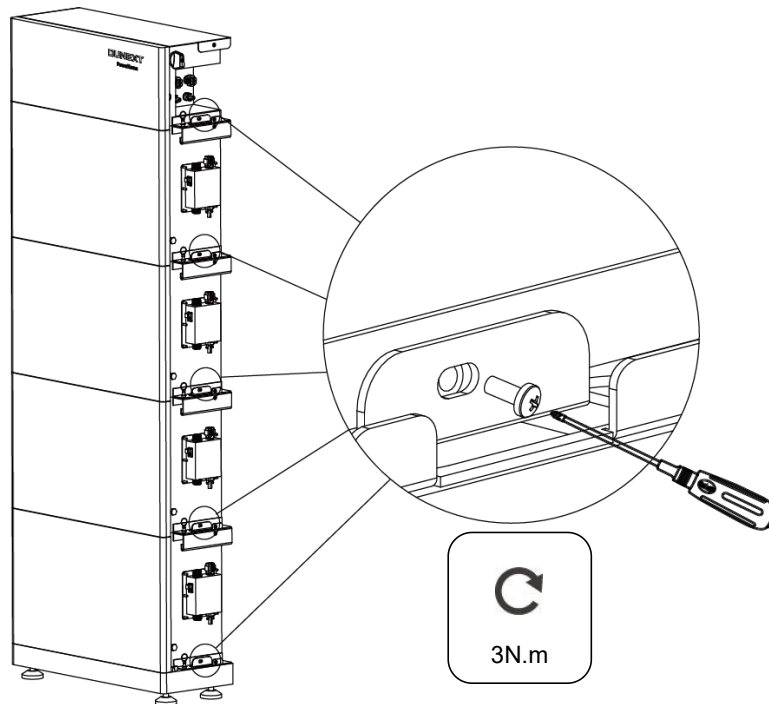


Figure 5-8



NOTE!

The number of RBS is determined by the customer's actual usage. The installation illustration is based on four RBSs as an example. The RBS bracket can be dispensed with.

5.7 Electrical wiring connection

5.7.1 Internal electrical connection of the battery

Due to the uncertainty of the capacity of the battery chosen by users, the length of the DC power cable (B- to B-) is uncertain, so it needs to be made on site, and the accessories can all be found in the accessory package. All other connecting cables are also available in the accessory package. The main steps to connect the internal electrical connection of the battery are as below:

1. Make a DC power cable (B- to B-) based on the distance from the bottom RBS to the BMC. Use the same method to make the DC power cable (B- to B-), refer to section 5.7.4.



Figure 5-9 DC power cable (B- to B-)

2. DC input power (B+ to B+ & B- to B+ & B- to B-) connection
3. BMC to RBS and RBS to RBS connection
4. CAN communication terminator resistor connection

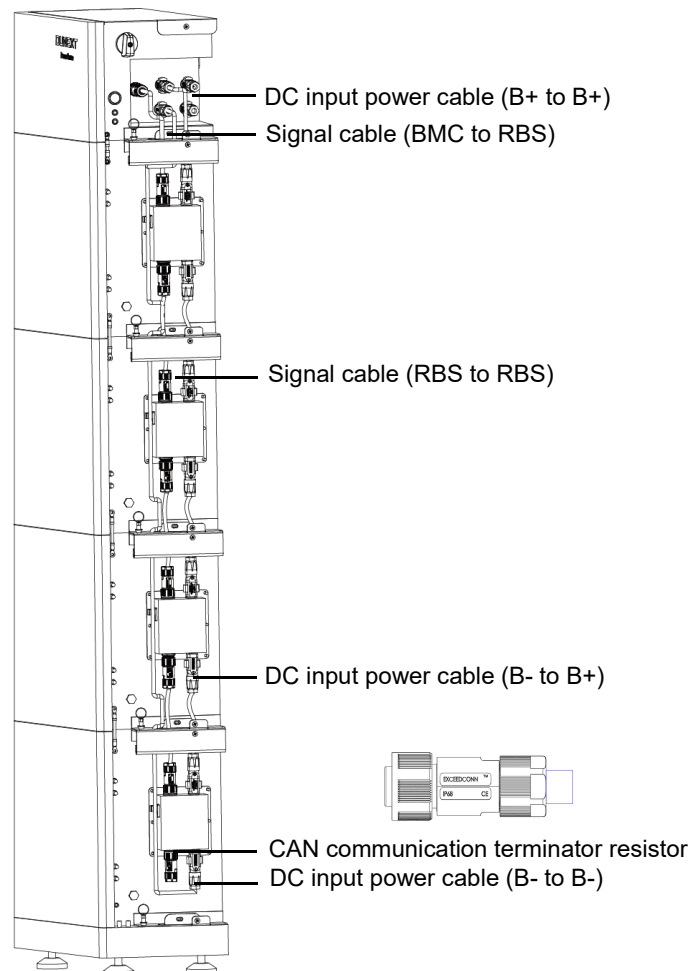


Figure 5-10

5.7.2 External electrical connection of the battery

The main steps to connect the external electrical connection of the battery

- 1) Earth connection
- 2) Battery connection:
 - Battery power connection
 - Battery communication connection

5.7.3 Earth connection

The BMC and RBSs must be connected to a protective conductor. For this purpose, a line from the potential equalization rail to the floor mounted base must be installed expertly.

Cable size: 4mm²

Connection steps:

1. Strip the earthing cable insulation.
2. Insert the stripped cable into the ring terminal.
3. Clamp the end of the ring terminal.
4. Unscrew the screw of the PE connector.
5. Suit the ring terminal on the PE connector.
6. Suit the gasket on the PE connector.
7. Screw the screw of the PE connector.

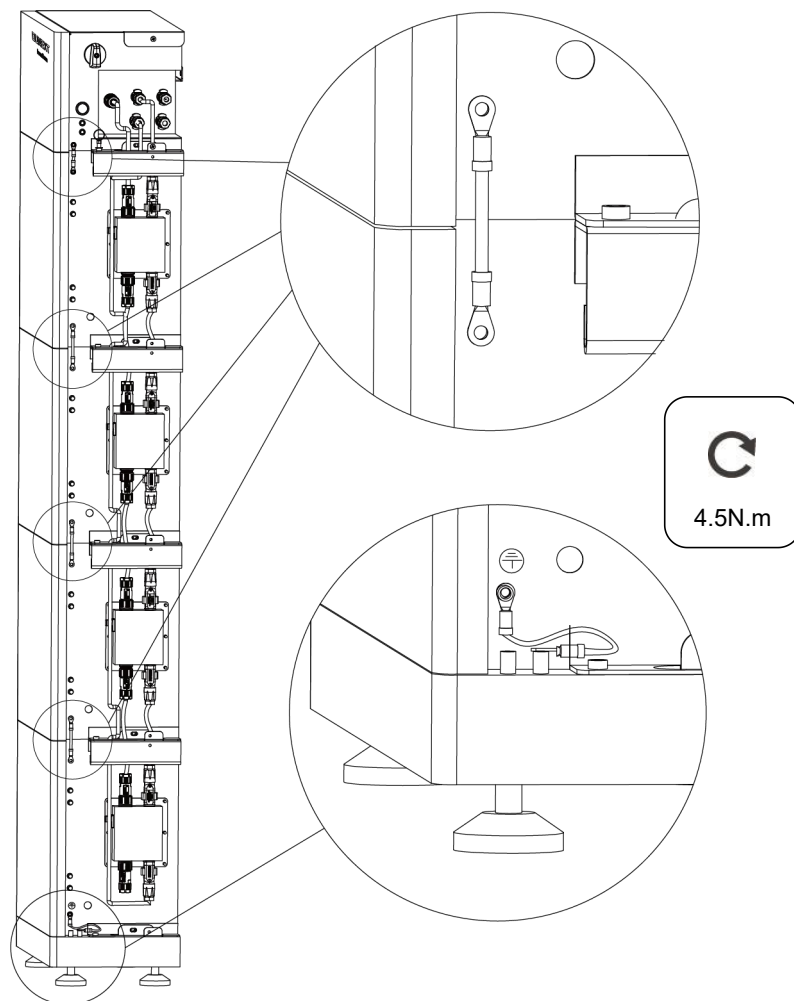


Figure 5-11

5.7.4 Battery power cable connection

1. Prepare the tin-plated cables with a conductor cross section of 4 to 6 mm².
2. Strip 15mm off the conductor. Use a suitable stripping tool for this (e.g. "Knipex Solar 121211").
3. Open the spring using a screwdriver (Figure 5-12).

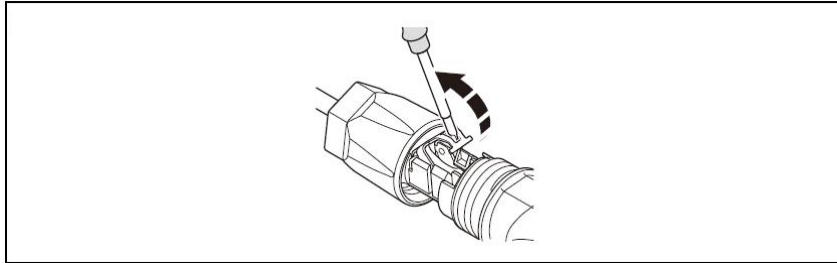


Figure 5-12

4. Carefully insert the stripped wire with twisted litz wires all the way in (Figure 5-13, A). The litz wire ends have to be visible in the spring.
5. Close the spring. Make sure that the spring is snapped in (Figure 5-13, B).

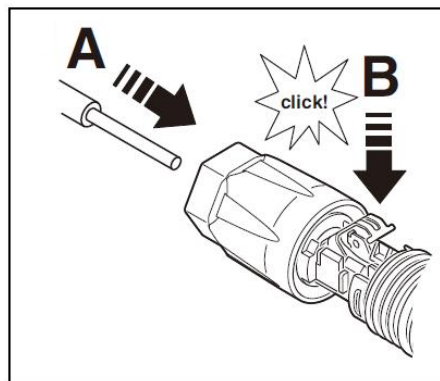


Figure 5-13

6. Push the insert into the sleeve (Figure 5-14, C).
7. Tighten the cable gland to 2 Nm (Figure 5-14, D) Use a suitable and calibrated torque wrench, size 15. Use an open-jaw wrench, size 16 to hold the connector in place.

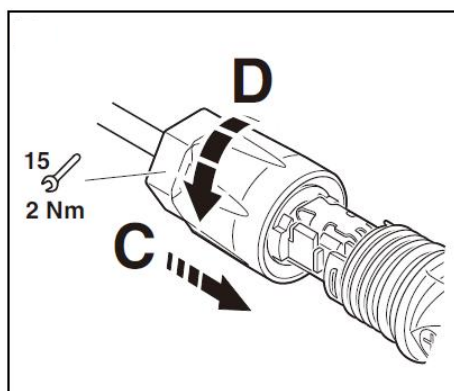


Figure 5-14

8. Fit the two connectors together until the connection audibly locks into place.
9. Check to make sure the connection is securely locked.
10. Separating connectors

(1) Insert the screwdriver into one of the four openings (Figure 5-15, A)

(2) Leave the screwdriver in the opening. Pull the two connectors apart (Figure 5-15, B).

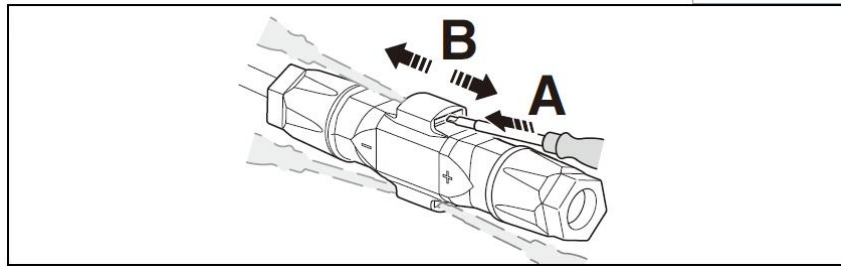


Figure 5-15

5.7.5 Battery communication connection

The communication interface between battery and inverter is a RJ45 connector. The Pins definition is as below.

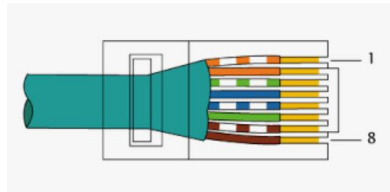


Figure 5-16

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

Overview for two kinds of hybrid inverter and one battery cluster connections:

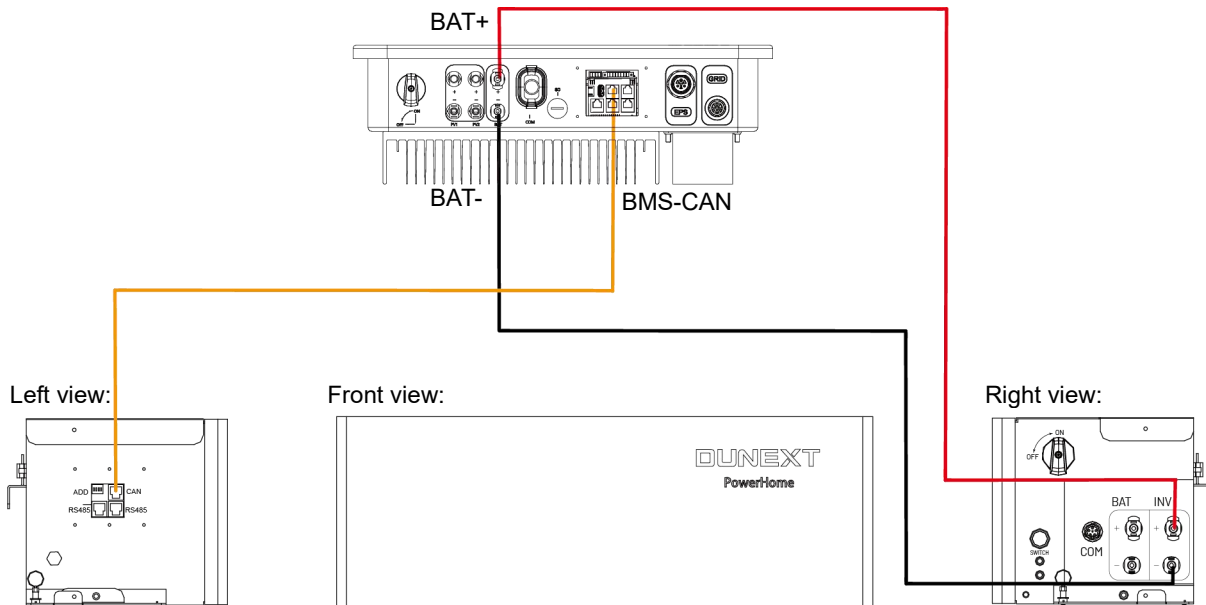


Figure 5-17 Connection diagram between DN1H Series(3-6KTL) and one battery cluster

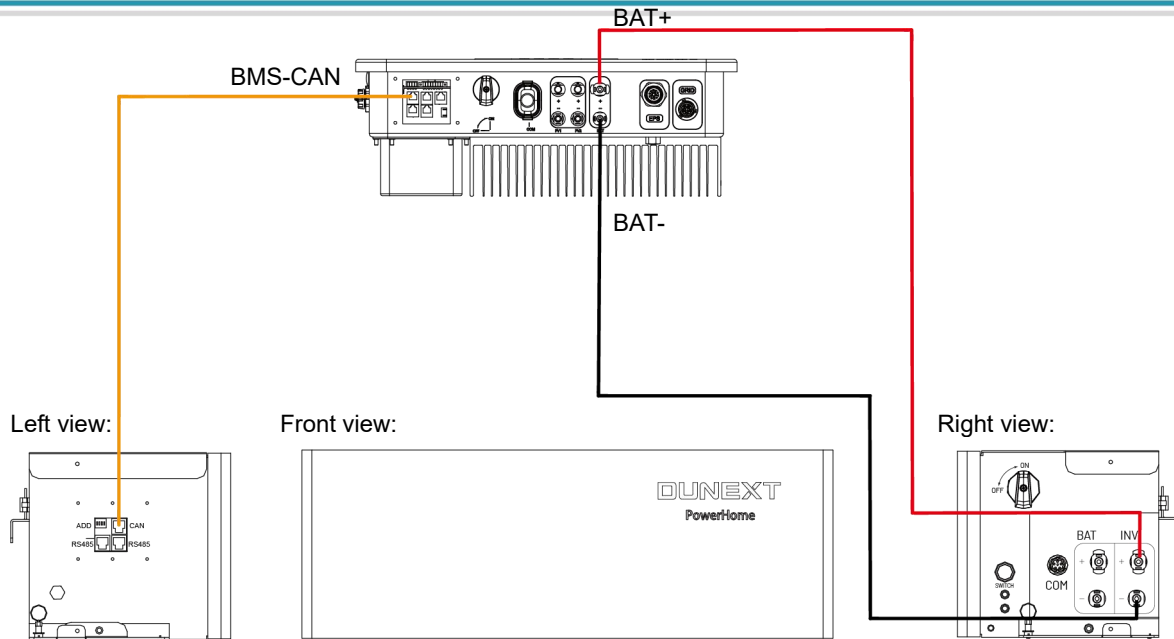


Figure 5-18 Connection diagram between DN3H Series(5-10KTL) and one battery cluster

Once the communication cable is connected, there is a label on the left side of the BMC, tick in front of the corresponding battery model.

DUNEXT
Battery Master Controller
 Model: PowerHome-BMC
 DC Voltage Range: 85V ~ 600V
 Max. Charge/Discharge Current: 30A
 Operating Temperature: -10°C ~ 50°C^①
 Protection Class: I
 Enclosure: IP65
 Serial No:

Rechargeable Li-ion Battery System
 Model: PowerHome-H1

- 1) PowerHome-3.74-H1
IFpR34/141/(((3P15S)2S)1S)E/0+40/90
- 2) PowerHome-7.48-H1
IFpR34/141/(((3P15S)2S)2S)E/0+40/90
- 3) PowerHome-11.23-H1
IFpR34/141/(((3P15S)2S)3S)E/0+40/90
- 4) PowerHome-14.97-H1
IFpR34/141/(((3P15S)2S)4S)E/0+40/90
- 5) PowerHome-18.7-H1
IFpR34/141/(((3P15S)2S)5S)E/0+40/90

Nominal Voltage/Range	Capacity/Energy
1)96V(81~108V)	1)39Ah/3.74kWh
2)192V(162~216V)	2)39Ah/7.48kWh
3)288V(243~324V)	3)39Ah/11.23kWh
4)384V(324~432V)	4)39Ah/14.97kWh
5)480V(405~540V)	5)39Ah/18.7kWh

PowerHome-XX-H1

① Charging 0~40°C/DisCharging -10°C~50°C
 Use only with suitable batteries
 Address: Building 2, No. 1008 Xihong Road, Wuzhong District, Suzhou City
 Manufacturer: Dunext Technology Suzhou Co., Ltd.

Figure 5-19

5.8 External protective cover installation

After electrical connections are complete, check all the wiring is correctly and securely connected, install the external protective cover, and secure it using M4 screws.

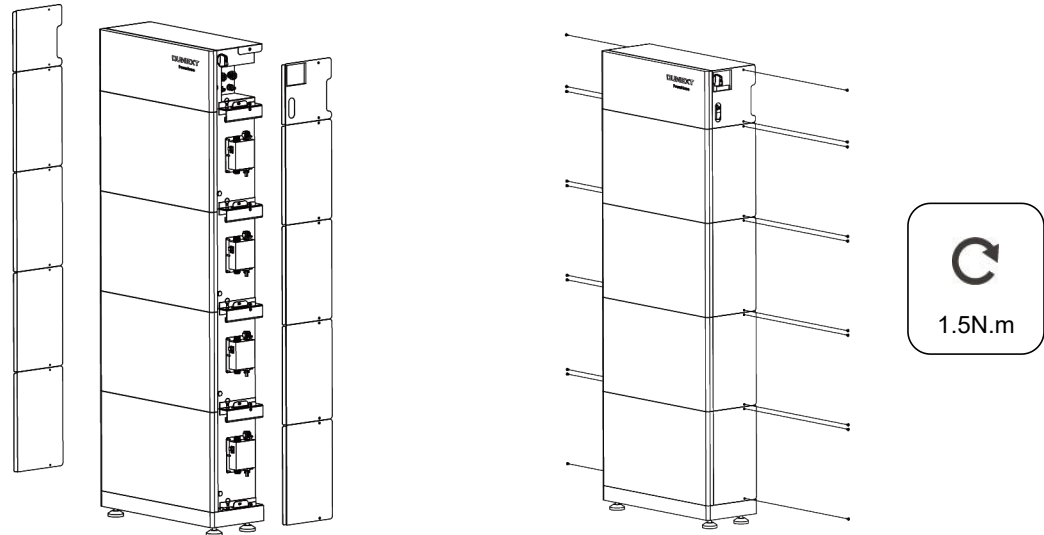


Figure 5-20

5.9 Overview for all battery clusters connectionist

5.9.1 Cables connection

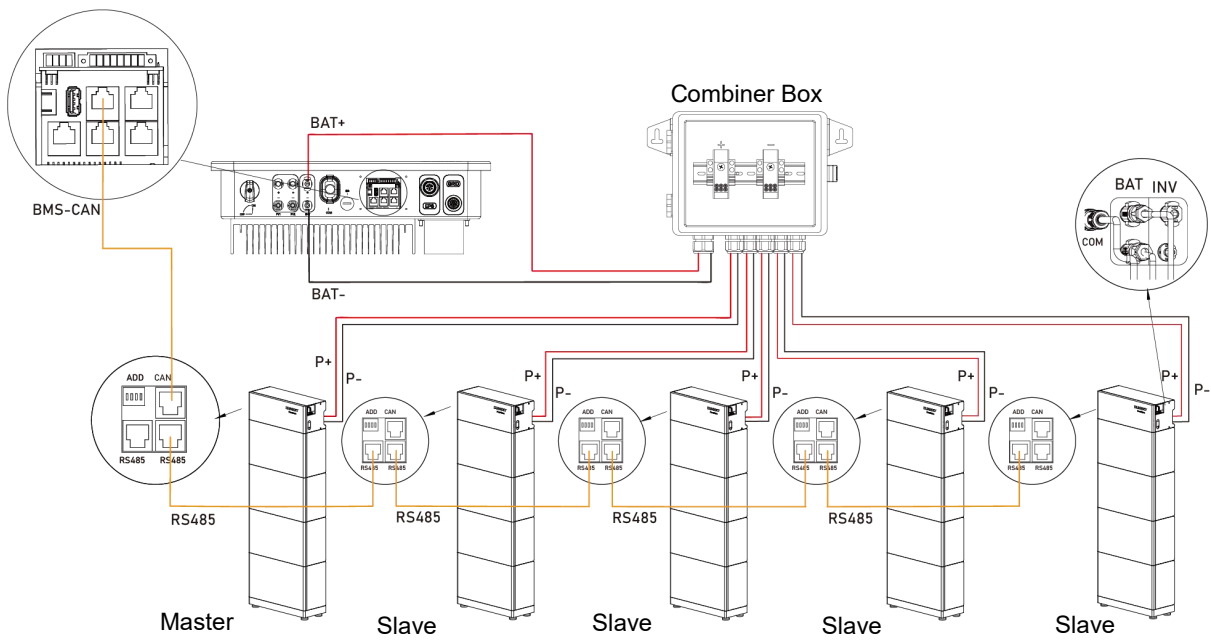


Figure 5-21 Connection diagram between DN1H Series(3-6KTL) and five battery clusters

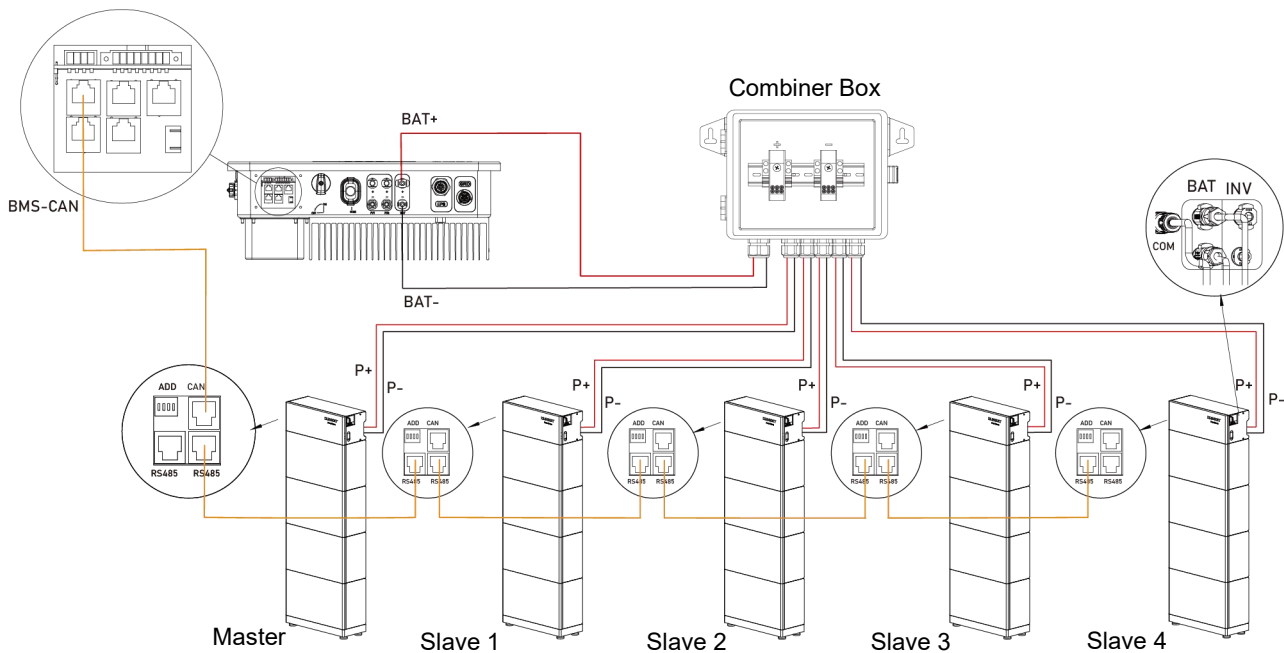


Figure 5-22 Connection diagram between DN3H Series(5-10KTL) and five battery clusters


NOTE!

- For the parallel connection of 2 battery clusters and 3 battery clusters, please use the power cable in an accessory bag of the battery package to make the connection.
- For the parallel connection of 4 battery clusters and 5 battery clusters, please use the power cable in an accessory bag of the combiner box (Configuration 2) to make the connection.
- The combiner box is not standard and needs to be purchased separately.


WARNING!

- The length of power cables between battery clusters and combiner box must be the same.
- When connecting multi battery clusters in parallel, ensure that the number of RBSs connected in series is the same in each battery cluster.

6. Power the battery on and off

6.1 Switch on the system for single battery cluster

1. Check that the positive and negative power cables are not reversed.
2. Set the ADD switch of the battery clusters. ADD switch is a 4-bit dial switch to manually distribute the communication address of battery clusters. 1-3 bit means the communication address of battery clusters, the status of 4th bit means if this BMC is the master or not. For the master, the communication address is largest and the fourth digit must be ON status. Please refer to the table below to set the ADD switch of the master battery cluster.

	Master	Slave 1	Slave 2	Slave 3	Slave 4
1 battery cluster					

3. Switch on the DC switch on the BMC and the green light underneath will flash for 2-3 seconds.

4. Press the silver start switch on the BMC, and the green light will turn to normal to indicate a successful start. The battery voltage will be displayed on the inverter.



- If it fails to switch on the battery cluster, check if all the electrical connections are correct or not push the start button of master battery set.
- If the battery cables are reversed, the inverter will not query the battery voltage when the battery cluster is switched on. If the electrical connection is correct, but the battery cluster is still unable to switch on, contact our after-sale service within 48 hours.

6.2 Switch on the system for multiple battery clusters

1. Check that the positive and negative power cables are not reversed.
2. Set the ADD switches from the master cluster to the slave clusters in sequence. Please refer to the table below to set the ADD switch for parallel connection of different battery clusters.

	Master	Slave 1	Slave 2	Slave 3	Slave 4
2 battery clusters					
3 battery clusters					
4 battery clusters					
5 battery clusters					

3. Switch on the DC switch on the BMC of the master battery cluster and the green light underneath will flash for 2-3 seconds. Repeat this operation on the other slave battery clusters.
4. Press the silver start switch on the BMC, and the green light will turn to normal to indicate a successful start. Repeat this operation on the other slave battery clusters. The battery voltage will be displayed on the inverter.



- If it is failed to switch on the battery cluster, check if all the electrical connections are correct or not push the start button of master battery set.
- If the battery cables are reversed, the inverter will not query the battery voltage when the battery clusters are switched on. If the electrical connection is correct, but the battery cluster is still unable to switch on, contact our after-sale service within 48 hours.

6.3 Switch off the system

1. Push the silver start button to turn off the system.
2. Turn off the DC switch on BMC.
3. Wait about 5 minutes for the battery to stop running completely. If multiple battery clusters are connected in parallel, repeat steps one and two in sequence from the master to the slaves. Wait five minutes after you know that the last battery cluster has powered off.

6.4 LED indicator

The Power Battery has a status signal. About the permanently integrated LED in the housing, displayed are the following states:

LED indicator	Description
Green blinking (1 times per second)	BMC DC switch on
Green and red blinking(1 times per second)	Push black start button or hybrid inverter awake
Green	Battery system workable
Red	Battery system faults or warning

If faults, warning or events of the battery occur, these are reported on the display of the inverter or can be called up via the EnerLink.

7. Troubleshooting and maintenance

7.1 Troubleshooting

LED indicator	Fault
Green and red always on	1. MCU internal errors
Green always on and red blinking	1. Precharge failure; 2. Overvoltage (3.64V); 3. Undervoltage (2.6V); 4. Over temperature charging and discharging; 5. Low temperature charging and discharging; 6. Charge and discharge overcurrent (33A); 7. Excessive total differential voltage (5%); 8. Low SOC (2.5%); 9. Differential voltage of the core (500mV); 10. Excessive temperature difference (20°C); 11. Contactor sticking.
Green and red blinking	1. Overpressure (3.64V); 2. Undervoltage (2.6V); 3. Over temperature charging and discharging; 4. Low temperature charging and discharging; 5. Charge and discharge overcurrent (33A); 6. Low SOC (2.5%); 7. Excessive temperature difference (20°C).

Remark

If you find the battery has serious problems, including but not limited to the above content, please call Dunext dealer or the after-sales service. Please provide the following information to service@dunext.com for better service.

- 1) Customer Name
- 2) Contact Info
- 3) Project Name and Location
- 4) Project Scale
- 5) Quantity of Faulty Inverters
- 6) Problem Description
- 7) Battery Model
- 8) Battery SN

7.2 Maintenance

For the first installation, the interval among manufacture dates of batteries shall not exceed 3 months.

If users want to increase their battery system capacity, please ensure that the SOC of the existing system capacity is about 40%. The manufacturer date of the new battery shall not exceed 6 months; in case of exceeding 6 months, please charge the new battery to around 40%.

If the battery has(have) not been used for more than 9 months, the battery must be charged to at least SOC 50% each time.

If a battery is replaced or added for capacity expansion, each battery's SOC should be consistent.

8. Decommissioning

8.1 Dismounting the battery

Before dismounting the inverter, ensure you have powered off it as described in section 6.3.

Disconnect battery wiring.

- Disconnect the battery power and communication cables.
- Remove the protective cover.
- Disconnect the PE cables.
- Remove the M5 screws securing the BMC and RBS.
- Remove the BMC and RBSs from the brackets.
- Remove the mounting brackets.

8.2 Packaging

If possible, please pack the battery with the original packaging. If it is no longer available, you can also use an equivalent carton that meets the following requirements.

- Suitable for loads more than 40kg.
- With handle.
- Can be fully closed.

8.3 Storage

If it isn't installed immediately after the delivery work is successfully completed, please properly store the PowerHome-H1 series battery according to the description in this section.

- In order to prevent condensation inside the PowerHome-H1 series battery, or if the bottom of the house is soaked by rainwater in the rainy season, the battery should be stored in an indoor environment, such as a large warehouse or in a workshop.
- If the RBSs are going to be kept for more than 90 days, adjust SOC to 40%-60% and dis-/charge them once every six months.
- If it must be stored outdoors due to on-site conditions, the RBSs must be raised. The specific elevation height should be reasonably determined according to the site's geological and meteorological conditions. If the ambient temperature is too low, heating should be provided for the internal equipment of the RBSs.
- Storage environment temperature: $-10^{\circ}\text{C}\sim 50^{\circ}\text{C}$ (less than one month); recommended long-term storage temperature: $20^{\circ}\text{C}\sim 30^{\circ}\text{C}$; storage relative humidity: 0~95%, non-condensing. The storage ground must be flat, free of water, with no bumps or undulations.
- Effective measures must be taken to prevent rainwater, sand, and dust from intruding into the PowerHome-H1 series battery. At least the air inlet and outlet of the battery must be effectively protected.
- It is strictly forbidden to put the batteries on fire. Otherwise, it might explode. It also might cause a fire to the RBSs when

the ambient temperature exceeds 150°C.

- Inspect at least once every half month to check whether the cabinet and internal equipment are in good condition.

8.4 Disposal

Disposal of the system must comply with the local applicable disposal regulations for electronic waste and used batteries.

- Do not dispose of the battery system with your household waste.
- Avoid exposing the batteries to high temperatures or direct sunlight.
- Avoid exposing the batteries to high humidity or corrosive atmospheres.
- For more information, please contact Dunext.



Innovate for a Green Future

Dunext Technology Suzhou Co., Ltd.

 No. 88 Nanxijiang Road, Wuzhong District, Suzhou City, Jiangsu Province, China

 info@dunext.com

 www.dunext.com