



Preliminary

INSTALLATION MANUAL

Expansion Battery Module

Please read this manual carefully before operating your set and retain it for future reference.

This guide explains installing the expansion battery module to the ESS battery unit. Please check which models this expansion battery module can be installed.

Model

BPEL04KAB-E



Rev. 01 14/07/2023

<https://www.lg.com/global/business/ess/business-resources/download>
Copyright © 2023 LG Electronics Inc. All Rights Reserved.

Safety Information

IMPORTANT : THIS PRODUCT SHOULD NOT BE USED FOR ANY PURPOSE OTHER THAN THE PURPOSE DESCRIBED IN THIS INSTALLATION MANUAL.



WARNING

Indicators for a potentially dangerous situation.

- There is a high possibility of electric shock or serious burns due to the high voltages in the ESS.
- High voltages on DC cables. Do not short circuit positive and negative conductors.
- A potentially hazardous circumstance such as excessive heat or electrolyte mist may occur due to improper operating conditions, damage, misuse and/or abuse.
- This product poses potential danger such as death or serious injury by fire, high voltages, or explosion if appropriate precautions are not read, fully understood, and followed.
- Do not place or install flammable or potentially explosive objects near the product or in explosive atmospheres.
- Do not place objects of any kind on top of the product during operation.
- All work on the battery installations must be carried out by LG-certified service providers only.
- Electrical installations must be done in accordance with the local and national electrical safety standards.
- Wear rubber gloves and protective clothing (including protective glasses and boots) when installing the battery module.
- There is a risk of electric shock. Do not disassemble the battery module. There is no user serviceable parts inside. Refer servicing to qualified and accredited service technician.
- Do not damage the unit in such ways as drop, deform, impact, cut or spearing with a sharp object. It may cause electrolyte leakage or fire.
- Breakdown of the unit may cause electrolyte leakage or flammable gas generation.
- When electrolyte leak out, avoid contact with eyes, skin or clothes. In event of accident, flush with water and get medical help immediately.
- Do not sit or step on the product or the product package. It may cause serious injury or product damage.
- Do not smoke or bring open flames near the product.

**CAUTION**

Indicates a situation where damage or injury may occur.

- This product is intended for battery module expansion. Do not use it for any purpose other than expanding the HBC battery unit.
- Serious injury may occur due to the heavy weight of the product. Therefore, special care must be taken in handling. Make sure to have at least two persons deliver and move the package.
- The product should not be exposed to water (dripping or splashing) and no objects filled with liquids, such as vases, should be placed on the product.
- The product must be disposed of according to local regulations.
- Do not place heavy objects on this product. It may cause deformation or fracture.
- Make sure the DC switch of the ESS battery unit is switched off before connecting.
- Never use any solvents, abrasives or corrosive materials to clean this product.
- Keep out of reach of children or animals.
- There should be no foreign object that could damage the bottom of the product.

**NOTE**

Indicates a risk of possible damage to the product.

- Do not store or place any objects on top of or against the product. It may cause serious malfunction or other problems.
- This expansion battery module is designed and installable for LG ESS battery unit (BUEL011HBC1) only. Do not connect this expansion battery module to a device which makes AC voltage such as an AC power source or a generator. Connecting the product to external devices could result in serious damage to your equipment.
- Handling of batteries should be performed or supervised by an LG service person or a qualified installer.
- The battery does not discharged when the load is under the certain level.
- For the latest ESS documents and full Limited Warranty , visit: <https://www.lg.com/global/business/ess/business-resources/download>

First Aid Measures

The Product includes internal fault mechanisms designed to prevent failures and subsequent risk hazards. However, LG Electronics cannot the guarantee safety performance of the Product if it is ever exposed to abuse, damage, or negligence.

If a person is exposed to the internal materials of the battery cell due to damage on the outer casing, the following actions are recommended.

- In case of inhalation: Leave the contaminated area immediately and seek medical attention.
- In case of contact with eyes: Rinse eyes with running water for 15 minutes and seek medical attention.
- In case of contact with skin: Wash the contacted area with soap thoroughly and seek medical attention.
- In case of ingestion: Induce vomiting and seek medical attention.

Fire Fighting Measures

Suitable extinguishing media

Use metal fire extinction powder or dry sand if only few cells are involved.

In case of large fire, use large amount of water to extinguish or an Lithium fire extinguisher to extinguish.

Special hazards arising from the chemical

May form hydrofluoric acid if electrolyte comes into contact with water.

In case of fire, the formation of the following flue gases cannot be excluded: Hydrogen fluoride (HF), Carbon monoxide and carbon dioxide.

Protective equipment and precautions for firefighters

If batteries are on charge, shut off power.

Wear self-contained breathing apparatus and protective suit.

WARNING

The battery cell may catch fire when heated above 130 °C (266 °F). When the battery module is burning, it will leak poisonous gases. Do not approach it.

Effective way to deal with accidents

- On land: Place the damaged battery into a separate place and call your local fire department or service engineer.
- In water: Stay out of the water and do not touch the product if any part of the battery, inverter, or wiring is submerged.
- Do not use the submerged battery again. Contact your service engineer for assistance.

Table of Contents

Getting Started

Safety Information	2
First Aid Measures	4
Product Features	6
Unpacking	7
Unpacking the expansion battery module	7
Contents of this product	8
Name of each part	9

Installation

Preparation	10
Check your battery unit	10
How to check the charging and discharging cycles	10
Energy Storage System settings	11
Installing an expansion battery module to the battery unit	14

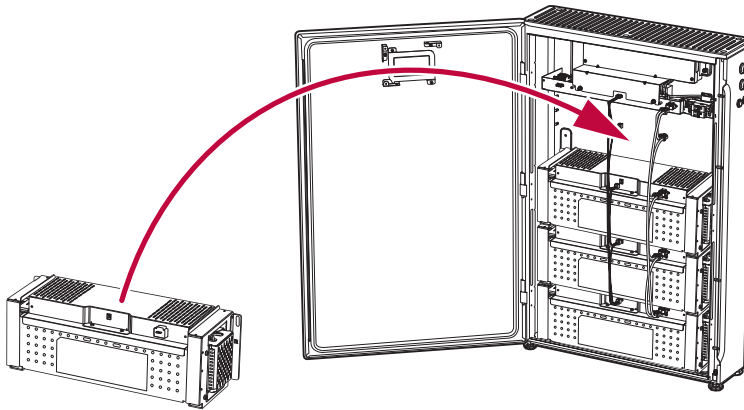
Appendix

Maintenance	20
Inspecting Regularly	20
Contact	20
Disposing the product	21
Entsorgung Ihrer Altgeräte	22
Specifications	23

Product Features

This product is an expansion Lithium-Ion battery module that can be installed in addition to the existing ESS battery unit. Before installing this expansion battery module to your ESS battery unit, ensure your ESS battery unit can be expanded.

Contact an authorized dealer or the seller you purchased the system from about whether the expansion battery module can be installed.



Product Specifications

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, since continuous improvement is a goal at LG Electronics, we reserve the right to make product modifications at any time.

The images provided in this document are for demonstration purposes only. Depending on product version and market region, details may appear slightly different.

©2023 LG Electronics Inc. All rights reserved.

All information in this document is subject to copyright and other intellectual property rights of LG Electronics Inc. and its licensors. This material may not be modified, reproduced or copied, in whole or in part, without the prior written permission of LG Electronics Inc. and its licensors. Additional information is available upon request. The following are trademarks or registered trademarks of LG Electronics Inc. in the Europe and other countries:

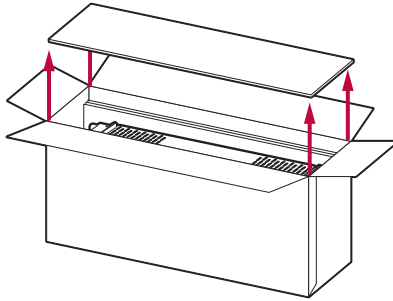


Unpacking

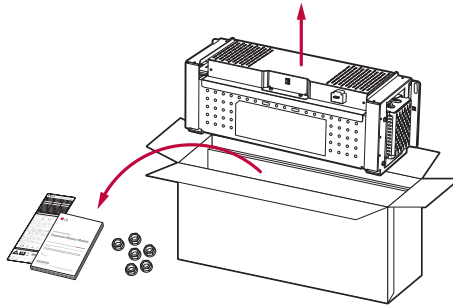
Unpacking the expansion battery module

Unpack the expansion battery module from its packaging.

- 1 Remove the packing tape and open the box.



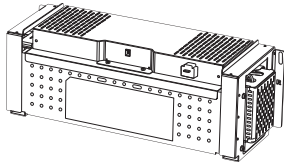
- 2 Take out all the accessories and components.



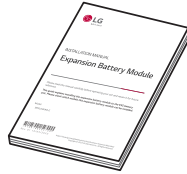
WARNING

- When working on the battery installation, at least 2 people are needed for safe installation and moving.
- This product is heavy. Wear appropriate personal protective equipment (such as gloves and protective footwear) when handling the unit. Only a sufficient number of trained movers should lift the product.

Contents of this product



Expansion battery module



Installation Manual



Nuts (6EA)



Q label

Required Tools



Insulated gloves



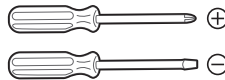
Safety glasses



Protective footwear



200 mm magnet bit holder and
T-Handle torque wrench with
magnet hex socket (M5, M6,
M8)

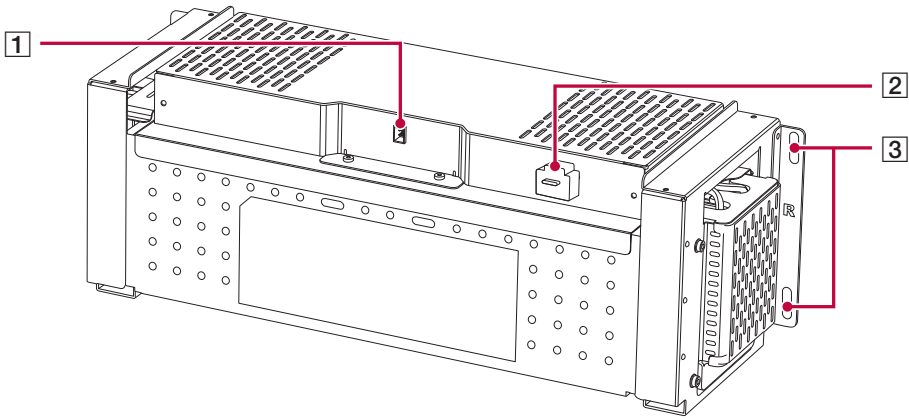


Screw driver
Phillips (5 mm)
Flat head (6, 5, 4, 2 mm)



Voltmeter

Name of each part



- 1 Communication cable connector
- 2 Power cable connector
- 3 Nuts fixing hole

Preparation

Check your battery unit

To secure battery performance and safety, installing an expansion battery module is possible when all the conditions below are met.

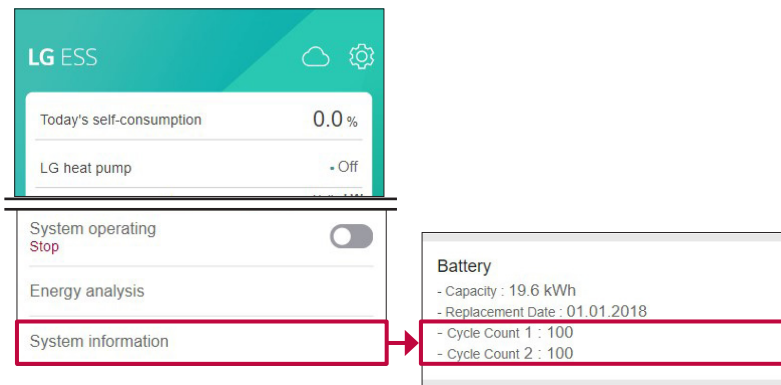
- The current battery unit is within 200 cycles of charging and discharging.
- The installation date of the current battery unit is within 18 months.

NOTE

- It is recommended to adjust the SOC level of the battery in use to about 30% for fast expansion.
- The matching time depends on the voltage difference between the battery in use and the battery to be expanded. If the voltage difference is large, it may take up to 3 hours.

How to check the charging and discharging cycles

To check your battery unit's charging and discharging cycles, your Energy Storage System must be registered to the EnerVu system. Check the number of cycles through the EnerVu+ app on your mobile device as described below.

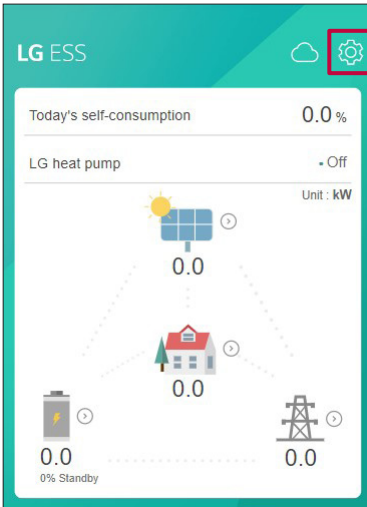


- 1 Launch the EnerVu+ app on your mobile device.
- 2 Tap [System Information] and scroll the display to the battery section. You can check the charging and discharging cycles of the battery unit at [Cycle Count] item.

Energy Storage System settings

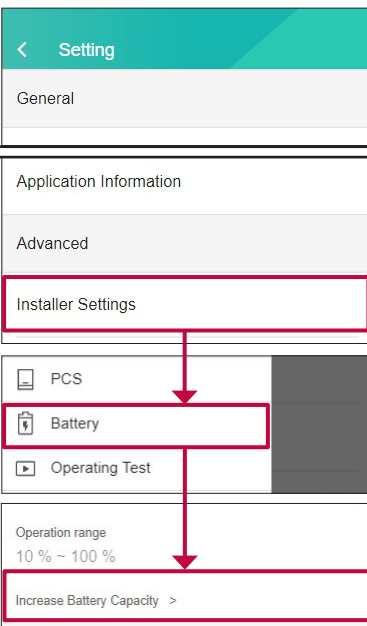
If all the conditions are met to install the expansion battery module, the Energy Storage System must stop operation and prepare some settings for the battery expansion before installation.

1



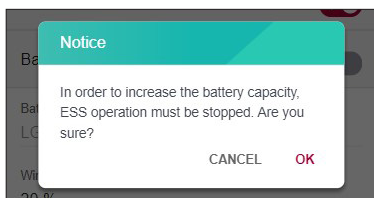
Launch the EnerVu+ app on your mobile device. and tap [⚙️].

2



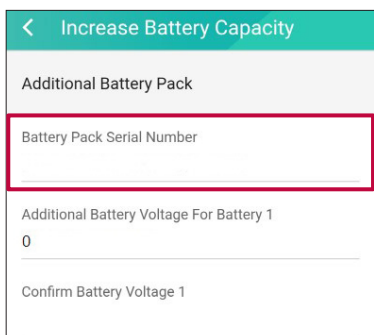
Tap [Installer Settings] > [Battery] > [Increase battery capacity].

3



A pop-up message appears. Tap [OK] to stop ESS operating and proceed to the next step.

4



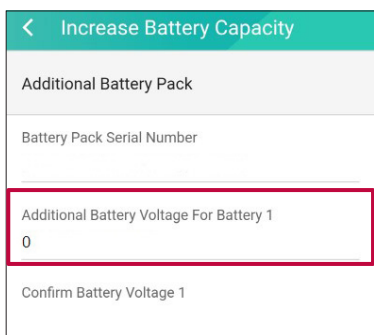
Enter the 21-length characters indicated on the QR label located in the upper right corner of the battery to the [Battery pack serial number] field and tap [SAVE].



NOTE

If there are two battery units on your Energy Storage System, You need to input the serial number of both additional battery modules for battery units 1 and 2.

5

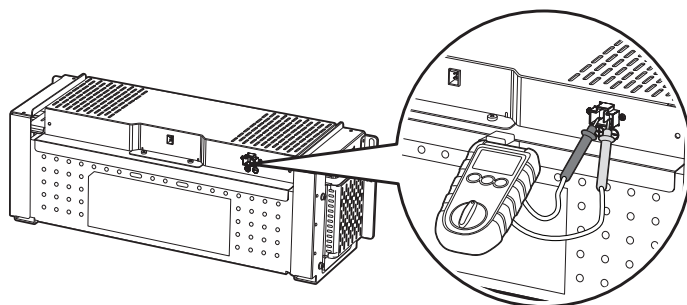


Measure the voltage of the additional battery module and fill in the [Additional battery voltage for battery 1 or 2], and tap [SAVE].



NOTE

- If there are two battery units on your Energy Storage System, You need to input the voltage of both additional battery modules for battery units 1 and 2.
- Enter the voltage of the expansion battery module to two decimal places.



6

Additional Battery Pack

Battery Pack Serial Number

Additional Battery Voltage For Battery 1
0

Confirm Battery Voltage 1

Enter the voltage of the additional battery module once again in the [Confirm Battery Voltage 1 or 2] and tap [SAVE].



CAUTION

If the voltage is entered incorrectly, faults and battery damage may occur due to voltage differences between battery cells.

7

Additional Battery Pack

Battery Pack Serial Number
BPEL04KAB-EKET21H0001

Additional Battery Voltage For Battery 1
110

- Error Code : 0

Match

Tap [Match] to start charging or discharging on the system automatically according to the battery capacity to be expanded.



NOTE

An error message appears when the matching process is failed. Try the matching process again when it is failed.

8

Notice

Matching is complete. Turn off the entire ESS power, install a new battery pack, turn on the ESS power again, and drive after Operating Test.

OK

When the matching is completed, install additional battery module(s) in the enclosure you want to expand and reboot the system. Before re-operating the system, run [Operating Test] to check the system conditions.

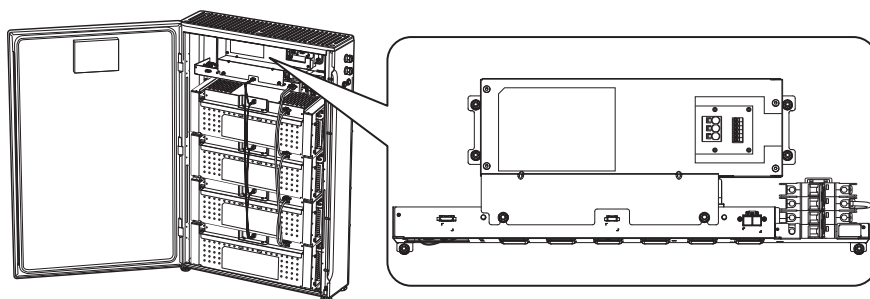
Installing an expansion battery module to the battery unit

This product requires an electrical connection to the ESS battery unit.
Before connecting the expansion battery module to the ESS battery unit, refer to the installation manual of the ESS battery unit for more information.

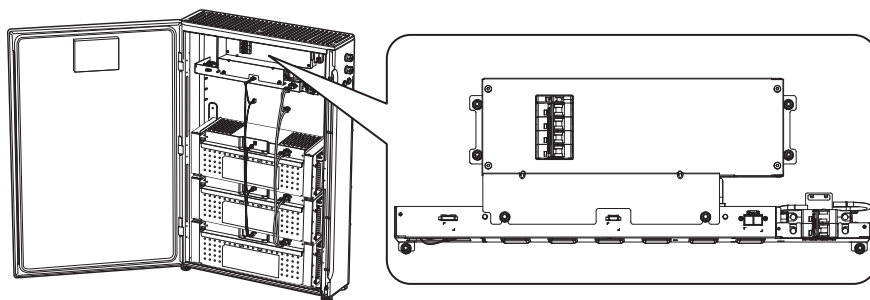
NOTE

There are two types of ESS battery unit for installing this expansion battery unit.
Refer to the figures below to check the differences between the type A and type B.

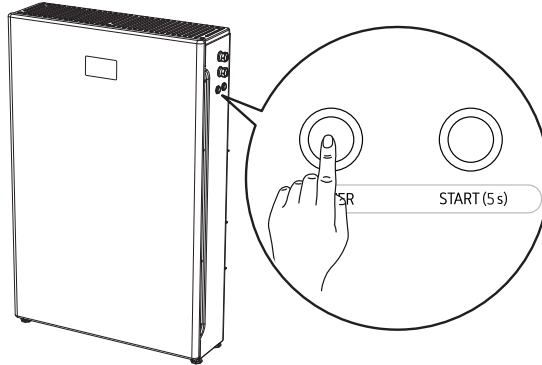
Type A



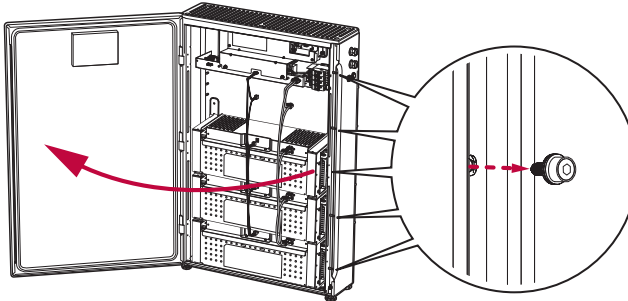
Type B



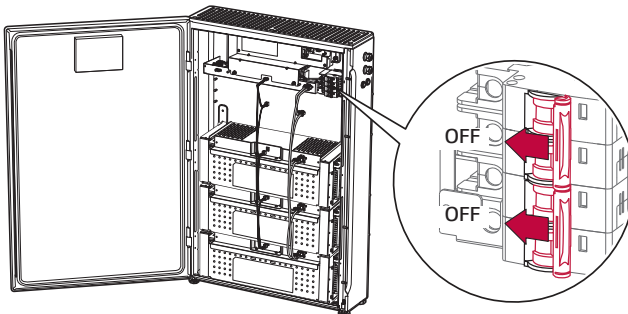
- 1 Press the POWER button to turn the battery unit off.
If the LED display is turned off, the battery unit has been turned off.



- 2 Remove the bolts on the right side and open the front door.

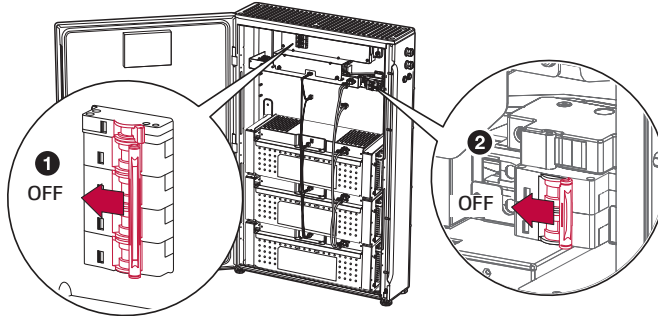


- 3 **Type A**
Switch the PCS circuit breaker and main circuit breaker of battery unit to the OFF position.

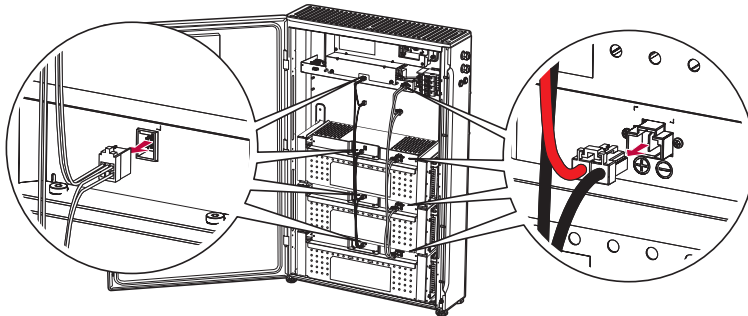


Type B

Switch the PCS circuit breaker to the OFF position, then switch the main circuit breaker to the OFF position.

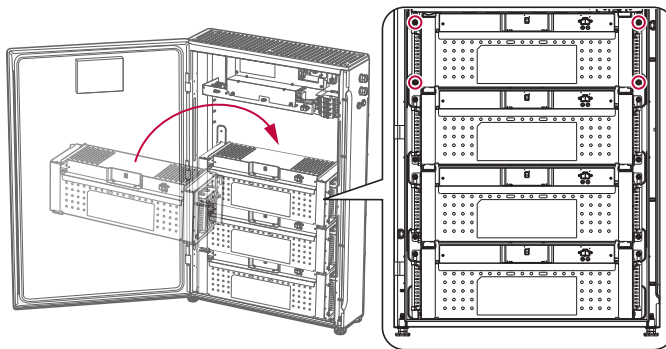


- 4 Disconnect the power cable harness and communication cable harness from the battery unit as shown in the figure.

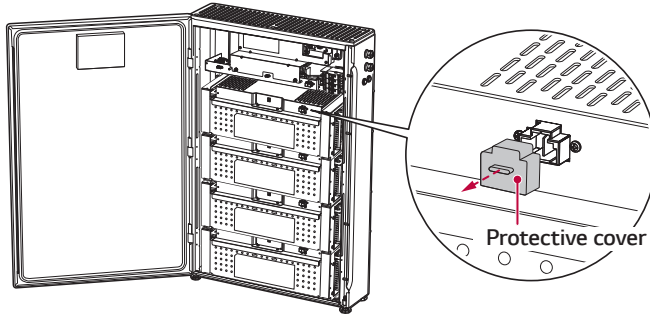


- 5 Place a battery module inside the enclosure and fix the battery module using supplied nuts (4 positions, 25 kgfcm).

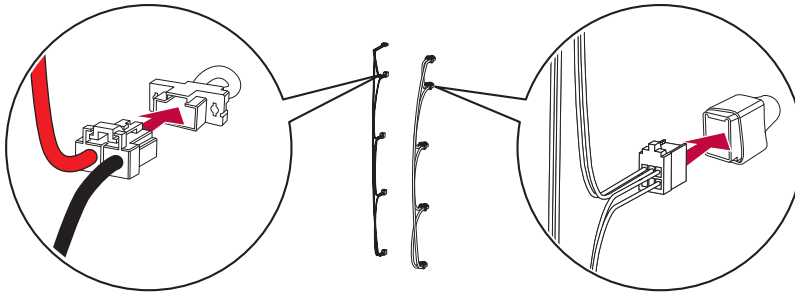
Nut assembling positions are indicated in the figure.



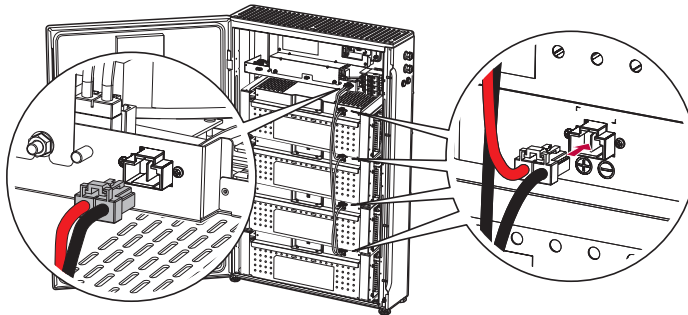
- 6 Remove protective cover on the power connector of the expansion battery module.
Do not touch the terminals after removing the protective cover.



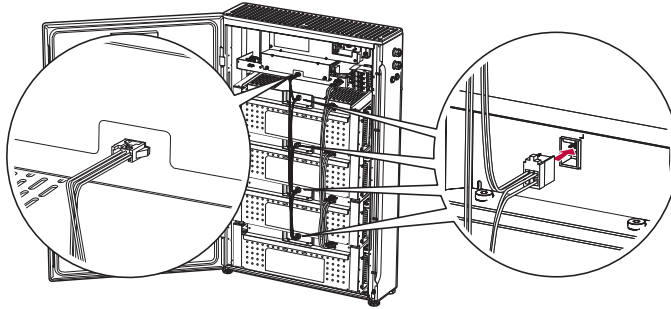
- 7 Disconnect the short connectors from the power cable harness and communication cable harness as shown in the figure.



- 8 Connect the power cable harness as shown in the figure.

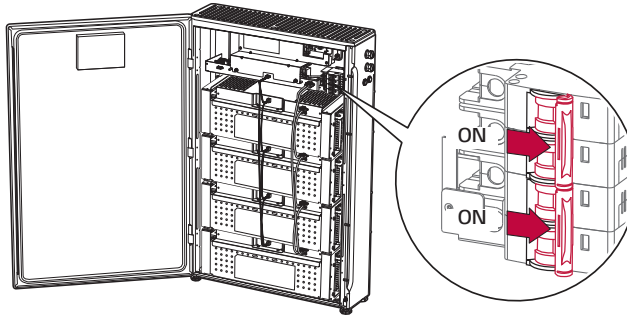


- 9 Connect the communication cable harness as shown in the figure.



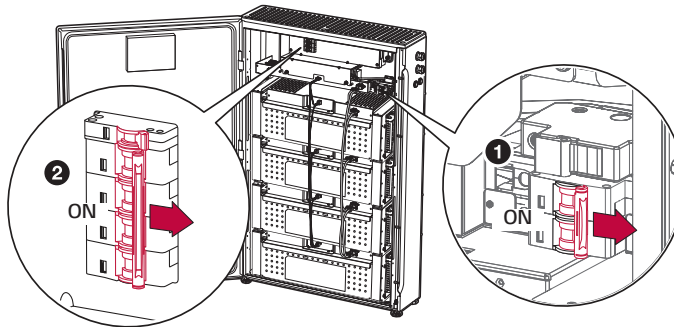
10 Type A

Switch the PCS circuit breaker and main circuit breaker of battery unit to the ON position.

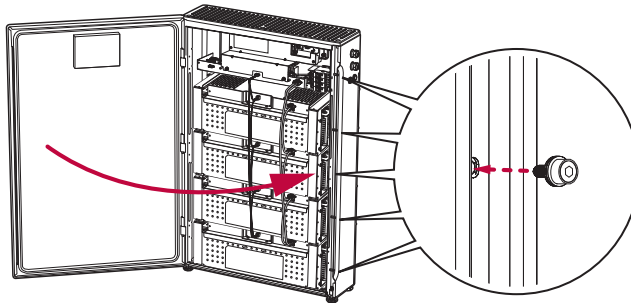


Type B

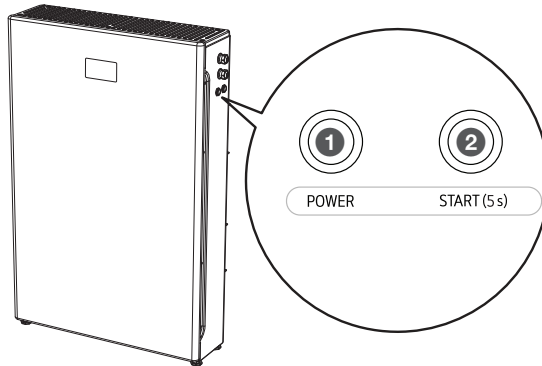
Switch the main circuit breaker to the ON position, then switch the PCS circuit breaker to the ON position.



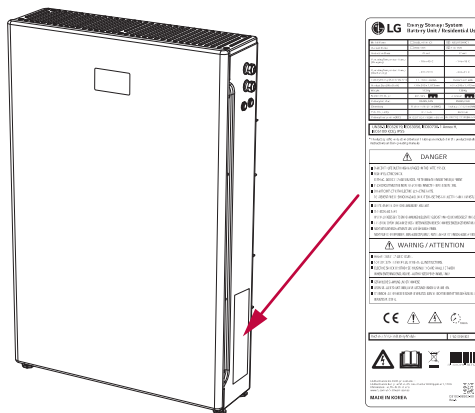
- 11 Close the front door and fasten the bolts on the right side. (30 kgf.cm)



- 12 Press the POWER button to turn the battery unit on. And then press and hold the START (5s) button for 5 seconds. You can hear the sound "click".
If SOC level is shown on the LED display, the battery operation has been normally succeeded.



- 13 Find the unit Q label on the right side of the battery unit and attach the supplied Q label above the current label.



Maintenance

Inspecting Regularly

It is recommended to check the operating status and connection status once a year. It should be done by an LG-certified service provider. Contact an authorized dealer or the seller you purchased the system from.

Contact

If you have technical problems or questions, contact installation company or LG Electronics.

1. Installation Company

Address :

Tel :

2. Customer Service

LG Electronics ESS Service

E-Service Supro GmbH

Stolberger Straße 25

06493 Harzgerode

Tel : Germany: 0049 (0)39484 / 976 380

Austria: 0043 (0)720 / 11 66 01

Switzerland: 0041 (0)44 / 505 11 42

Belgium, Netherlands, Luxembourg:

0031 20 / 456 1660

E-Mail : lge@e-service48.de

3. LG Electronics Contact

LG Electronics Deutschland GmbH

Alfred-Herrhausen-Allee 3-5

65760 Eschborn

Tel. : + 0049 18 06 807 020

E-Mail: b2b.service@lge.de

LG Electronics Benelux

Krijgsman 1, 1186 DM, Amstelveen,

The Netherlands

Tel: +0031 (0)20 456 3100

E-Mail: b2b.service@lge.de

Disposing the product

When the product reached to the end of its service life or defect beyond repair, dispose the product according to the disposal regulations for electronic waste in your area. Disposing the product must be carried out by qualified personnel only. Contact authorized dealer or where you purchased.



1. This crossed-out wheeled bin symbol indicates that waste electrical and electronic products (WEEE) should be disposed of separately from the municipal waste stream.
2. Old electrical products can contain hazardous substances so correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.

Your old appliance may contain reusable parts that could be used to repair other products, and other valuable materials that can be recycled to conserve limited resources.

3. You can take your appliance either to the shop where you purchased the product, or contact your local government waste office for details of your nearest authorised WEEE collection point. For the most up to date information for your country please see www.lg.com/global/recycling

Removal of waste batteries and accumulators (Product with embedded battery ONLY)

You can take your appliance either to the shop where you purchased the product, or contact your local government waste office for details of your nearest authorised WEEE collection point. Please note that some distributors are obliged:

- to take back old devices from end-users upon selling a new equivalent equipment to them and
- provide free-of-charge collection for electrical and electronic equipment of very small dimensions (not exceeding 25 cm) without the obligation for end-users to purchase new equipment of an equivalent type.

When distributors deliver new equipment to private households, they are obligated to collect old equipment directly from them or to propose a take-back solution in a reasonable distance. Therefore, we recommend you to contact your distributor for more information.

LG Electronic Deutschland GmbH is duly registered as Producer in Germany. As such, LG contributes to the country-wide collection and recycling of WEEE that you bring to municipal separate collection facility. For the most up to date information please see www.lg.com/global/recycling or <https://www.lg.com/de/support/altgeraete-rueckgabe>

Entsorgung Ihrer Altgeräte



1. Das durchgestrichene Symbol eines fahrbaren Abfallbehälters weist darauf hin, dass Elektro- und Elektronik-Produkte (WEEE) getrennt von Hausmüll entsorgt werden müssen. Bitte entsorgen Sie Altgeräte getrennt von anderem Abfall und bringen Sie diese zu einer ausgewiesenen Sammelstelle für das Recycling von elektrischen und elektronischen Geräten. Falls die Geräte Batterien oder Lampen enthalten, die vom Endverbraucher ohne Beschädigung leicht entnommen werden können, trennen Sie diese bitte vor der Entsorgung von den Hauptgeräten, es sei denn, Sie möchten, dass die alten Geräte wiederverwendet werden (alte Batterien und Lampen werden getrennt gesammelt).
2. Alte elektrische Produkte können gefährliche Substanzen enthalten, die eine korrekte Entsorgung dieser Altgeräte erforderlich machen, um schädliche Auswirkungen auf die Umwelt und die menschliche Gesundheit zu vermeiden. Ihre ausgedienten Geräte können wiederverwendbare Teile enthalten, mit denen möglicherweise andere Produkte repariert werden können, aber auch sonstige wertvolle Materialien enthalten, die zur Schonung knapper Ressourcen recyclet werden können.
3. Sie können Ihr Gerät entweder in den Laden zurückbringen, in dem Sie das Produkt ursprünglich erworben haben oder Sie kontaktieren Ihre Gemeindeabfallstelle für Informationen über die nächstgelegene autorisierte WEEE Sammelstelle.

Bitte beachten Sie, dass einige Vertrieber verpflichtet sind :

- bei der Abgabe eines neuen Elektro- oder Elektronikgerätes an einen Endnutzer ein Altgerät des Endnutzers der gleichen Geräteart unentgeltlich zurückzunehmen, und
 - Altgeräte, die in keiner äußeren Abmessung größer als 25 Zentimeter sind, im Einzelhandelsgeschäft oder in unmittelbarer Nähe hierzu unentgeltlich zurückzunehmen;
- Wenn Händler Neugeräte an Privathaushalte liefern, sind sie verpflichtet, Altgeräte direkt bei diesen abzuholen oder Rückgabemöglichkeiten in zumutbarer Entfernung anzubieten. Daher empfehlen wir Ihnen sich für weitere Informationen an Ihren Händler zu wenden.
4. LG Electronic Deutschland GmbH ist ordnungsgemäß als Hersteller in Deutschland registriert. Damit trägt LG deutschlandweit zur Sammlung von Elektro- und Elektronik-Altgeräten bei, die Sie in kommunalen Getrenntsammlungen abgeben. Die aktuellsten Informationen finden Sie unter: www.lg.com/global/recycling oder <https://www.lg.com/de/support/altgeraete-rueckgabe>.

Specifications

Battery Module	Unit	SPEC (BPEL04KAB-E)
Cell Configuration (e.g. XSYP)		28S 9P
Nominal voltage	Vdc	101.64
Capacity (Ah)	Ah	36.90
Maximum charging voltage	Vdc	114.60
End of discharging voltage	Vdc	70.00
Maximum charging current	A	18.27
Maximum discharging current (@ 5.0kW)	A	19.80
Standard charging current	A	11.10
Standard discharging current	A	7.38
Module size	mm	600.2 (W) x 191.6 (D) x 211.9 (H)
Module weight	kg	26

Feature & function	SPEC
Limited Warranty ¹⁾	See URL for full Limited Warranty (The warranty period of the expansion battery module is based on the warranty period of the battery unit before expanded.)

1) Visit: <https://www.lg.com/global/business/ess/business-resources/download>

- Design and specifications are subject to change without notice.

To ensure the full performance of the battery, it is recommended not to exceed the period of six month, from the manufacturing date to the date of commissioning.



Contact office for compliance of this product : LG Electronics European Shared Service Center
B. V Krijgsman 1, 1186 DM Amstelveen, The Netherlands
www.lg.com/global/business/ess

