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Deye ESS Battery Extension Manual

Version 1.1

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Disclaimer:

This document cannot replace the installation manual or warranty terms.

It is updated for qualified installers and will not be notified separately.

Before reading this document, please read the Deye battery and inverter user manual carefully.

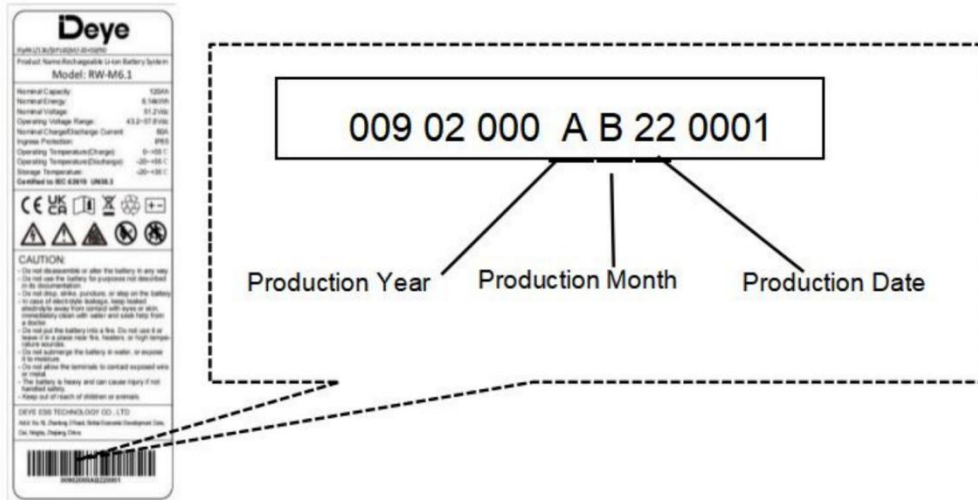
This document only covers some models and is not a statement or recommendation of any electrical or solar industry standard or guide.

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SN identification method

The production date of the product can be determined from the serial number on the product label, as illustrated below. The serial number of the battery module corresponds to the production date.



009	02	000	A	B	22	0001
			Year	Month	Day	

The 9th digit represents the year of production, in capital letters.

The year 2022 is A, 2025 is D and so on. The 26-letter cycle ends and continues from A.

The 10th digit represents the month of production, 1 to 9 in numerals, A for 10, B for 11, C for 12.

The 11th digit represents the date of production, 01 to 31.

High voltage series

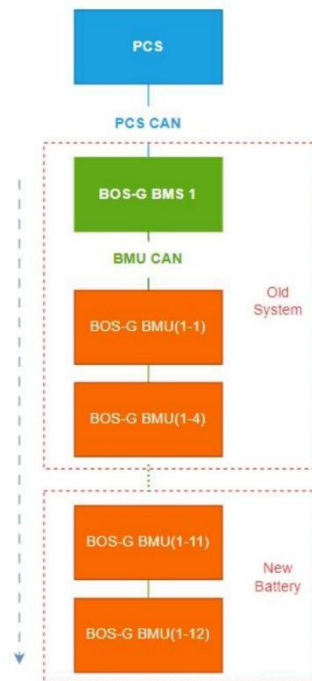
1BOS-G and BOS-G PRO extension

1.1 In-Cluster capacity extension

I. The solution of customer's original BOS-G system extension along with new BOS-G battery pack.

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within two years, capacity extension is allowed.

Step 2: Prior to the extension, ensure the original system is fully charged to 100% State of Charge (SOC), and the new battery is also charged to 100% SOC. If fewer than four batteries are being added, use the charger for charging; if more than four batteries are added, use the inverter for charging. For further details, please contact the after-sales staff at Deye.



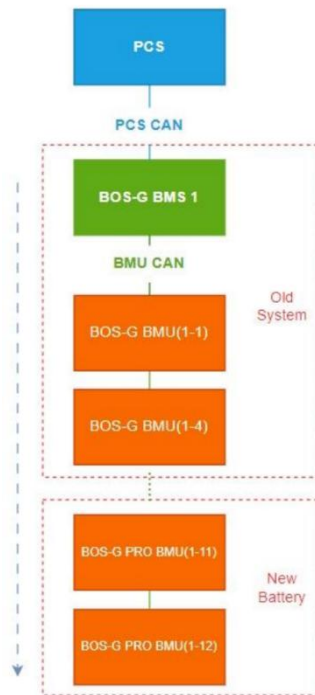
1.1.I Network diagram

II. The solution of customer's original BOS-G system extension along with new BOS-G Pro battery pack.

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within two years, capacity extension is allowed.

Step 2: The communication cable of BOS-G and BOS-G Pro is different. It is necessary to purchase the customized communication cable and BOS-G Pro terminal resistor separately for connection. Contact the sales manager of Deye to purchase it before extending the capacity for use.

Step 3: Before extension, the original system should be fully charged to 100% SOC, and the new battery should be fully charged to 100% SOC. If the new batteries are less than 4 batteries, the charger should be used for charging; if the new batteries are more than 4 batteries, the inverter should be used for charging. Please contact the after-sales staff of Deye for details.



1. 1.II Network diagram

Warning:

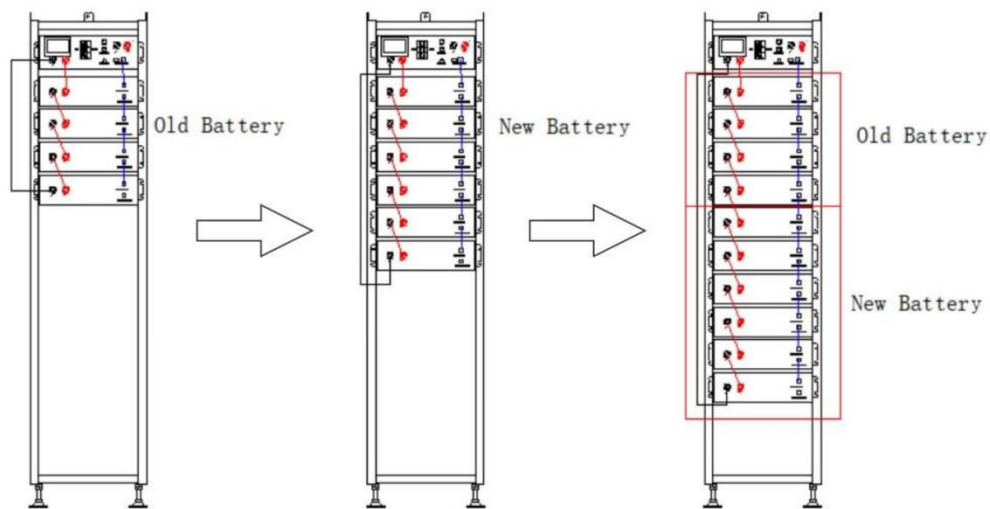
1. A battery system must not exceed 12 battery packs.
2. Both new and old batteries must be fully charged before assembling.
3. To extend the capacity of the old cluster frame with the new BOS-G or BOS-G Pro battery, you need to remove the battery ear and replace it with the previous cluster frame ear (found in the previous cluster frame packaging) to match the original system model. If it is lost, you must contact the sales manager for a separate purchase. The part number is as follows:

Old model cluster frame hanging ear material number: 10100603000004

For the BOS-G extension with BOS-G Pro, the required finished material number for the accessory is BOS-G, and the after-sales accessory package is 10100602000080, which contains 12 sets. The following is the content of a set of BOS-G accessory package:

Communication lines	Quantity: 1
Terminal resistance	Quantity: 1
B+ cable	Quantity: 1
Cable	Quantity: 1

4. Please take care to place the old battery on top, near the high voltage box.



1. 1.II In-cluster capacity extension simple illustration

1.2 Cluster and cluster capacity extension

Items to note:

1. Please ensure to purchase the 300A Combiner box manufactured by Deye before proceeding with the extension. (Combiner box material number: 10100802000004)
2. The quantity of batteries under all high-voltage boxes must be kept uniform to maintain an equal voltage level.

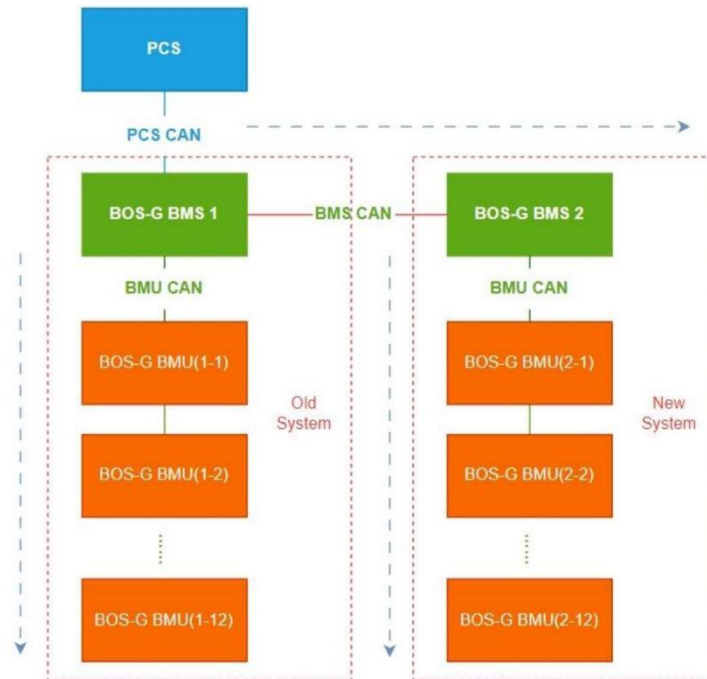
I. The solution of customer's original BOS-G system extension along with new BOS-G battery cluster.

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within two years, capacity extension is allowed.

Step 2: Update the firmware of the original system and the new system's BOS-G high voltage box to the same version. (Seek assistance from Deye staff for the update.)

Step 3: Charge the original BOS-G system and the new BOS-G system to full capacity, then connect them to the combiner box.

Step 4: Initiate BOS-G BMS 1 (master) first, and subsequently activate BOS-G BMS 2 (slave) once the BMU has been fully recognized.



1.2.I Network diagram

II. The solution of customer's original BOS-G system extension along with new BOS-G Pro battery cluster.

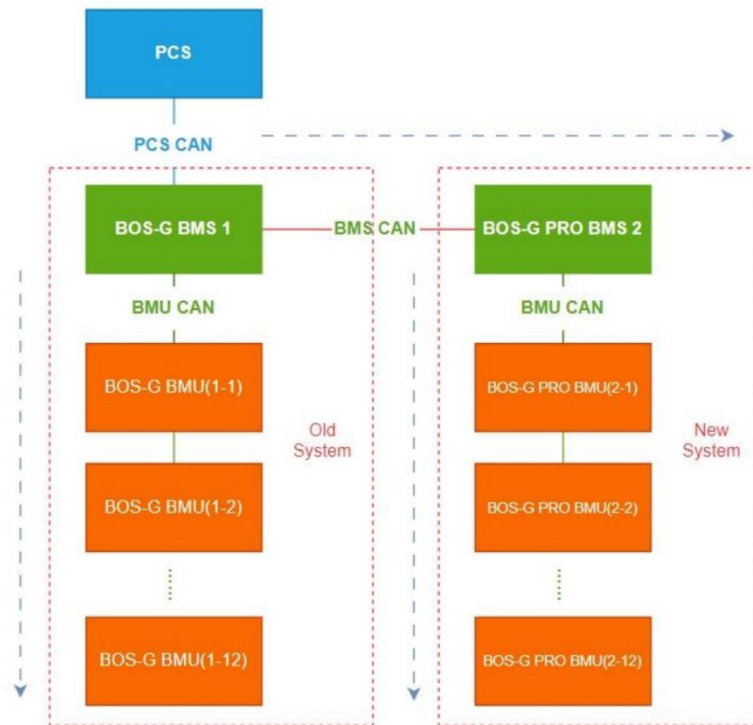
Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within two years, capacity extension is allowed.

Step 2: Upgrade the BOS-G high voltage box firmware to the latest version: Firmware version HVCUE1623B20S03_1FF5 or higher.

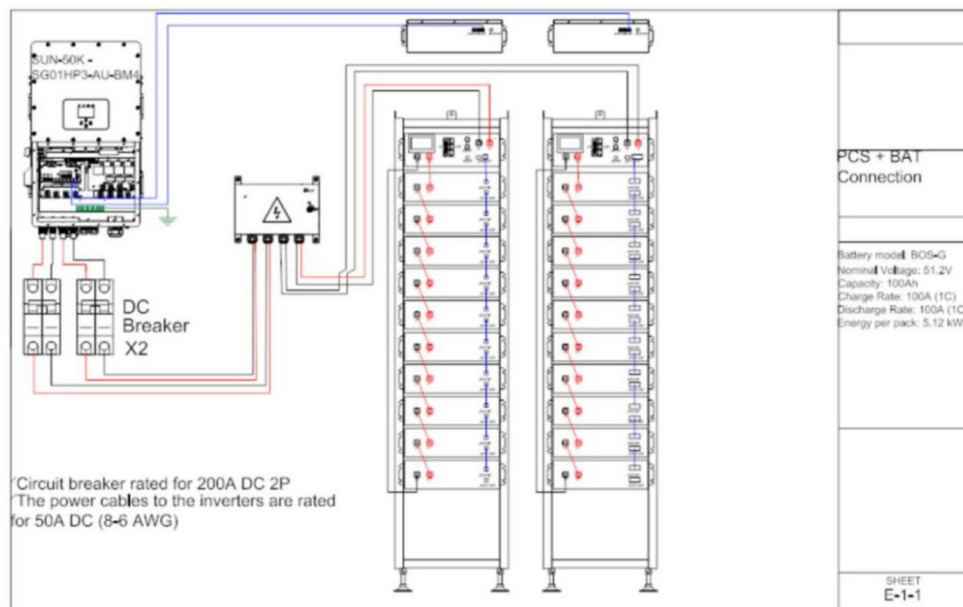
BOS-G PRO Maintain production firmware version: Firmware version is greater than 5002

Step 3: Charge the original BOS-G system and the new BOS-G Pro system to 100% respectively and connect them to the combiner box

Step 4: Initiate BOS-G BMS 1 (master) first, and subsequently activate BOS-G PRO BMS 2 (slave) once the BMU has been fully recognized.



1.2.II Network diagram



1.2.II Cluster and cluster capacity extension wiring diagram

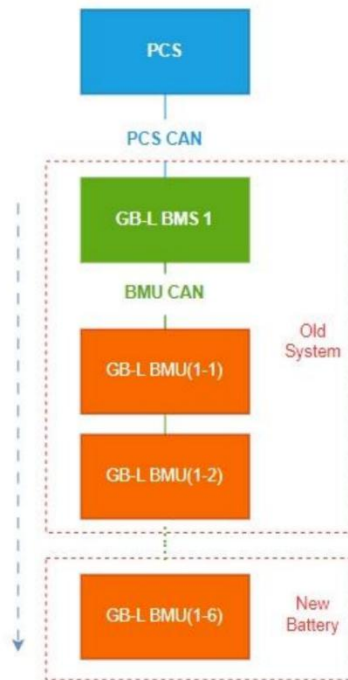
2. GB-L and GB-L PRO extension

2.1 In-group capacity extension

I. The solution of customer's original GB-L system extension along with new GB-L battery modules.

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within one year, capacity extension is allowed.

Step 2: Before extension, the original system should be fully charged to 100% SOC, and the new battery should be fully charged to 100%SOC. If there are less than 2 batteries added, the charger should be used for charging, and if there are more than 2 batteries added, the inverter should be used for charging. Please contact the after-sales staff of Deye for details.

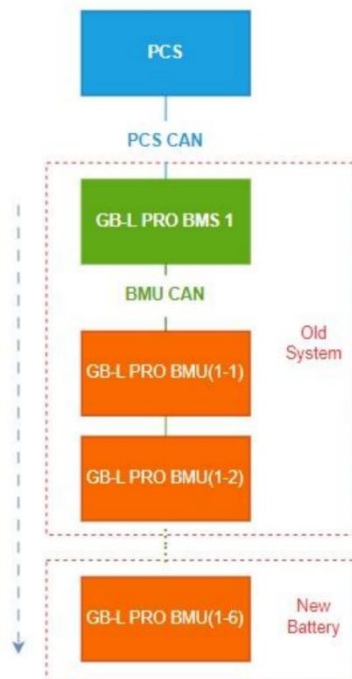


2. 1.I Network diagram

II. The solution of customer's original GB-L system extension along with new GB-L Pro battery modules.

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within one year, capacity extension is allowed.

Step 2: Before extension, the original system should be fully charged to 100% SOC, and the new battery should be fully charged to 100%SOC. If there are less than 2 batteries added, the charger should be used for charging; if there are more than 2 batteries added, the inverter should be used for charging. Please contact the after-sales staff of Deye for details.



2.1.II Network diagram

2.2 Group and group capacity extension

Items to note:

1. Before capacity extension of groups, please conduct a battery charge and discharge cycle first, and contact the after-sales staff of Deye Battery for further support.
2. GB-L uses normal temperature cells, and GB-L PRO uses low temperature cells. The system does not support low temperature operation after the two types of batteries are used together.
3. The GB-L high-voltage box must be used as the host, and the last GB-L PRO high-voltage box must be plugged into a 120Ω terminal resistance.

The solution of customer's original GB-L system extension along with new GB-L Pro battery group.

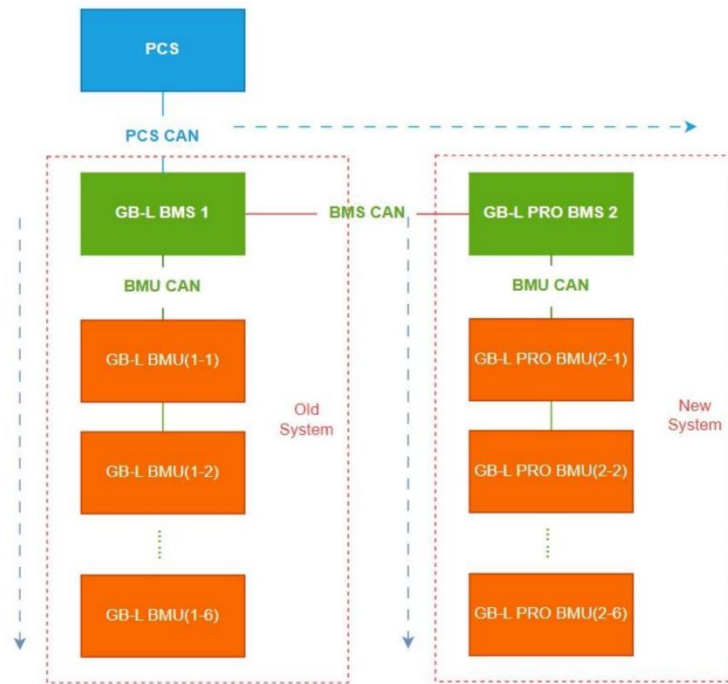
Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within two years, capacity extension is allowed.

Step 2: Charge the GB-L cluster battery separately to 100% to ensure capacity balance, and upgrade the software of the GB-L high-voltage box to HVCUE3223B20C 2T_2FF4.

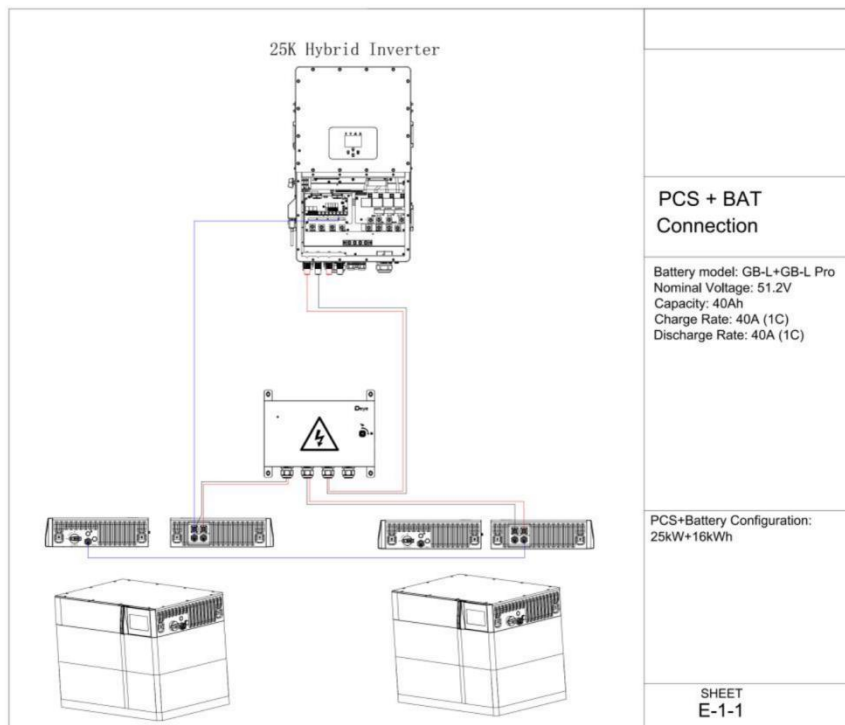
Step 3: Charge the GB-L PRO cluster battery to 100% separately to ensure capacity balance. Keep the GB-L PRO high-voltage box with the latest mass production software. (Firmware version number 4003)

Step 4: Connect the GB-L cluster battery and the GB-L PRO cluster battery to the combiner box respectively.

Step 5: Initiate GB-L BMS 1 (master) first, and subsequently activate GB-L PRO BMS 2 (slave) once the BMU has been fully recognized.



2.2 Network diagram

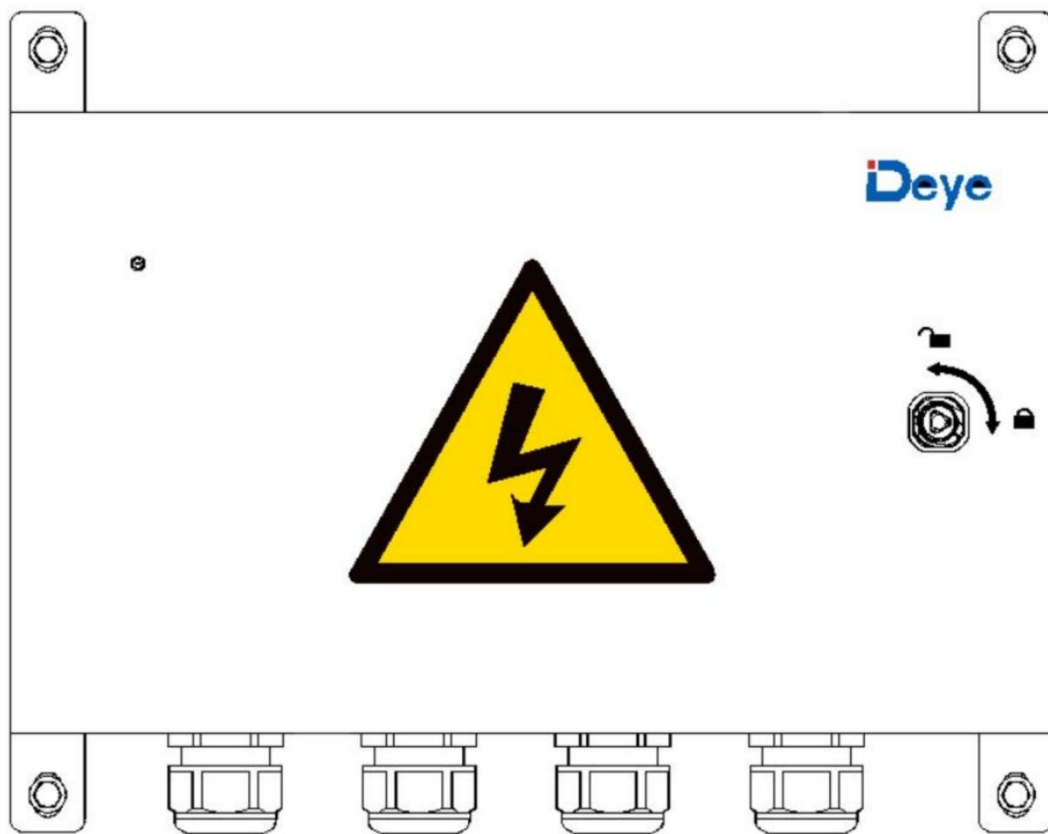


2.2 Group and group capacity extension wiring diagram

Low voltage series

Observation: To ensure optimal performance and safety, the Deye combiner box is essential for the integration of batteries that belong to the same series.

Reference photos:



300A Combiner box material number: 10100802000004

3.SE-G5. 1 PRO and SE-G5. 1 PRO-B extension

There are three types of extension scenarios:

1.The original SE-G5.1 PRO, battery pack and new SE-G5.1 PRO, battery pack

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within three years, capacity extension is allowed.

Step 2: Before extension, upgrade SE-G5.1 PRO system to the same software version respectively.

(MCU3_LVESS0224C24N01_200B.bin)

2. The original SE-G5.1 PRO-B battery pack and the new SE-G5.1 PRO-B battery pack

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within three years, capacity extension is allowed.

Step 2: Before extension, please upgrade SE-G5.1 PRO-B system to the same software version respectively.

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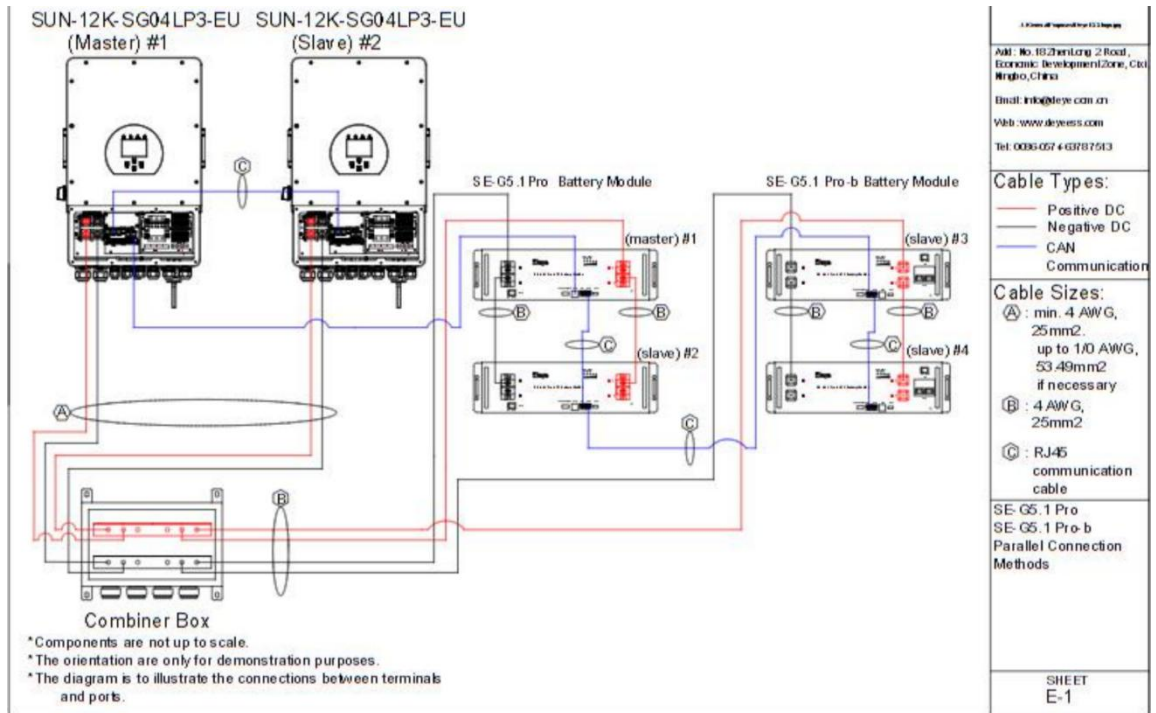
3.The original SE-G5.1 PRO battery cluster and the new SE-G5.1 PRO-B battery cluster

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within three years, capacity extension is allowed.

Step 2: Before extension, please upgrade the SE-G5.1 PRO-B system to the same software version respectively.

(MCU3_LVESS0224C24N01_200B.bin)

Step 3: Connect the new and old battery systems to the Deye combiner box.



3.The original SE-G5.1 PRO battery cluster and the new SE-G5.1 PRO-B battery cluster capacity extension wiring diagram

4.RW-M6. 1 and RW-M6. 1B extension

Note: RW-M6.1 is equipped with 4AWG cable, RW-M6.1-B is equipped with 2/0 AWG cable, When OT terminals of different specifications are connected to the same copper busbar, please ensure that OT terminals are tightly attached to the copper busbar to avoid loosening.

There are three ways to extend:

1.The original RW-M6.1 battery and the new RW-M6.1 battery

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within three years, capacity extension is allowed.

Step 2: Before extension, please upgrade the RW-M6.1 system to the same software version respectively.

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2.The original RW-M6.1B battery and the new RW-M6.1B battery

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within three years, capacity extension is allowed.

Step 2: Before extension, please upgrade RW-M6 and 1B systems to the same software version respectively.

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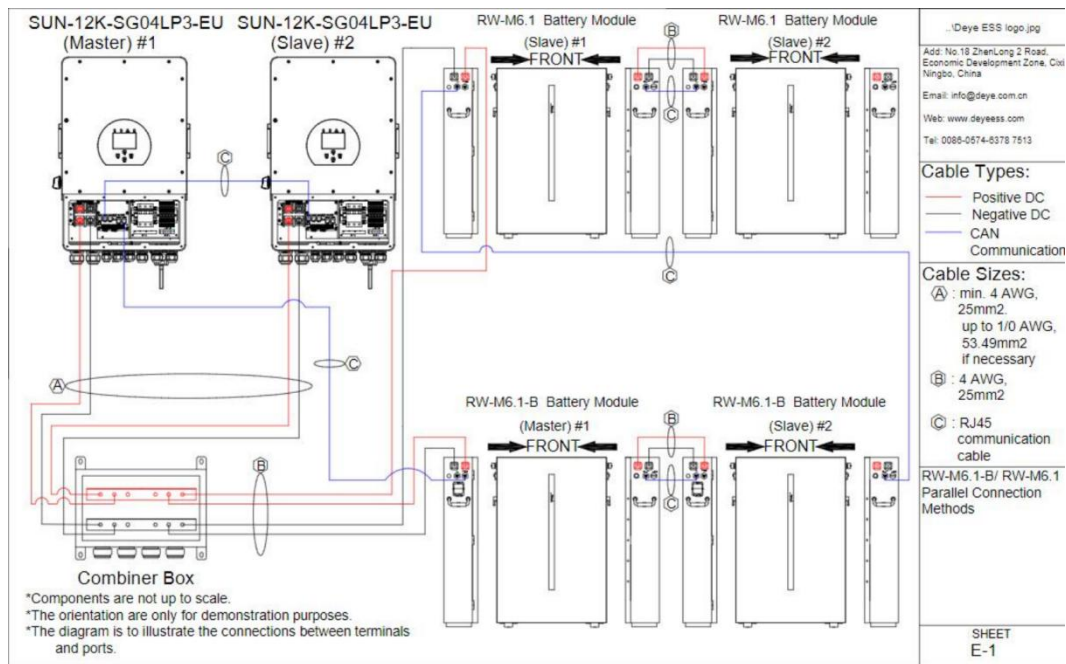
3.The original RW-M6.1 battery and the new RW-M6.1B battery

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within three years, capacity extension is allowed.

Step 2: Before extension, please upgrade the RW-M6.1 and RW-M6.1B systems to the same software version respectively.

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Step 3: Connect the new and old battery systems to the Deye combiner box.



4.The original RW-M6.1 battery and the new RW-M6.1B battery capacity extension wiring diagram

5-AI-W5.1 and AI-W5.1-B extension

Note: PDU1 and PDU3 do not support extension.

There are three ways to extend:

1.The original AI-W5.1 battery and the new AI-W5.1 battery

Step 1: Verify the battery serial number (SN). If the manufacturing date difference between the new and old batteries is within three years, capacity extension is allowed.

Step 2: Before extension, please upgrade the AI-W5.1 system to the same software version respectively.

(MCU3_LVESS0324A29N01_3008.bin)

2.The original AI-W5.1-B battery and the new AI-W5.1-B battery

Step 1: Check the battery serial number (SN). If the manufacturing date of the new and old batteries is less than three years apart, capacity extension is allowed.

Step 2: Before extension, please upgrade the AI-W5.1-B system to the same software version respectively.

(MCU3_LVESS0324A29N01_3008.bin)

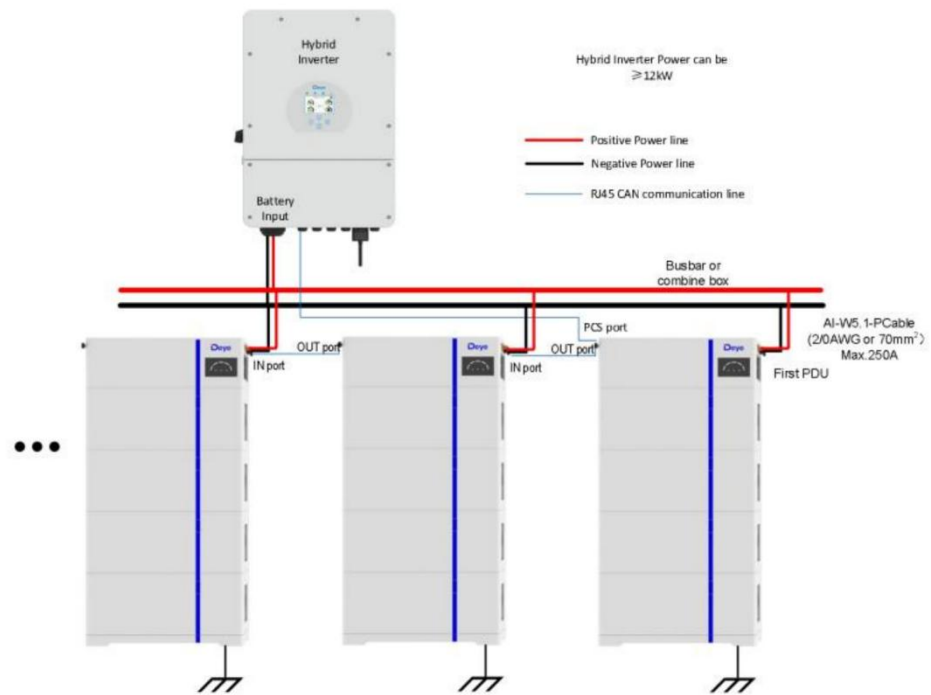
3.The original AI-W5.1 battery and the new AI-W5.1-B battery

Step 1: Check the battery serial number (SN). If the manufacturing date of the new and old batteries is less than three years apart, capacity extension is allowed.

Step 2: Before extension, please upgrade the AI-W5.1 and AI-W5.1-B systems to the same software version respectively.

(MCU3_LVESS0324A29N01_3008.bin)

Step 3: Connect the new and old battery systems to the Deye combiner box.



5.The original AI-W5.1 battery and the newRW-M6.1B battery capacity extension wiring diagram