

INSTALLATION MANUAL

Energy Storage System

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

MODEL
ED05K000E00



Safety Information

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



WARNING

Indicates a potentially dangerous situation. Death or serious injury may result if appropriate precautions are not taken.

- There is high possibility of electric shock or serious burns due to the high voltages in power conditioning circuits.
- High voltages on AC and DC cables. Risk of death or serious injury due to electric shock.
- 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 have potential danger such as death or serious injury by fire, high voltages or explosion if appropriate precautions are not read or fully understood.
- Do not place flammable or potentially explosive objects near the product.
- Do not place any kind of objects on top of the product during operation.
- All work on the PV modules, power conditioning system, and battery system must be carried out by qualified personnel only.
- Electrical installations must be done in accordance with the local and national electrical safety standards.
- Wear rubber gloves and protective clothing (protective glasses and boots) when working on high voltage/ high current systems such as PCS and battery systems.
- There is a risk of electric shock. Do not remove cover. There is no user serviceable parts inside. Refer servicing to qualified and accredited service technician.
- Electrical shock hazard. Do not touch uninsulated wires when the product cover is removed.
- In the event of fault, the system must not be restarted. Product maintenance of repairs must be performed by qualified personnel, or personnel from an authorized support center.



CAUTION

Indicates a situation where damage or injury could occur. If it is not avoided, minor injury and/or damage to property may result.

- This product is intended for residential use only and should not be used for commercial or industrial.
- Before testing electrical parts inside the system, it takes at least 10-minute standby period of time to complete discharging the system.
- The contents included in this box are power conditioning system and its accessories, and the entire weight amounts to over 34 kg. 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 remove the package.
- Do not use the damaged, cracked or frayed electrical cables and connectors. Protect the electrical cables from physical or mechanical abuse, such as being twisted, kinked, pinched, closed in a door or walked upon. Periodically examine the electrical cables of your product, and if its appearance indicates damage or deterioration, discontinue use of this product, and have the cables replaced with an exact replacement part by a qualified personnel.

**CAUTION**

Indicates a situation where damage or injury could occur. If it is not avoided, minor injury and/or damage to property may result.

- Ensure that you connect the earth ground wire to prevent possible electric shock. Do not try to ground the product by connecting it to telephone wires, lightning rods or gas pipes.
- 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.
- To prevent fire or electric shock hazard, do not expose this production to rain or moisture.
- Do not block any ventilation openings. Ensure reliable operation of the product and protect it from over heating. The openings shall never be blocked by placing any object on this product.
- The temperature of metal enclosure may be high during operation.
- In order to avoid radio-interference, all accessories (like a smart meter) intended for connection to the product shall be suitable for use in residential, commercial and light-industry areas. Usually this requirement is fulfilled if the equipment complies with the class B limits of EN55022.
- The product must be disposed of according to local regulations.
- The electrical installation of this unit must only be performed by electricians or technicians, qualified to install PCS.
- Danger of damaging the PCS by overload. Only connect the proper wire to DC terminal block. Refer to the installation wiring diagram for details.
- Connect the DC+ and DC- cables to the correct DC+ and DC- terminals on the product.
- Do not step on the product or the product package. The product may be damaged.
- Do not dispose of batteries in a fire. The batteries may explode.
- Do not open or damage batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries.
 - a) Remove watches, ring, or other metal objects.
 - b) Use tools with insulated handles.
 - c) Wear rubber gloves and boots.
 - d) Do not lay tools or metal parts on top of battery.

**NOTE**

Indicates a risk of possible damage to the product.

- Before making connections, please make sure the PV array open circuit voltage is within 800 V. Otherwise the product could be damaged.
- Never use any solvents, abrasives or corrosive materials to clean this product.
- Do not store on or place against any objects to the product. It may cause serious defects or malfunction.
- Before making a connection, make sure the PV switch on this product is switched off.
- This unit is designed to feed power to the public power grid only. Do not connect this unit to an AC source or generator. Connecting the product to external devices could result in serious damage to your equipment.
- Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions.

Table of Contents

Getting Started

Safety Information	2
Product Features	6
Unpacking	9
Contents of this product	9
Additional components for installation	9
Name of each part	10
Front and Rear	10
LED indications	10
Lower parts	11
Inner parts (lower cover opened)	11

Installation

Choice of location	12
Mounting Location	12
Minimum clearance	13
Wall Mounting	14
Connections	17
Connection Overview	17
PV array connections	18
Battery connections	20
Power grid connections	23
Smart meter and internet connection	26

Settings

Installer settings	29
Basic operation	29
[Network] settings	30
[PV/Meter] settings	31
[PCS/Battery] settings	32
[Operating Test] settings	33
[Firmware/Reset] settings	34
[Change Password] settings	35
System Log	35
EnerVu settings	36
Creating a new account (Owner)	36
Creating a new account (Installer)	38
Registering the PCS (Installer)	39

Troubleshooting

Error Codes and Messages	40
PCS error codes	40
Battery error codes	42

Appendix

Maintenance	45
Cleaning the product	45
Inspecting regularly	45
Disposing the product	45
Disassemble the product	45
Checking the PCS setting information	47
Specifications	48

1

2

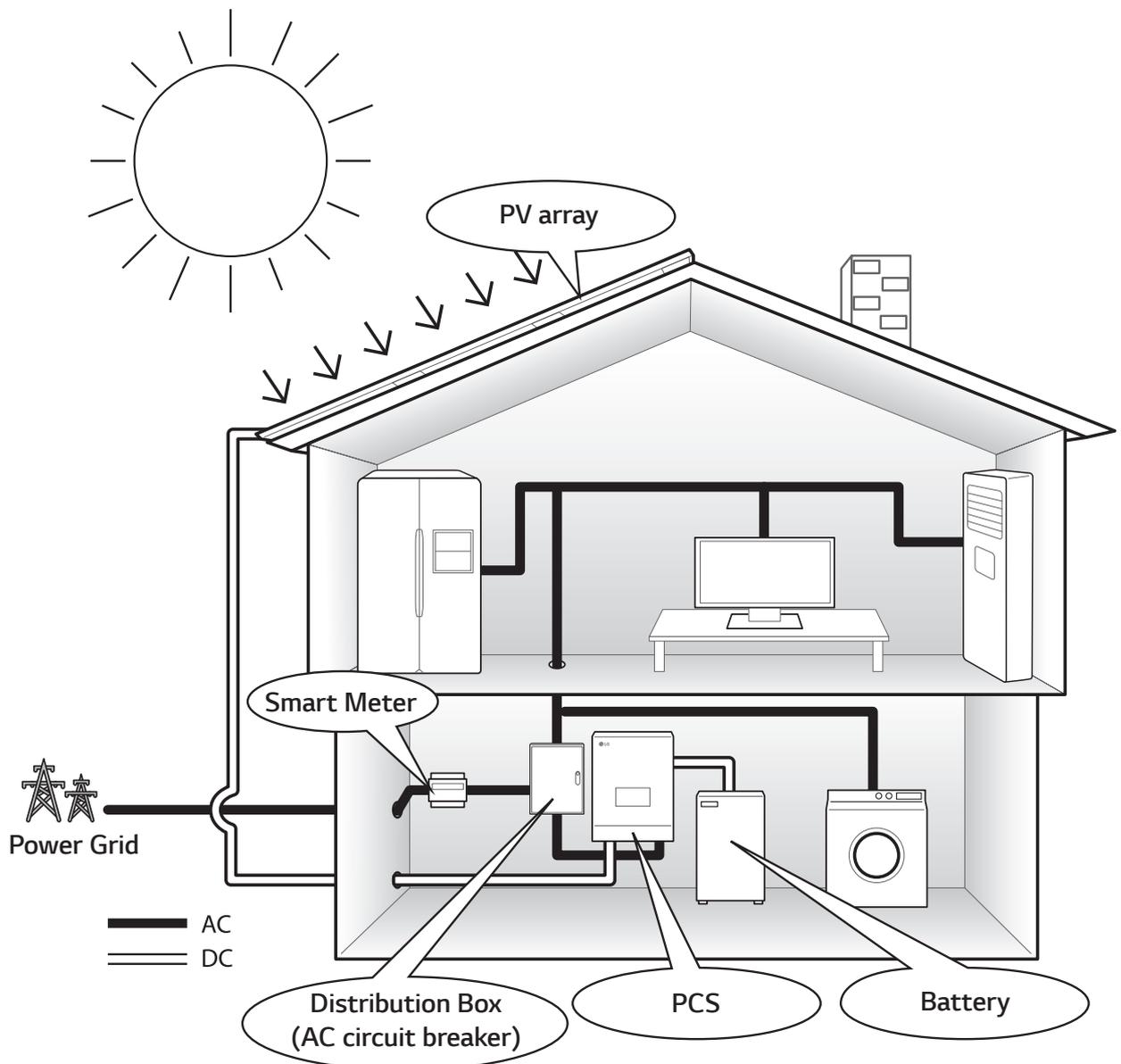
3

4

5

Product Features

This product is intended to store direct current (DC) electricity generated from photovoltaic (PV) to the connected Lithium-Ion Battery, and convert direct current (DC) electricity from the connected battery to alternating current (AC) electricity and feed this into the power grid.



The electricity generated from a PV array can be stored to the connected battery or sold to energy supply companies.

- **DC-Coupled ESS**

LG ESS can achieve higher system efficiency due to simpler power conversion process.

- **Three-Phase Connection**

3-phase connection secures phase balancing.

- **Smart Management**

With built-in Smart PMS, it analyses PV generation and load consumption and implements to charge and discharge immediately. Also it monitors main system & battery conditions to maintain its stable condition always.

- **Web-monitoring Service**

Customers and installers can monitor their ESS with various devices such as PC, tablet or smart phones.

- **Easy System Setup**

With 7" touch-screen, installer does not need a PC for system installation. Touch screen UI allows installer to set-up, pre-test and monitor system.

Symbol used on the label

Label	Symbol	Description																								
 <p> MODEL : ED05K000E00 ARTIKEL NO. : ED05K000E00.ADG3VDH HERSTELLER : LG Electronics Inc. </p> <table border="1"> <tr> <td rowspan="4">DC INPUT — — — (OVC II)</td> <td>V_{DC} Max.</td> <td>800V</td> </tr> <tr> <td>V_{DC} MPP</td> <td>210-680V</td> </tr> <tr> <td>I_{DC} Max.</td> <td>12A(per MPP)</td> </tr> <tr> <td>I_{SC} Max.</td> <td>13A(per MPP)</td> </tr> <tr> <td rowspan="5">AC OUTPUT (3/N/PE-) ~ (OVC III)</td> <td>V_{AC} Nom.</td> <td>400/230V</td> </tr> <tr> <td>I_{AC} Max.</td> <td>8.5A</td> </tr> <tr> <td>f_{AC} Nom.</td> <td>50Hz</td> </tr> <tr> <td>P_{AC} Nom.</td> <td>5,000W</td> </tr> <tr> <td>Power Factor</td> <td>-0.95~+0.95</td> </tr> </table> <p>SCHUTZKLASSE IP21, KLASSE I IEC 62109-1/-2, VDE-AR-N 4105, VDE 0126-1-1 KLASSE B GRUPPE 1 PRODUKT</p> <p>Bemessung DC Eingangsspannung Li-ion Batterie</p> <table border="1"> <tr> <td>V_{DC} Nom.</td> <td>207.2V</td> </tr> <tr> <td>I_{DC} Max.</td> <td>19A</td> </tr> </table> <p>  GEFAHR <ul style="list-style-type: none"> LEBENSGEFAHR DURCH HOCHSPANNUNG AM PV GENERATOR LEBENSGEFAHR DURCH HOCHSPANNUNG AM BATTERIE GENERATOR LEBENSGEFAHR DURCH ELEKTRISCHE STROMSCHLÄGE BERÜHREN SIE KEINE ELEKTRISCH AKTIVEN BAUTEILE UM FEUER ODER STROMSCHLÄGE ZU VERMEIDEN; SCHÜTZEN SIE DAS PRODUKT VOR WASSER ODER FEUCHTE </p> <p>  WARNUNG <ul style="list-style-type: none"> BEACHTEN SIE DIE INSTALLATIONSANLEITUNG, SOWIE DAS BENUTZER- UND SERVICEHANDBUCH BEVOR SIE MIT INSTALLATION; BETRIEB ODER INSTANDHALTUNG AM GERÄT BEGINNEN </p> <p>      </p> <p>       </p> <p> LG Electronics EU Representative : LG Electronics European Shared Service Center B.V. Krijgsman 1, 1186 DM Amstelveen, The Netherlands. MADE IN KOREA www.lg.com/global/business/ess </p>  <p>8 806087 664973 MEZ66577201</p>	DC INPUT — — — (OVC II)	V _{DC} Max.	800V	V _{DC} MPP	210-680V	I _{DC} Max.	12A(per MPP)	I _{SC} Max.	13A(per MPP)	AC OUTPUT (3/N/PE-) ~ (OVC III)	V _{AC} Nom.	400/230V	I _{AC} Max.	8.5A	f _{AC} Nom.	50Hz	P _{AC} Nom.	5,000W	Power Factor	-0.95~+0.95	V _{DC} Nom.	207.2V	I _{DC} Max.	19A	<p>DC INPUT — — — (OVC II)</p> <p>AC OUTPUT ~ (OVC III)</p> <p>IP21</p> <p></p> <p></p> <p></p> <p></p> <p> 10min</p> <p></p> <p></p> <p></p>	<p>Direct current input</p> <p>Three phase four wire alternating current conductor</p> <p>This product is protected against insertion of fingers and will not be damaged during a specified test in which it is exposed to vertically dripping water.</p> <p>This product should not be disposed of with other household waste. Disposal regulations should be observed in this country.</p> <p>Caution, risk of danger</p> <p>Refer to the installation manual or operating manual.</p> <p>Caution, hot surface</p> <p>Caution, risk of electric shock, energy storage timed discharge</p> <p>The relevant equipment complies with the requirements in the EC guidelines.</p> <p>The relevant equipment complies with the requirements of IEC 62109-1, IEC 62109-2.</p> <p>The relevant equipment complies with the requirements of EN 61000-6-3.</p>
		DC INPUT — — — (OVC II)	V _{DC} Max.	800V																						
			V _{DC} MPP	210-680V																						
			I _{DC} Max.	12A(per MPP)																						
	I _{SC} Max.		13A(per MPP)																							
	AC OUTPUT (3/N/PE-) ~ (OVC III)	V _{AC} Nom.	400/230V																							
		I _{AC} Max.	8.5A																							
		f _{AC} Nom.	50Hz																							
		P _{AC} Nom.	5,000W																							
		Power Factor	-0.95~+0.95																							
	V _{DC} Nom.	207.2V																								
	I _{DC} Max.	19A																								

Abbreviations on this manual

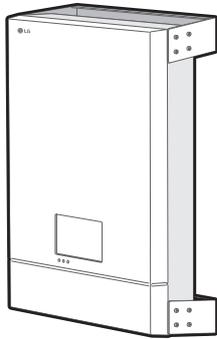
Abbreviation	Designation	Explanation
ESS	Energy Storage System	Inverter system that stores energy into a battery and uses it.
PCS	Power Conditioning System	A device intended to convert DC electricity generated from PV system to AC electricity and feed it to household appliances.
PV	Photovoltaic	Solar panel system that converts solar energy into direct current electricity
SOC	State of charge	Current state of a battery
BMS	Battery Management System	Electronic system that manages a rechargeable battery.
DC	Direct Current	-
AC	Alternating Current	-
DHCP	Dynamic Host Configuration Protocol	Standardized network protocol used on Internet Protocol (IP) networks for automatic distributing network configuration parameters, such as IP addresses for interfaces and services.
LAN	Local Area Network	Network that interconnects computers within a limited area.
IP	Internet Protocol	A set of rules for sending data across a network

Glossary

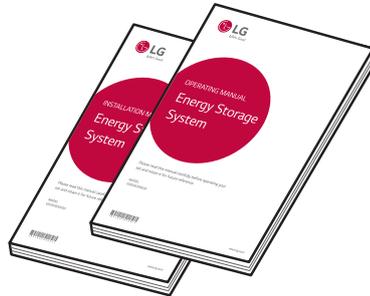
Terms	Explanation
Azimuth	In the Northern hemisphere, the azimuth angle indicates by how much degrees the module surface deviates from a full south aspect. In the southern hemisphere, it indicates the deviation from a full north aspect. The azimuth angle is counted with positive values within the range from south (0°) to west (90°) and it counted with negative values within the range from south (0°) to east (-90°).
Tilt angle	The tilt angle indicates by how much degrees the tilt of the module surface deviates from the horizontal.
PV module	The PV module refers to a panel designed to absorb the sun's rays as a source of energy for generating electricity.
PV array	Technical device for the conversion of solar energy into electrical energy. All serial and parallel installed and connected to PV modules of a PV system are referred to as a PV array.

Unpacking

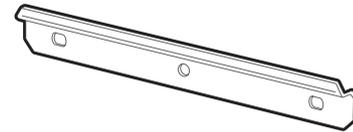
Contents of this product



Power conditioning system (1EA)



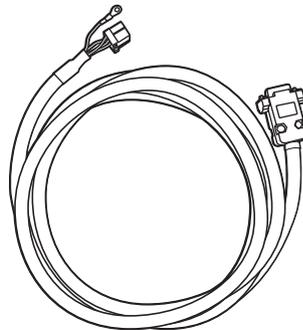
Installation Manual and
Operating Manual (1EA each)



Upper wall bracket (1EA)



Middle wall bracket (1EA)



BMS cable (3m, 1EA)

1

Getting Started

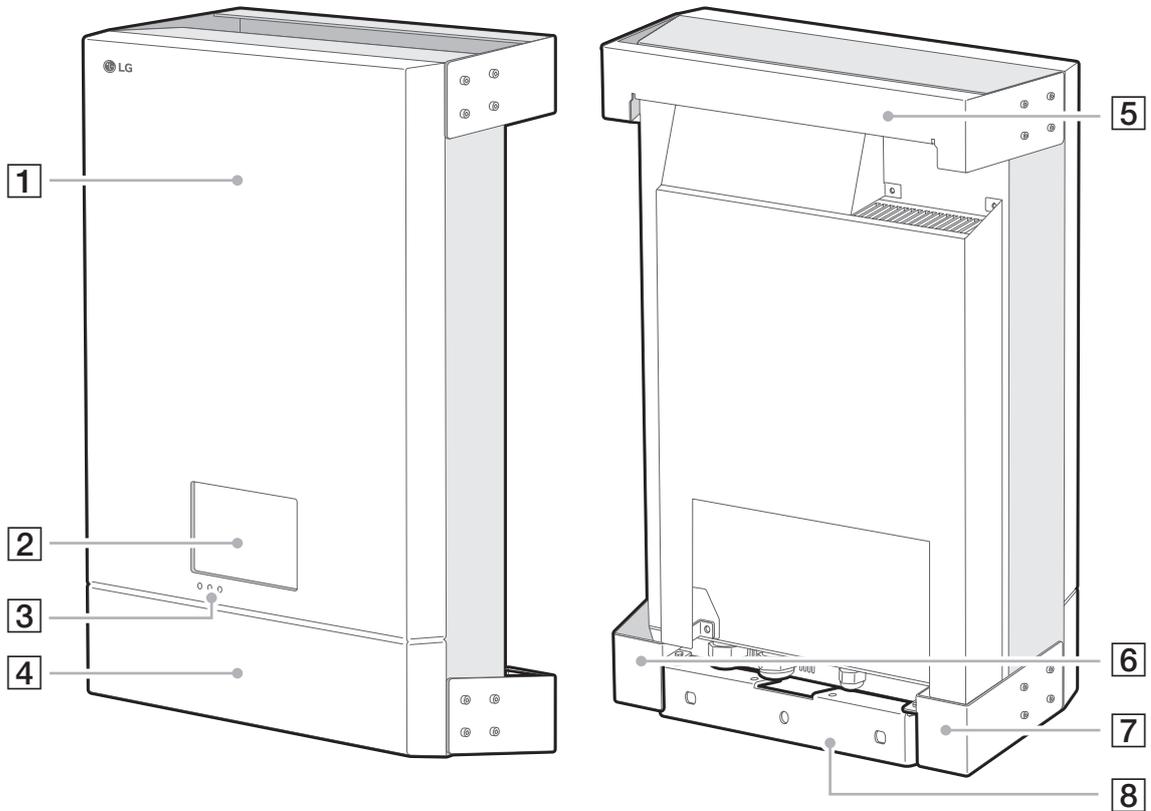
Additional components for installation

Applied to	Additional Components
Wall mounting	<ul style="list-style-type: none"> Stainless steel screws with diameter 6 mm - 8mm Anchors
PV connections	<ul style="list-style-type: none"> MC4 connectors Lead wires with the cross-sectional area 2.5 mm² - 6 mm²
Battery Connections	<ul style="list-style-type: none"> Lead wires with the cross-sectional area 2.5 mm² - 4 mm² Wire-end-ferrules
Power grid connections	<ul style="list-style-type: none"> Lead wires with the cross-sectional area 2.5 mm² - 6 mm² (including yellow green stripe cable) M4 size screws with spring washer Tin plated round terminals with 4.0 mm or 4.5 mm of inner diameter Wire-end-ferrules
Smart meter and internet connections	<ul style="list-style-type: none"> LAN cable RJ-45 plug Smart meter cable

Name of each part

Front and Rear

1 Getting Started



1 Front Cover

2 LCD touch panel

3 LED Indications

4 Lower Cover

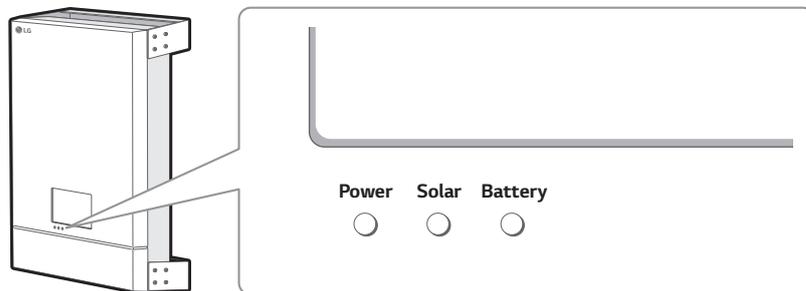
5 Upper bracket connected part

6 Lower bracket connected part (Left)

7 Lower bracket connected part (Right)

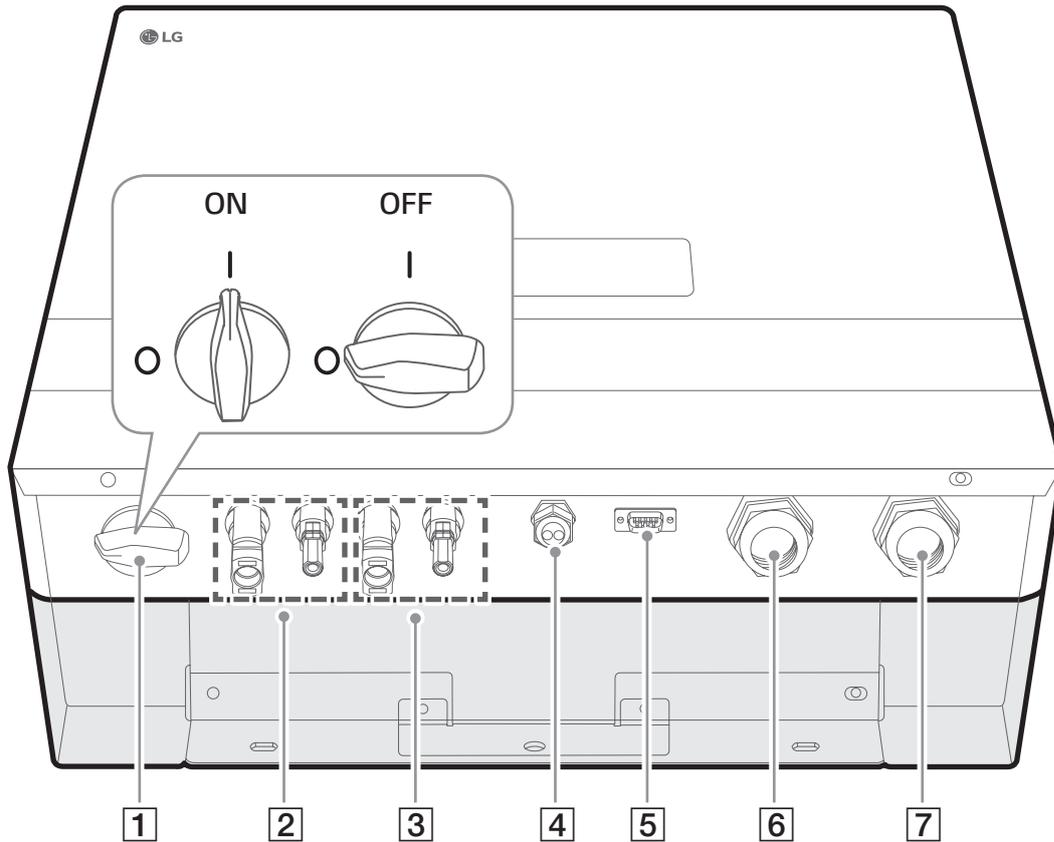
8 Lower wall bracket

LED indications



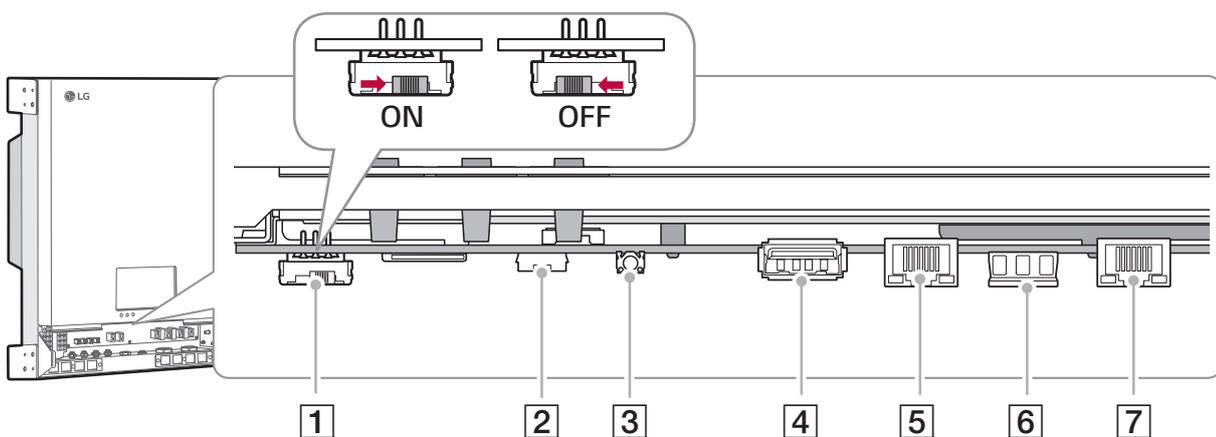
	Power	Solar	Battery
Off	Power grid is not connected.	Energy is not being generated.	Battery is in stop mode
Green	Power grid is connected.	Energy is being generated.	Battery is in charging
Red (Blink)	-	Fault	Fault
Blue	-	-	Battery is in discharging

Lower parts



- | | |
|------------------------------------|--------------------------------|
| 1 PV switch (DC Disconnect) | 5 BMS control connector |
| 2 PV1(+ and -) connectors | 6 Meter/LAN cable gland |
| 3 PV2 (+ and -) connectors | 7 AC grid cable gland |
| 4 Battery DC cable gland | |

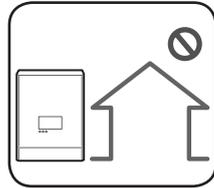
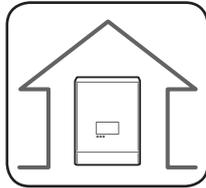
Inner parts (lower cover opened)



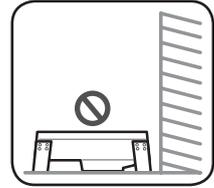
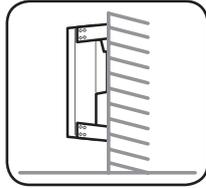
- | | |
|-----------------------|--------------------------------|
| 1 Power Switch | 5 Ethernet port |
| 2 Buzzer | 6 Smart Meter connector |
| 3 RESET button | 7 PCS port |
| 4 USB port | |

Choice of location

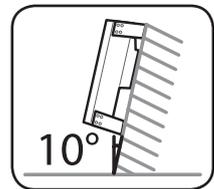
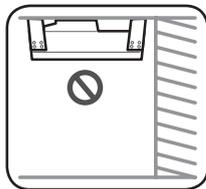
Mounting Location



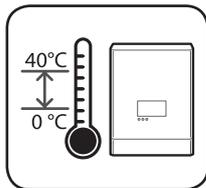
- This product is designed to be installed indoor use only. Do not install this product outdoor.
- Install this product on the place where PV cables, smart meter cables, grid cables and battery cables are easily accessible.



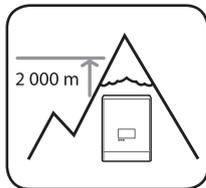
- This product is designed to be installed on the wall only. Do not install this product on the ground.
- The mounting surface must be able to support the weight of this product (34 kg).



- Do not install the product on the ceiling.
- Do not install the product widthwise or install on a wall with lean more than 10 degrees.
- Do not install the product tilting forward.
- Install the product the connection side down.



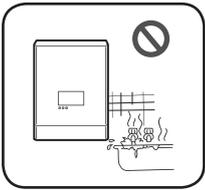
- Appropriate operating temperature is from 0° C to 40° C.
- Do not install this product in the place exposed to the direct sunlight.
- Install the product in a clean, cool room.



This product must not be installed or used at altitudes above 2 000 m.



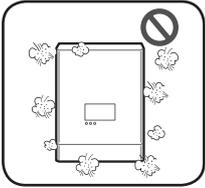
Do not install this product in places where flooding frequently occurs.



- Do not install this product to highly humid area such as bathroom.
- This product generates low levels of noise at certain times, it should not be installed close to living areas.
- Noise level may differ depending on the installed location.
- Do not install the product where there is vibration.

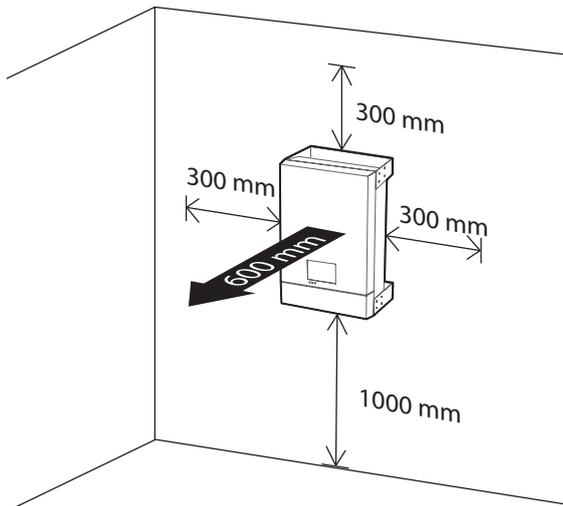


- Do not install this product in a place with ammonia, corrosive vapours, acids or salts.
- Install this product out of reach from children and pet.



Do not install this product in places and environments subject to heavy build-up of dust.

Minimum clearance



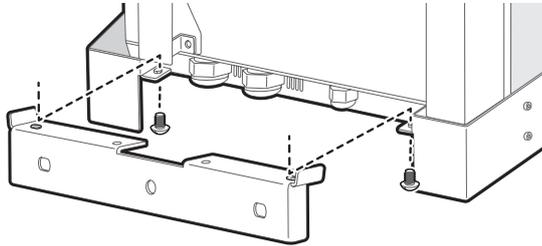
This product must be installed with clearance at the left, right, top, bottom and front of the product as shown in the figure.

Only the battery can be installed at the bottom clearance space of the product. If you install the battery unit at the bottom clearance space, leave the clearance space between the battery and the product more than 300 mm.

Wall Mounting

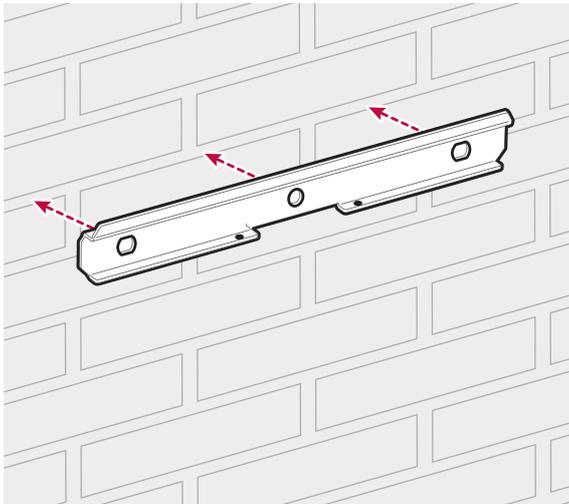
This product must be installed on the wall considering appropriate environments described in previous pages. Follow the mounting instruction described below exactly and securely.

1



Disassemble the lower wall bracket from the product.

2



Place the upper wall bracket on a wall where meets every installation conditions and clearance.

And indicate the positions to drill using a pencil or the like. And drill holes on the indicated positions.

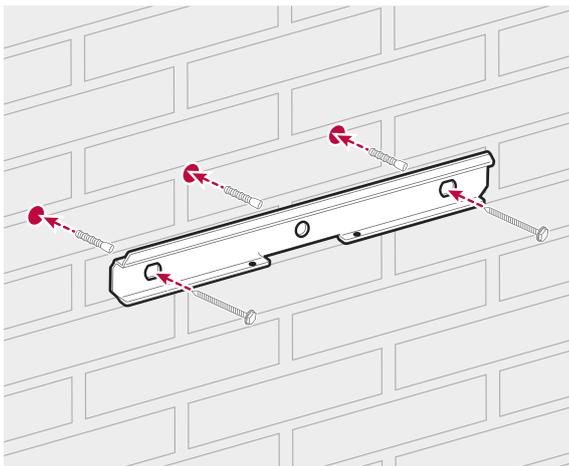
! WARNING

It is important to ensure the drilling locations are not located on any electrical wiring within the wall.

i NOTE

When attaching the wall bracket to a wall, adjust the horizontal level using inclinometer.

3

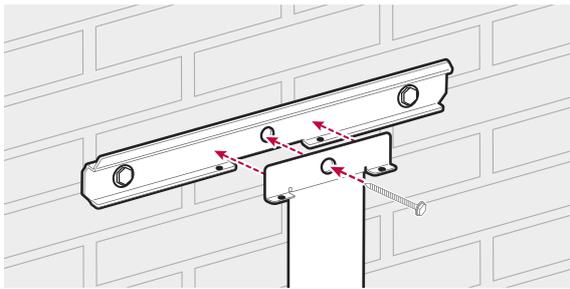


Fix the upper wall bracket with screws and anchors.

i NOTE

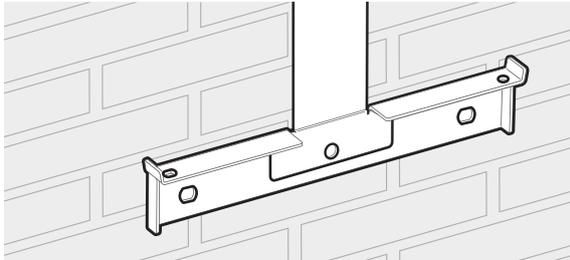
- Before fixing the bracket screws, check the horizontal level once again using inclinometer.
- Depending on the surface, different screws and anchors may be required for installing the wall bracket. Therefore, these screws and anchors are not content of the product. The system installer is responsible for selecting the proper screws and anchors.
- It is recommended to use stainless steel screws with diameter of 6-8 mm.

4



Assemble the upper wall bracket and middle wall bracket and fix it with screw.

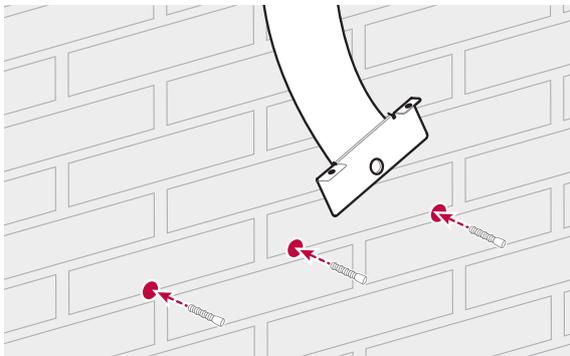
5



Assemble the lower wall bracket and middle wall bracket. And indicate the positions to drill using a pencil or the like.

After making indications, disassemble the lower wall bracket.

6



Drill holes on the indicated positions and attach the anchors.

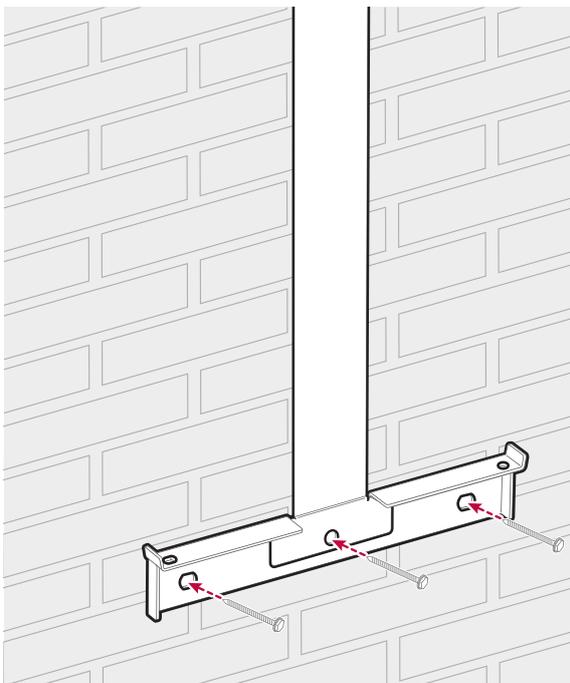
! WARNING

It is important to ensure the drilling locations are not located on any electrical wiring within the wall.

i NOTE

When attaching the wall bracket to a wall, adjust the horizontal level using inclinometer.

7

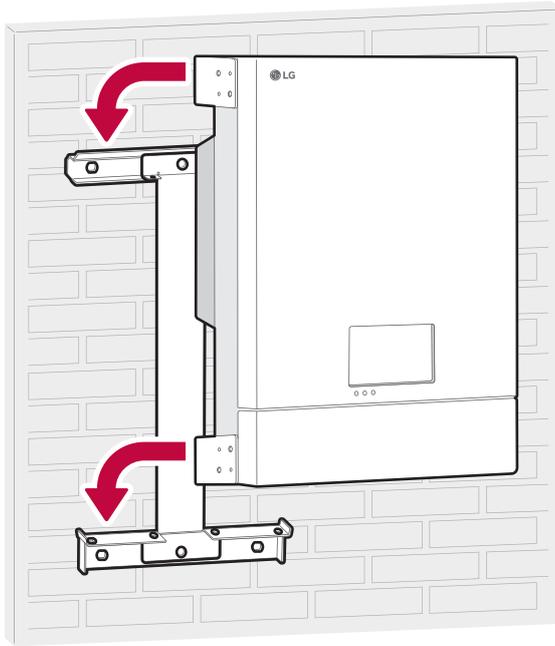


Assemble the lower wall bracket and middle wall bracket. And fix the lower wall bracket with screws.

i NOTE

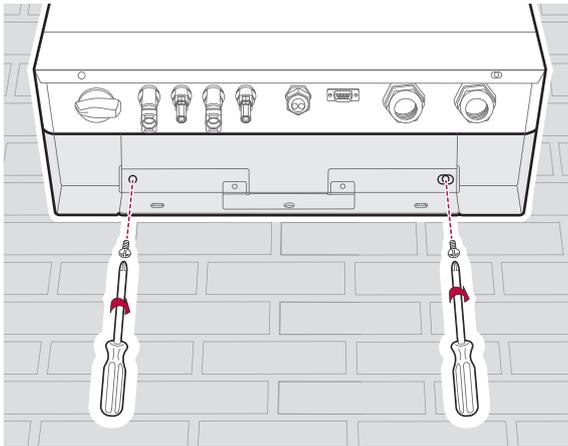
- Before fixing the bracket screws, check the horizontal level once again using inclinometer.
- Depending on the surface, different screws and anchors may be required for installing the wall brackets. Therefore, these screws and anchors are not content of the product. The system installer is responsible for selecting the proper screws and anchors.
- It is recommended to use stainless steel screws with diameter of 6-8 mm.

8



Hang this product to the upper wall bracket. Make sure that at least two persons work together to move the product.

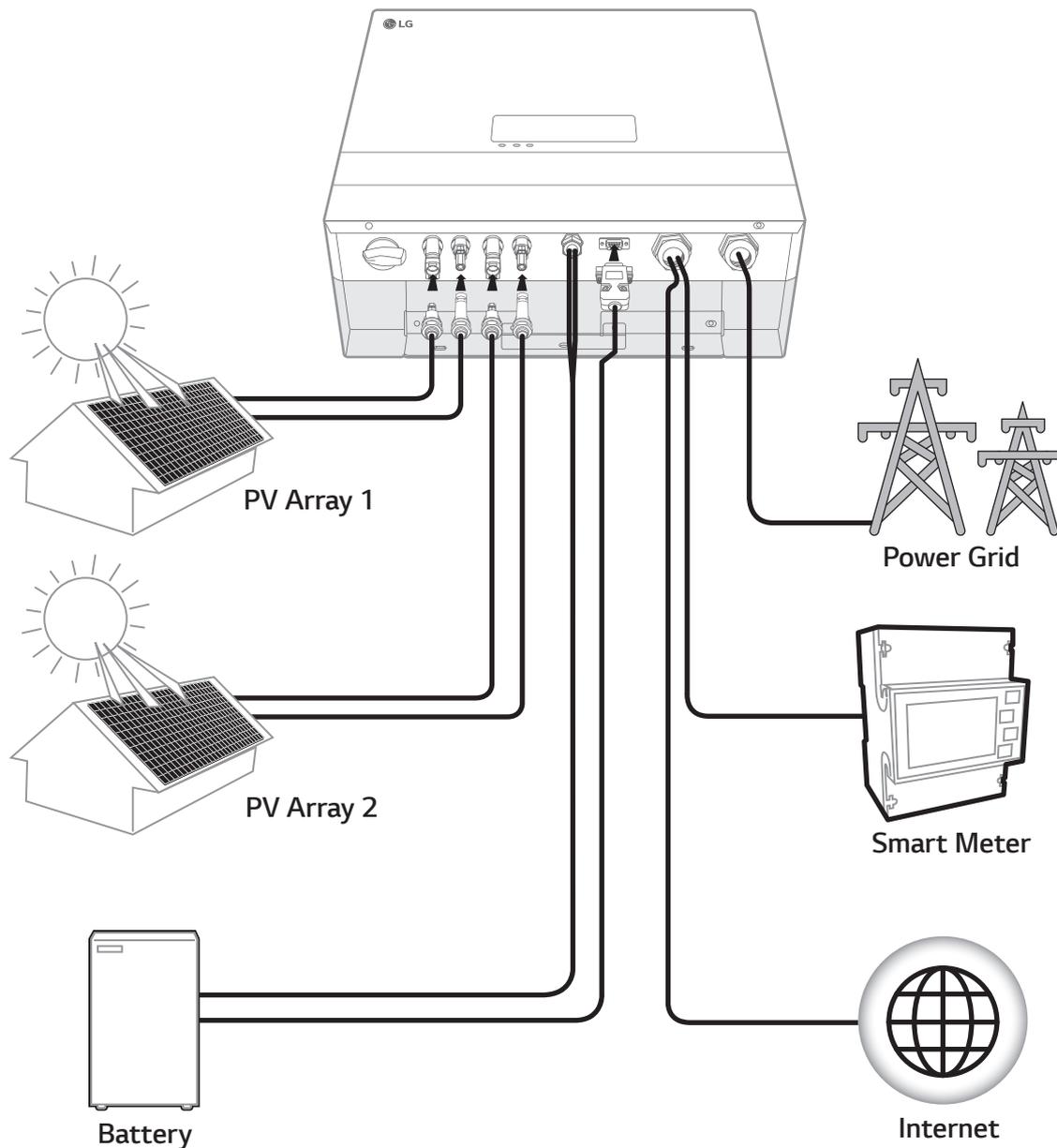
9



Check the screw holes at the bottom are matched with lower bracket holes correctly. And fix the product with screws removed from the lower wall bracket in step 1.

Connections

Connection Overview



2

Installation

⚠ WARNING

- Electrical shock hazard. Do not touch uninsulated wires when the PCS cover is removed.
- Before starting electrical cable connections or removing the cover, turn off the AC circuit breaker, PV switch and DC circuit breaker of the battery. (In case of re-installation, turn them off and wait at least 10-minute standby period of time for complete discharge within this product.)
- When the photovoltaic array is exposed to light, it supplies a DC voltage to the PCS.

⚠ CAUTION

- The electrical installation of these PCS and battery must only be performed by electricians or technicians, qualified to install PCS and battery.
- When removing the cover, make sure not to damage internal components.

PV array connections

You can connect up to two PV arrays directly to the MC4 connectors on this product.

⚠ WARNING

Make sure the AC circuit breaker, PV switch and DC circuit breaker of the battery are disconnected before starting electrical cable connections.

⚠ CAUTION

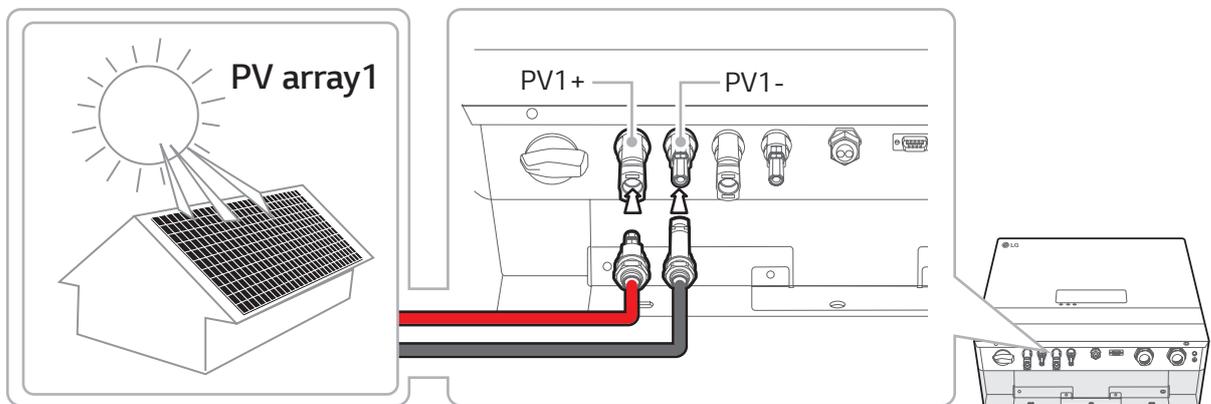
- Before connecting PV array, make sure that the open circuit voltage of PV array is less than 800 V. Otherwise this product could be damaged.
- Do not connect a ground to a PV+ or PV- connector. It may cause electric shock or the product may permanently be damaged.

ℹ NOTE

- PV modules shall have an IEC61730 Application Class A rating or equivalent.
- For DC cables of PV connections, it is recommended to use the cross-sectional area of lead wire between 2.5mm² and 6 mm².
- Use MC4 branch connector if you want to use both PV1 and PV2 connectors together in order to connect two PV arrays serially.
- When you connect only one PV array to the PCS, the PV array must be connected to the PV1 (+ and -) connectors.
- When you use both PV1 and PV2 connectors, use the PV1 connectors for bigger PV array.

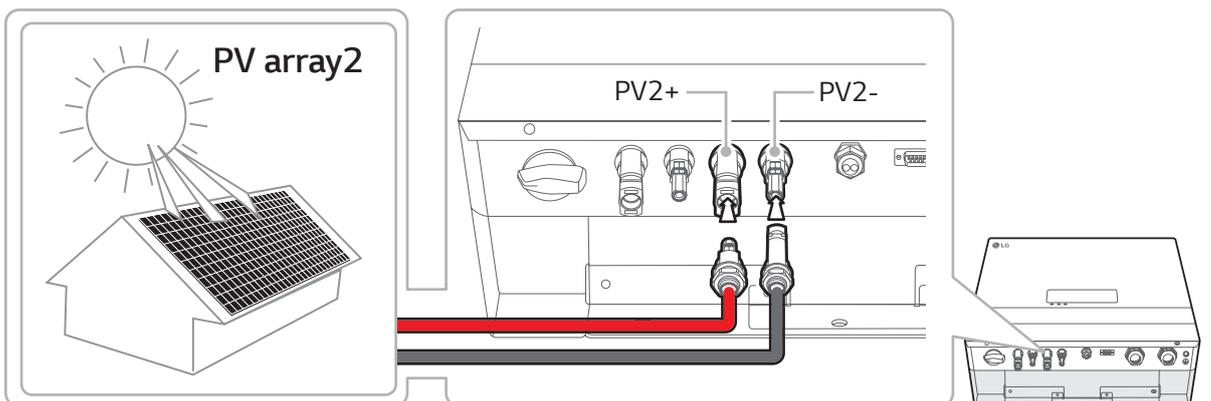
PV1 connection

Connect DC cables of a PV array to PV1 connectors on this product.



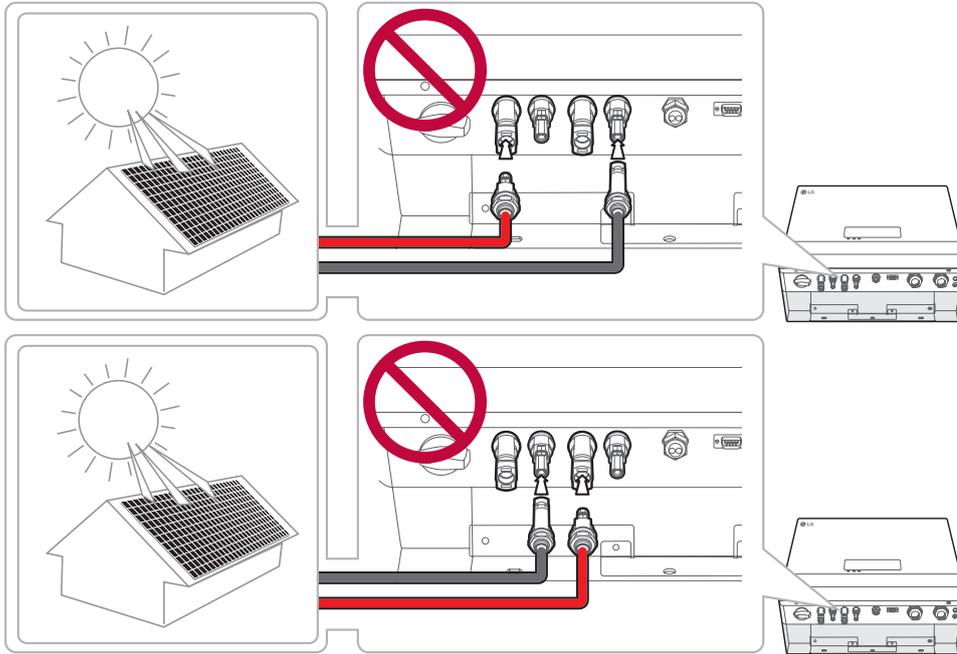
PV2 connection

Connect DC cables of a PV array to PV2 connectors on this product.

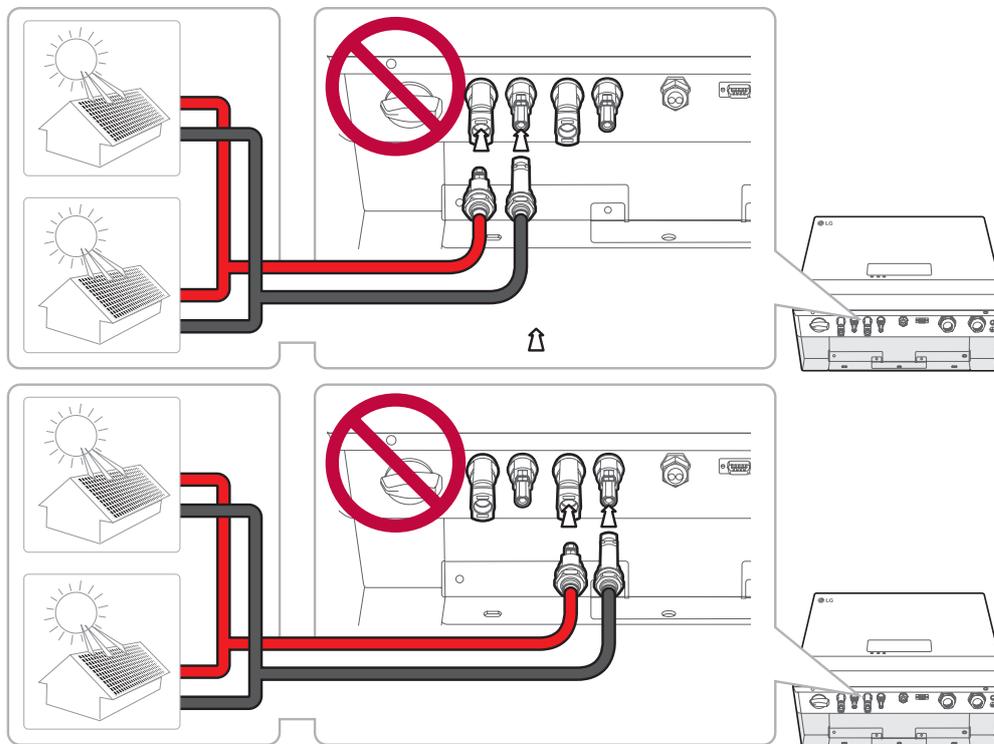


⚠ WARNING

- Do not mismatch the connection of the electric poles + to - and - to + when installing. It may cause electric shock or the product may permanently be damaged.
- Do not connect the PV cable from one PV array to the PV1+, PV2- or PV1-, PV2+ connectors on the product. It may cause electric shock or the product may permanently be damaged.



- Do not connect PV arrays in parallel connection to the one PV input on the product. It may cause electric shock or the product may permanently be damaged.



Battery connections

You can connect a battery to this product. The electricity generated from the connected PV array will be stored in the battery.

The battery for this product are not included with this product package. Before connecting the battery to this product, install the battery on the place where the battery cables are easily accessible to this product. Refer to the installation manual of the battery for more information about battery installation.

⚠ WARNING

- Make sure the AC circuit breaker, PV switch and DC circuit breaker of the battery are disconnected before starting electrical cable connections.
- Battery replacement can only be carried out by qualified personnel. If the battery needs to be changed, it should be placed with a product which meets the manufacturer's specifications.
- Do not mismatch the connection of the electric poles + to - and - to + when installing. It may cause electric shock or the product may permanently be damaged.

⚠ CAUTION

Incorrect battery polarity connection will damage the product seriously. This damage is not covered by the warranty.

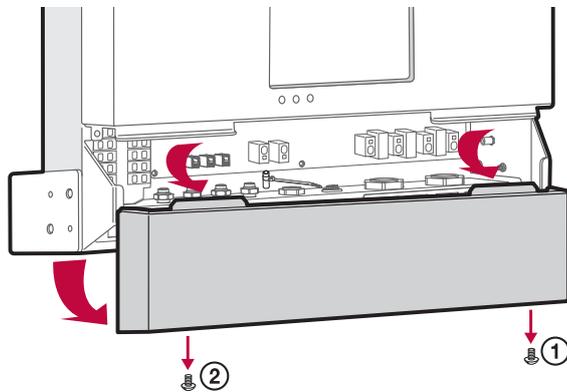
📌 NOTE

The total length of DC battery cable and BMS cable must be 10 m or less.

DC cable connection

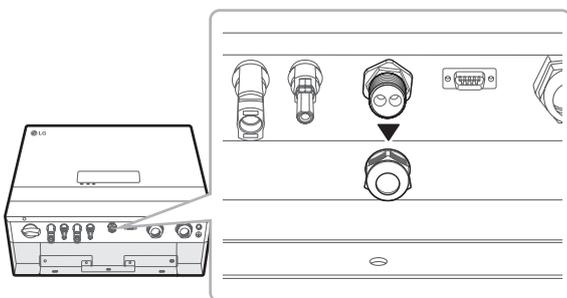
Connect the DC cable on the battery to the DC terminal on this product.

1



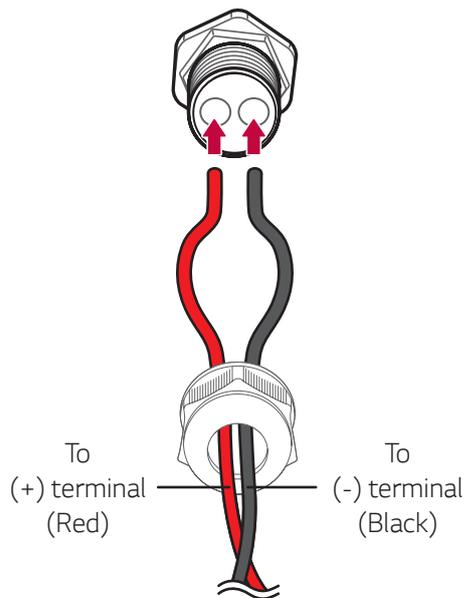
Disassemble the lower cover from the product.

2



Release the cap of battery DC cable gland.

3

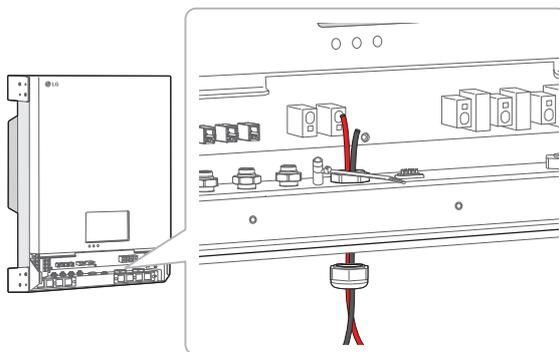


Insert the battery DC cables into the cap of the cable gland and insert the cables into two holes of the rubber fitting one by one.

i NOTE

- For DC cables of battery connections, the cross-sectional area of lead wire between 2.5 mm² and 4 mm² is recommended.
- The maximum cable diameter for the cable gland is 4 mm. (including sheath)

4

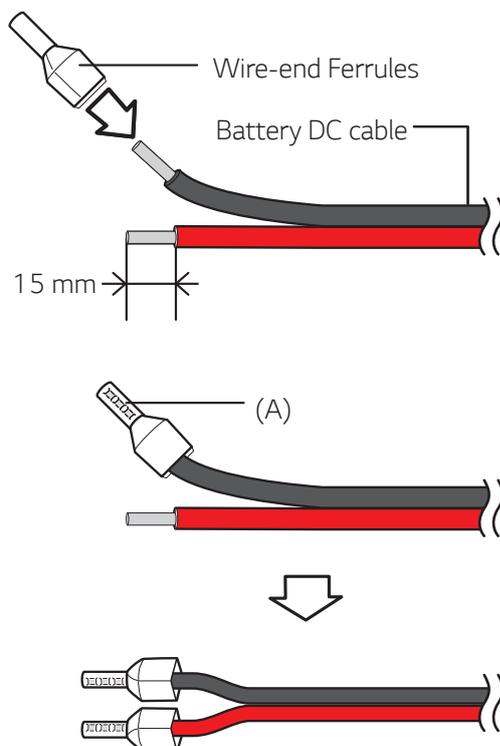


Insert the battery DC cables through the battery DC cable gland.

i NOTE

When inserting cables into the product, make sure not to damage internal components.

5



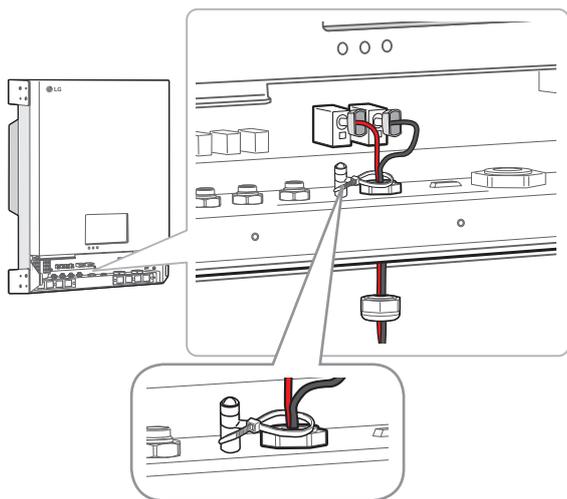
Strip the battery DC cables and assemble wire-end ferrules on each wire.

1. Strip a DC cable about 15 mm length and insert a wire-end ferrule into the cable.
2. Crimp the ferrule end using wire-end ferrule crimping tool (A).

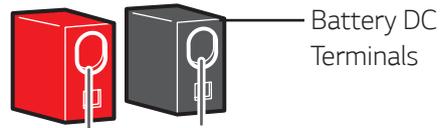
i NOTE

Cables and wire-end ferrules are not supplied on this product package. The system installer is responsible for selecting proper components for the installation such as cables and wire-end ferrules.

6



Insert each wire-end to the corresponding ferrule-hole in the Battery DC terminals and tighten the cable tie securely.

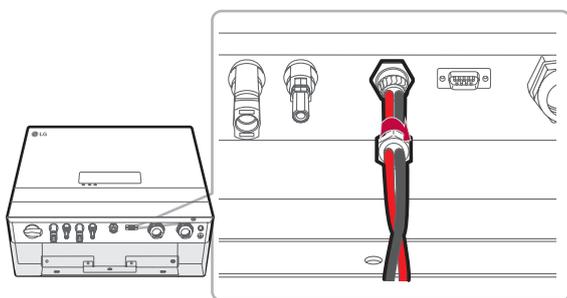


Red wire (+) (-) Black wire

CAUTION

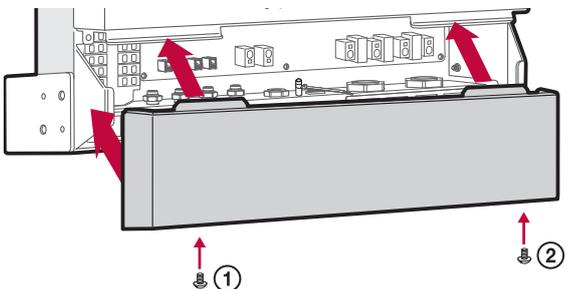
Incorrect battery polarity will damage the product. This damage is not covered by the warranty.

7



Fasten the cap of cable gland to fix the cable.

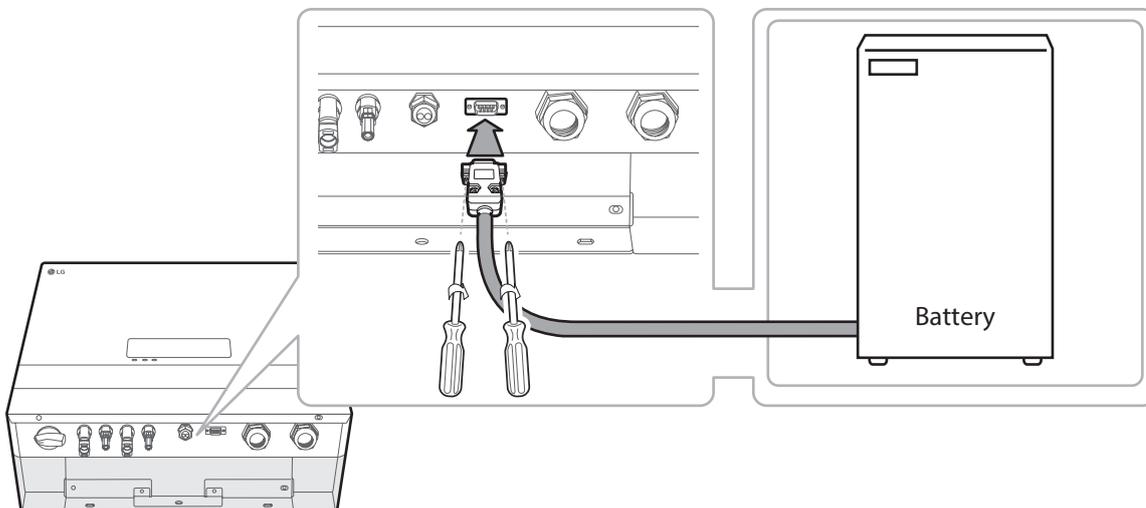
8



Assemble the lower cover to the product. And then fix the screws in numbering order.

Battery communication connection

Connect the supplied BMS cable to the battery and connect the other end of the BMS cable to the product as figure below. After making a connection, fasten the screws on the connector to fix it.



Power grid connections

To use or sell the generated energy through power grid connection, you should connect power grid to this product. This product converts DC electricity generated from PV array to AC electricity. The generated energy can be sold to the electric utility or used for the household appliance.

! WARNING

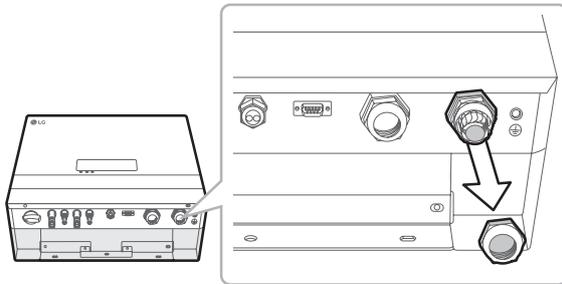
Make sure the AC circuit breaker, PV switch and DC circuit breaker of the battery are disconnected before starting electrical cable connections.

i NOTE

- AC circuit breaker must be the current ratings of 16A.
- This product can cause current with a DC component. Where a Residual Current-operated protective (RCD) or monitoring (RCM) device is used for protection in case of direct or indirect contact, only an RCD or RCM of Type A (or type B) is allowed on the supply side of this product.
- Connect the equipment grounding before connecting the AC wires to the grid.

Before making a power grid connection, other end of an AC cable should be connected to an AC circuit breaker on the distribution box.

1

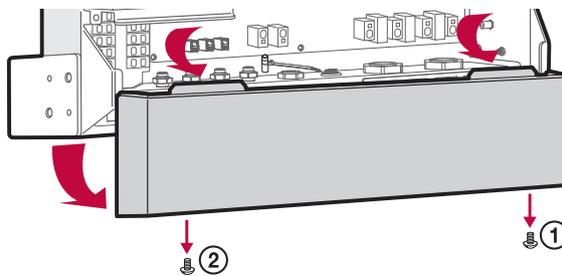


Release the cap of AC cable gland.

i NOTE

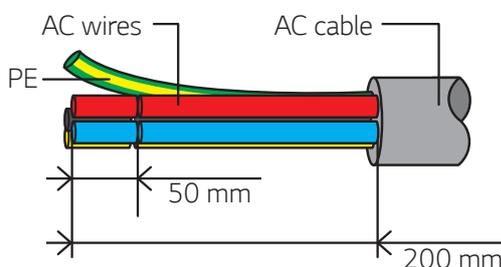
Select an appropriate size of sealing ring inside the AC cable gland according to the thickness of the AC cable.

2



Disassemble the lower cover from the product.

3



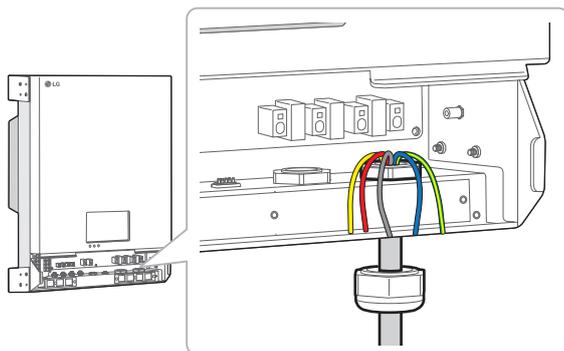
Strip an AC cable about 200 mm length.

And cut wires about 50 mm except grounding wire (PE).

i NOTE

- It is recommended to use a yellow green stripe wire for the PE grounding connection.
- For AC wires of grid connections, it is recommended to use the cross-sectional area of lead wire between 2.5 mm² and 6 mm².
- The maximum cable diameter for the AC cable gland is 19 mm. (including sheath)

4



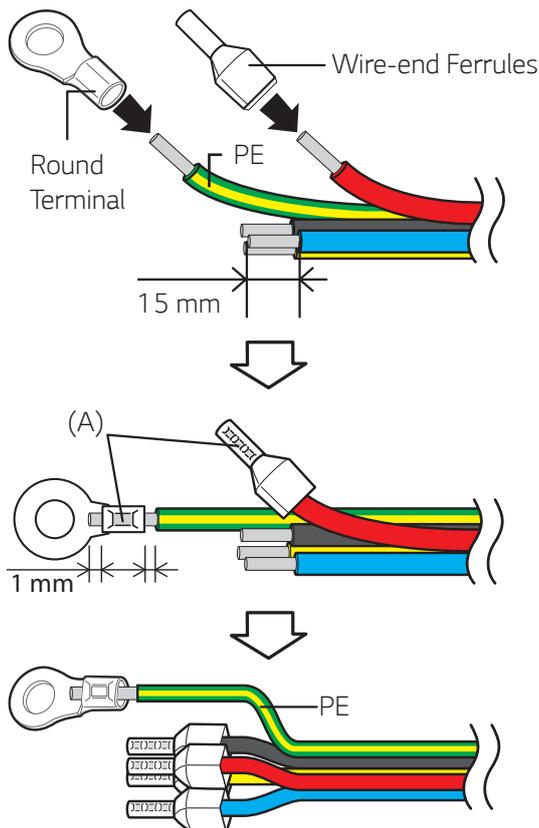
Insert an AC cable through the AC cable gland.

! WARNING

Before connecting an AC cable, make sure that the AC circuit breaker of the power grid is turned off securely.

Insert the AC cable into the cap of cable gland before inserting cable into the product.

5



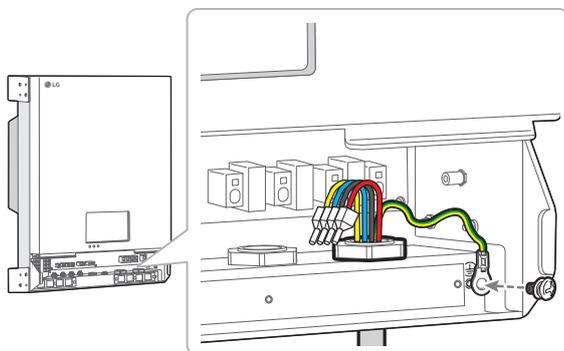
Assemble wire-end ferrules and round terminal on each wire.

1. Strip the grounding wire (PE) about 15 mm and insert a round terminal into the wire. Recommended round terminal : 4.0 mm or 4.5 mm of inner diameter with tin plated terminal
2. Crimp the round terminal using crimping tool (A).
3. Strip remaining wires about 15 mm and insert a wire-end ferrule into the wire.
4. Crimp the ferrule ends using crimping tool (A).

i NOTE

Cables, round terminal and wire-end ferrules are not supplied on this product package. The system installer is responsible for selecting proper components for the installation.

6

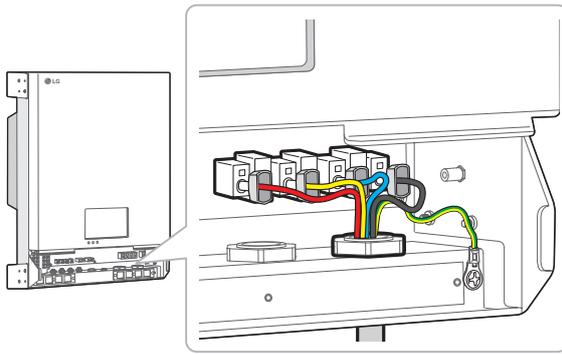


Connect the grounding wire (PE) to the grounding connector. (Torque of 1.5 ± 0.3 N.m)

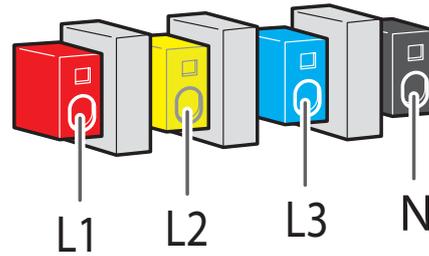
i NOTE

- Connect the equipment grounding before connecting the AC wires to the AC circuit breaker.
- Screw for grounding connection is not supplied on this product package. Prepare a M4 size screw with spring washer for the grounding connection.

7



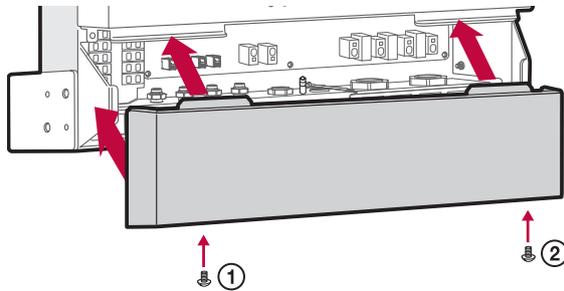
Insert remaining wire-ends to the corresponding ferrule-hole in the AC terminal.



i NOTE

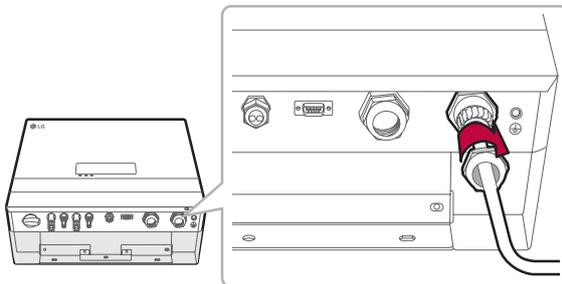
- The N (neutral) hole in the AC terminal must be connected to the N(neutral) terminal of the AC circuit breaker on the distribution box correctly. Otherwise the product could be damaged seriously.
- The PE (Protective Earth) grounding connector must be connected to the G (Grounding) terminal of the distribution box correctly. Otherwise the product could be damaged seriously.

8



Assemble the lower cover to the product. And then fix the screws in numbering order.

9



Fasten the cap of cable gland to fix the cable.

Smart meter and internet connection

The smart meter connection is required to get information of energy flow. The Smart Meter for this product is not included with this product package. Before connecting the smart meter to this product, install the smart meter. Refer to installation manual of the smart meter for more information about smart meter installation.

Internet connection is required to use variety of functions such as network update, EnerVu monitoring system, etc. You may need to contact your Internet service provider (ISP) to connect this product to the internet.

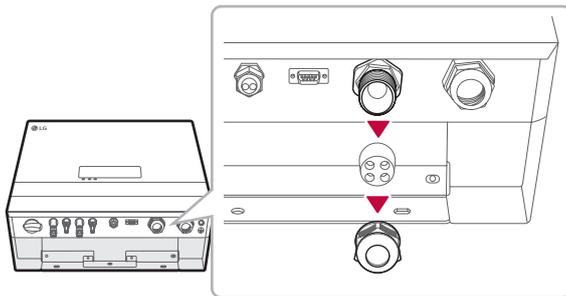
WARNING

Make sure the AC circuit breaker, PV switch and DC circuit breaker of the battery are disconnected before starting electrical cable connections. .

2

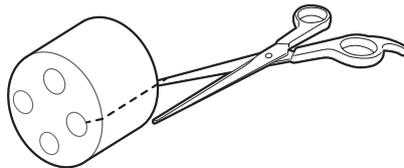
Installation

1



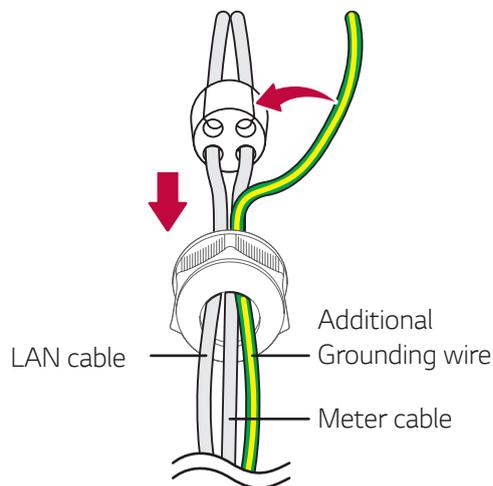
Release the cap from the Meter/LAN cable gland.

2



Make cut openings on each hole of the rubber fitting using a scissors.

3

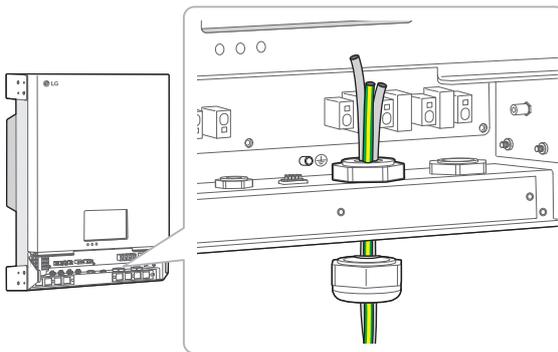


Insert the LAN cable, smart meter cable and the additional grounding wire into the cap of the cable gland and insert the cables into three holes of the rubber fitting one by one.

NOTE

- For additional grounding wire, the cross-sectional area of lead wire between 2.5 mm² and 6 mm² is recommended.
- The cross-sectional area of the additional grounding wire must be the same or larger than the grounding wire (PE).
- Recommended color of additional grounding wire is yellow green stripe.
- Screw for grounding connection is not supplied on this product package. Prepare a M4 size screw with spring washer for the grounding connection.
- The maximum diameter of each cable for the holes on rubber fitting is 5 mm. (including sheath)

4

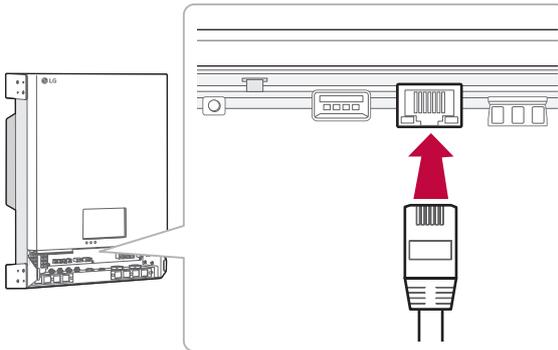


Disassemble the lower cover from the product.
Insert the cables into the product through Meter/LAN cable gland.

NOTE

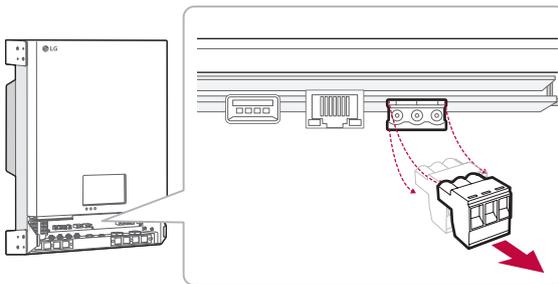
The total length of smart meter cable and LAN cable must be 30 m or less.

5



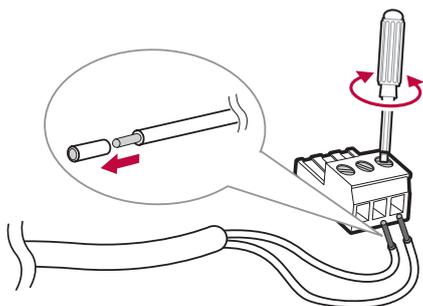
Strip the LAN cable and attach a RJ-45 plug at the end of the cable.
Insert the LAN plug to the Ethernet port on the product.

6



Detach the plug from smart meter connector.

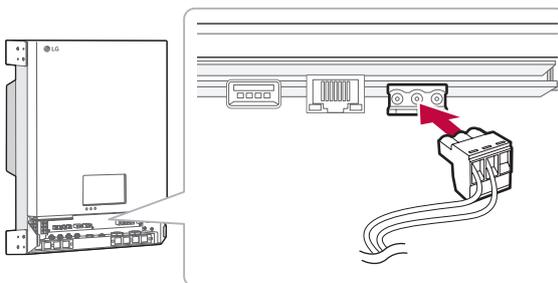
7



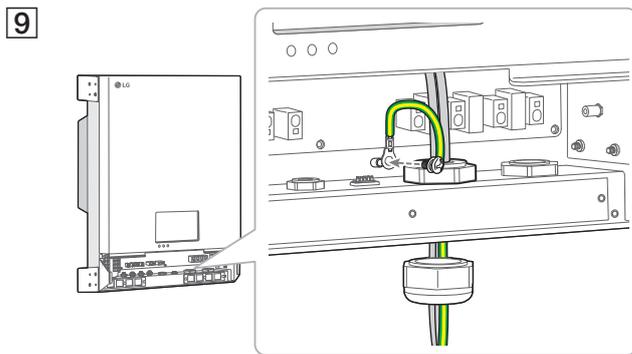
Strip two wires of the smart meter cable and insert stripped wire-ends to the corresponding wire hole on the plug, making a match each A and B.

Refer to installation manual of the smart meter for more information about smart meter installation.

8



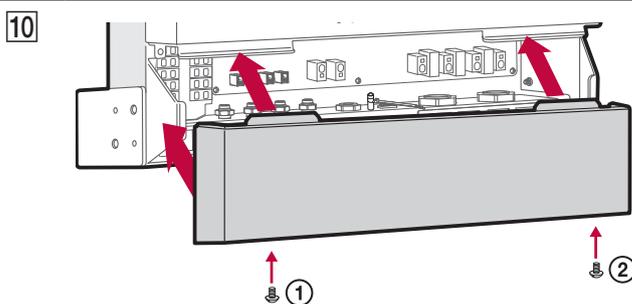
Insert the plug to the smart meter connector.



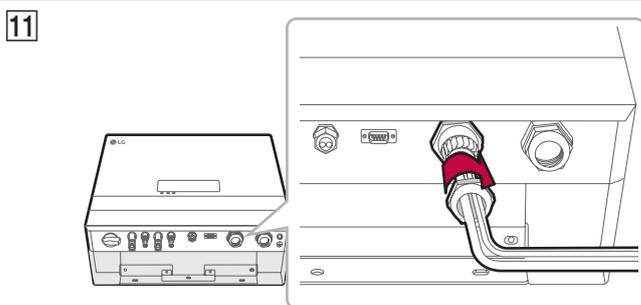
Strip the additional grounding wire about 15 mm and insert a round terminal into the wire. And then connect the additional grounding wire to the additional grounding connector (mandatory, Torque of 1.5 ± 0.3 N.m)

NOTE

The additional grounding connector must be connected to the G (Grounding) terminal of the distribution box correctly. Otherwise the product could be damaged seriously.

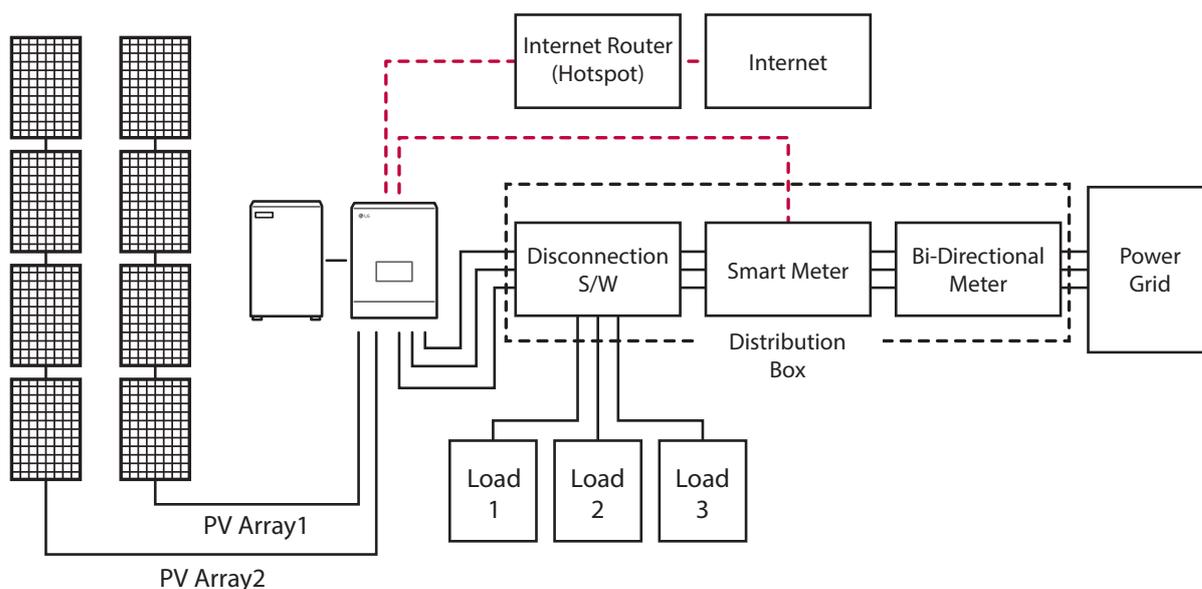


Assemble the lower cover to the product. And then fix the screws in numbering order.



Fasten the cap of cable gland to fix the cable.

Smart Meter and LAN connection diagram



When all the connections are finished, check the status in numbering order below.

- 1) Switch the DC circuit breaker of the connected battery to the 'ON' position.
- 2) Switch the AC circuit breaker to the 'ON' position.
- 3) Turn the PV switch of the PCS to the 'ON' position.

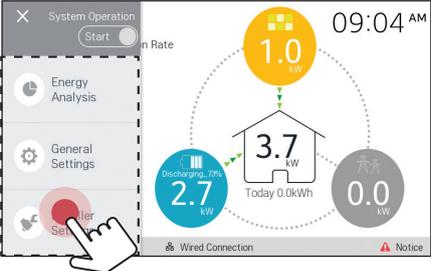
Installer settings

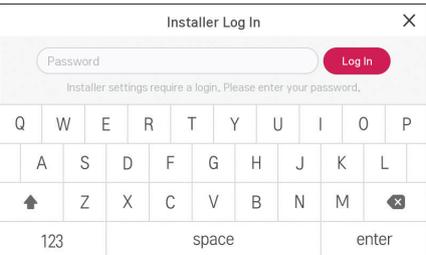
When this product is turned on for the first time, settings in [Installer settings] menu must be set by authorized service personnel.

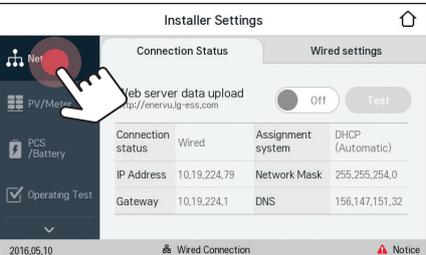
Before starting [Installer Settings], make sure that physical connection and installation are done as described in this manual exactly and securely.

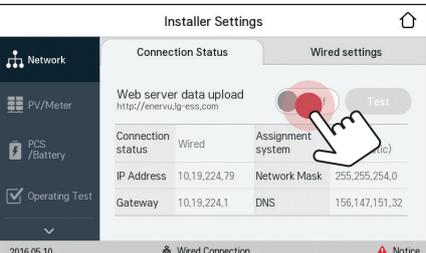
Basic operation

To enter [Installer Settings] menu, system requires installer password. Before setting installer settings menu, input installer password.

1  Tab [☰] on the main screen and tab [Installer Settings] option.

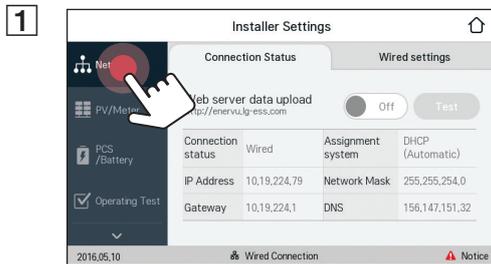
2  [Installer Log In] menu appears on the screen. Input installer password and tab [LOG IN] to enter [Installer Settings] menu.

3  Tab a desired menu option on the left side.

4  Tab a desired setting option and set the appropriate value.

[Network] settings

If there is a DHCP server on the local area network (LAN) via wired connection, this product will be automatically allocated an IP address. After making the physical connection, a small number of home networks may require the network setting to be adjusted.



Tab [Network] on [Installer Settings]. Current status of the network connection is displayed.

If you want to connect the EnerVu server, tab [Web server data upload] to change to [On].

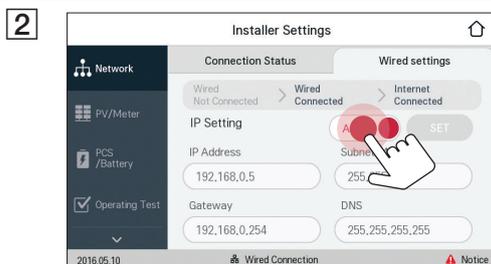
Tab [Web server data upload] again for turning off the option.

[On]: The energy data of the system is saved and uploaded to the server in every 15 minutes.

[Off]: The energy data of the system is not saved. And it is not uploaded to the server.

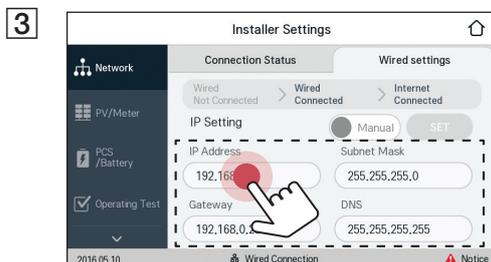
Tab [Test] to check the server connection.

If the [Web server data upload] option is not set to [On], the data may not uploaded to the server.



Tab [Wired settings]. Wired connection options are displayed.

If [IP Setting] option in [Wired settings] tab is set to [Auto], this product will be automatically allocated an IP address from local area network (LAN) via wired connection. You may need to set network connection manually depending on the network conditions. In this case, tab [Auto] to change to [Manual].



Fill in [IP address], [Subnet Mask], [Gateway] and [DNS address] option manually.

NOTE

Notes on internet Connection:

- This product does not support wireless network connection.
- Many network connection problems during set up can often be fixed by re-setting the router or modem. After connecting the product to the home network, quickly power off and/or disconnect the power cable of the home network router or cable modem. Then power on and/or connect the power cable again.
- Depending on the internet service provider (ISP), the number of devices that can receive internet service may be limited by the applicable terms of service. For details, contact your ISP.
- Our company is not responsible for any malfunction of this product and/or the internet connection feature due to communication errors/malfunctions associated with your broadband internet connection, or other connected equipment.

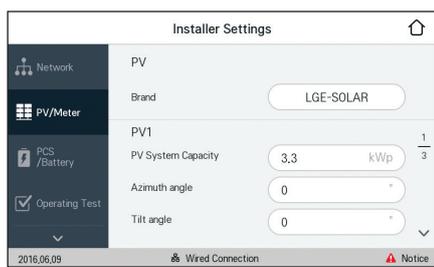
NOTE

Notes on internet Connection:

- Some internet connection operations may not be possible due to certain restrictions set by the Internet service provider (ISP) supplying your broadband Internet connection.
- A 10 Base-T or 100 Base-TX LAN port is required for wired connection to this product. If your internet service does not allow for such a connection, you will not be able to connect this product.
- A DSL modem is required to use DSL service and a cable modem is required to use cable modem service. Depending on the access method and subscriber agreement with your ISP, you may not be able to use the internet connection feature contained in this product or you may be limited to the number of devices you can connect at the same time. (If your ISP limits subscription to one device, this product may not be allowed to connect when a PC has been already connected.)
- The use of a "Router" may not be allowed or its usage may be limited depending on the policies and restrictions of your ISP. For details, contact your ISP directly.
- Turn off all unused network equipment in your local home network. Some devices may generate network traffic.

[PV/Meter] settings

You can check the PV and Meter information.

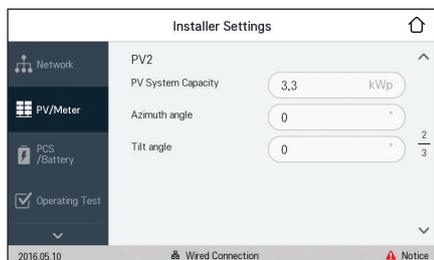


The screenshot shows the 'Installer Settings' screen with the 'PV/Meter' tab selected. The 'PV1' section is active, displaying the following settings: Brand (LGE-SOLAR), PV System Capacity (3.3 kWp), Azimuth angle (0), and Tilt angle (0). The screen also shows a 'Network' tab, a 'PCS/Battery' section with 'Operating Test' checked, and a status bar at the bottom indicating 'Wired Connection' and the date '2016.06.09'.

Tab [PV/Meter] on [Installer Settings]. PV and smart meter information is displayed.

[PV], [PV1] and [PV2]

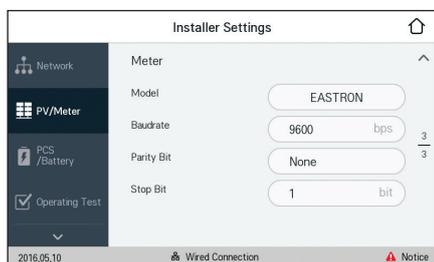
1. Select the currently selected value of each option to change. Input menu appears on the screen.
2. Input the desired value.
3. Select [Accept] to complete the setting.



The screenshot shows the 'Installer Settings' screen with the 'PV/Meter' tab selected. The 'PV2' section is active, displaying the following settings: PV System Capacity (3.3 kWp), Azimuth angle (0), and Tilt angle (0). The screen also shows a 'Network' tab, a 'PCS/Battery' section with 'Operating Test' checked, and a status bar at the bottom indicating 'Wired Connection' and the date '2016.05.10'.

[Meter]

1. Select the currently selected value of each option to change. Input menu appears on the screen.
2. Input the desired value.
3. Select [Accept] to complete the setting.



The screenshot shows the 'Installer Settings' screen with the 'PV/Meter' tab selected. The 'Meter' section is active, displaying the following settings: Model (EASTRON), Baudrate (9600 bps), Parity Bit (None), and Stop Bit (1 bit). The screen also shows a 'Network' tab, a 'PCS/Battery' section with 'Operating Test' checked, and a status bar at the bottom indicating 'Wired Connection' and the date '2016.05.10'.

[PCS/Battery] settings

You can set battery use and operation.



Tab [PCS/Battery] on [Installer Settings]. PCS and battery information is displayed.

[PCS]

[PV Feed-in Limitation] is displayed. The value can be changed manually.

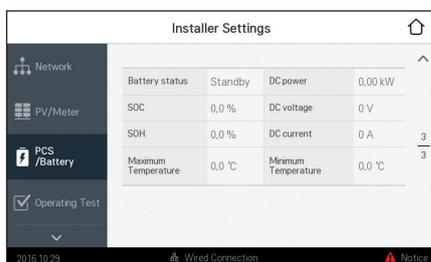
1. Select the currently selected value. Input menu appears on the screen.
2. Input the desired value.
3. Select [Accept] to complete the setting.

[Battery]

You can change [Use batteries] setting. Tab the switch to set [On] or [Off]. If the setting is set to [Off], generated energy will not charge the connected battery.

[Battery maker], [Operating range], [Winter Mode SOC] [Battery Installation Date] and [Battery Capacity] can be set manually.

1. Select the currently selected value of each option to change. Input menu appears on the screen.
2. Input the desired value.
3. Select [Accept] to complete the setting.



CAUTION

If the [Use batteries] setting is set to off or the system is turned off for a long period time, the battery can be completely discharged and cannot be used anymore. Be sure not to stop using the battery for a long period of time.

[Operating Test] settings

This is the last stage at setting process. Before operating this product, [Operating Test] must be done for checking all the systems are ready to run. If [Operating Test] is not proceeded, this product does not work.

1



Tab [Operating Test] on [Installer Settings]. The operating test menu is displayed.

You should perform 4 operating tests. To start the test, tab [START] of each test. Start the tests one by one from left.



Charging (Grid to Battery) : The operating test for battery charging through power grid.



Charging (PV to Battery) : The operating test for battery charging through PV.

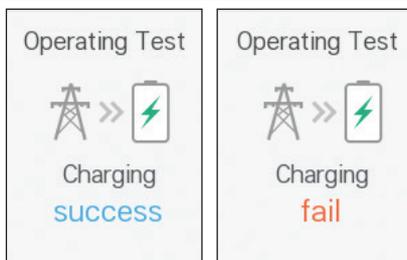


Discharging (Battery to Grid): The operating test for battery discharging to power grid.



Inverter (PV to Grid): The operating test for converting PV's DC power to AC power.

2

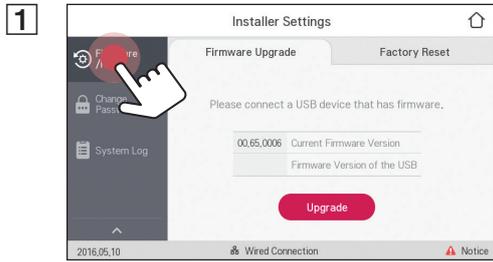


The result is displayed when each test is completed. When there is no problem with the test, [Success] is displayed. When [Fail] is displayed, tab each test result to display the detailed information. Check and solve the error referring to the error code in the information, and perform the test again. For information on the error code, refer to page 40.

[Firmware/Reset] settings

Firmware Upgrade

You can upgrade the firmware to the latest version using USB storage device.



Tab [Firmware/Reset] on [Installer Settings]. [Firmware Upgrade] tab and [Factory Reset] tab are displayed. For firmware upgrade, select [Firmware Upgrade].



Before starting firmware upgrade, download the latest firmware to a USB storage device and insert it into the USB port on this product. Tab [UPGRADE] to start upgrade.



[Reboot] button is displayed when upgrade is completed. Remove the USB storage device from this product and tab [Reboot] to reboot the product.

NOTE

Firmware upgrade must be done by the installer only. And firmware must not be distributed by installer.

Factory reset

You can reset the settings of the product to its original factory settings.



Tab [Firmware/Reset] on [Installer Settings]. [Firmware Upgrade] tab and [Factory Reset] tab are displayed. Select [Factory Reset].

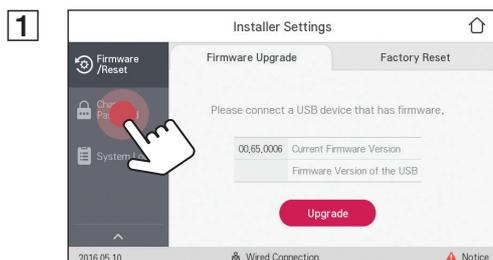


You can reset this product to its original factory settings. All the settings and system logs will be deleted after resetting. Tab [Accept Reset]. A pop-up message appears on the LCD screen.

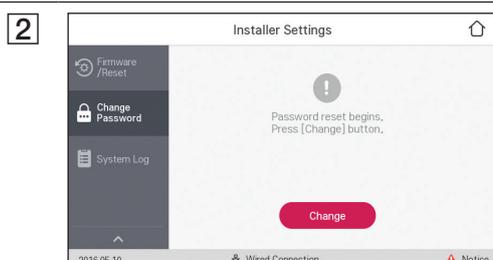
Tab [Accept] to start factory resetting.

[Change Password] settings

You can change the password for entering [Installer settings] menu.



Tab [Change Password] on [Installer Settings]. Change Password menu is displayed.

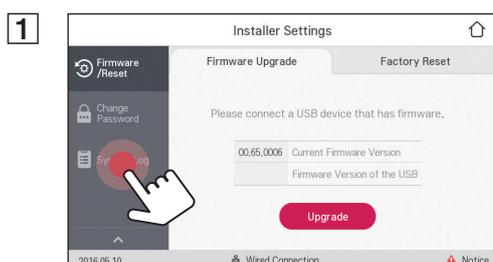


Tab [Change]. Input menu for new password is displayed. Tab **X** repeatedly to delete the current password and input the new password. Select [OK]. The password is changed.

System Log

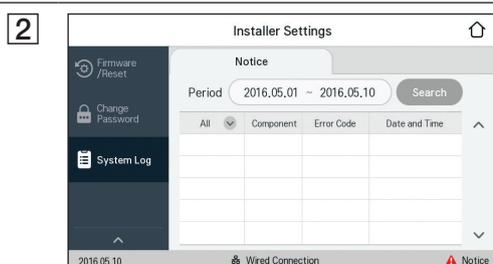
You can see the list of mode changes, system fault and system warning log.

Refer to page 40 for more information of error codes, messages and solutions.



The list of all notice occurring in this product during certain period.

Tab [System Log] on [Installer Settings].



Tab current [Period] value and select the period using **V** or **Λ**. Tab [Accept] to select the period. Tab [Search] to display the list of the notice during the selected period.

V : Goes to next page.

Λ : Goes to previous page.

EnerVu settings

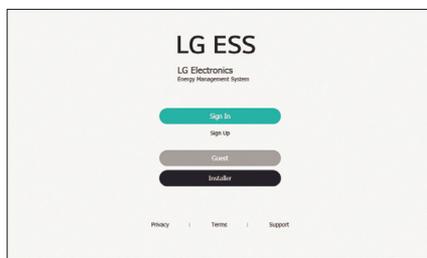
To use the EnerVu web monitoring system, the product must be registered to the system server by the installer. After registering, the user can check the variety of information such as system status, information, report using LG EnerVu web monitoring system.

Preparation

- An internet browser installed computer, tablet or mobile with internet access is needed to access EnerVu web monitoring system.
- This product must be connected to internet. Check [Network] setting menu in the LCD touch panel of the product.
- The system owner must create a LG ESS account before registering the product. Refer to 'Creating a new account (Owner)' section below.

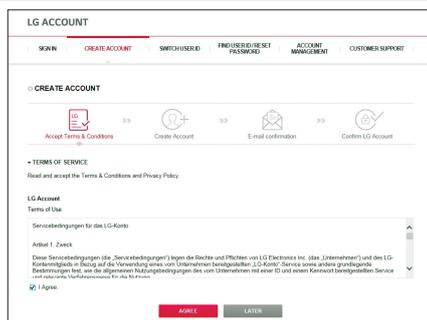
Creating a new account (Owner)

1



On your browser, visit LG EnerVu page at <http://enervu.lg-ess.com>.

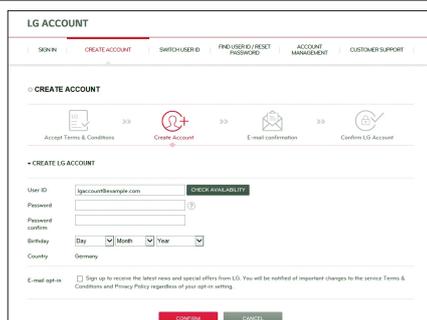
2



Select [Sign Up]. The [Accept Terms & Conditions] page appears. Read the Terms & Conditions and Privacy Policy carefully.

If you agree with every term and condition, click the [I Agree] check box and select [AGREE]. The [Create Account] page appears.

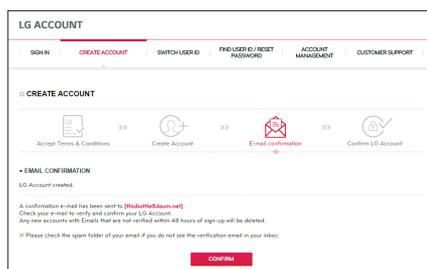
3



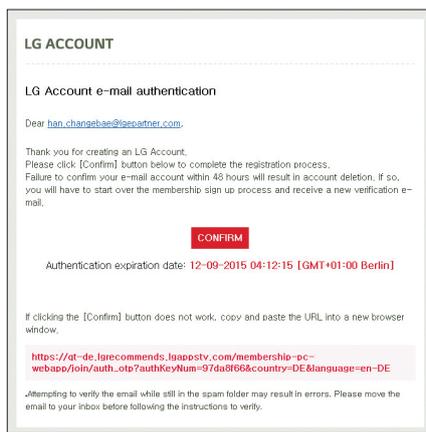
Fill your e-mail address in [User ID] field and select [CHECK AVAILABILITY].

Fill in [Password], [Password confirm] and [Birthday] fields and select [CONFIRM].

The E-mail confirmation page appears.

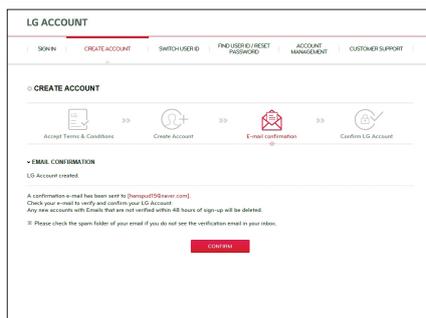


4



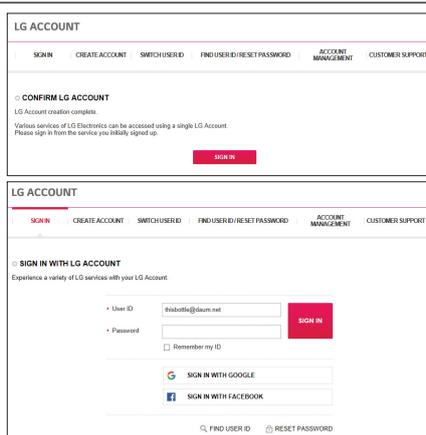
A confirmation e-mail will be sent to your e-mail address. On your e-mail, select [CONFIRM] to complete the e-mail confirmation.

5



On the account creation page, select [CONFIRM] to complete creating your account.

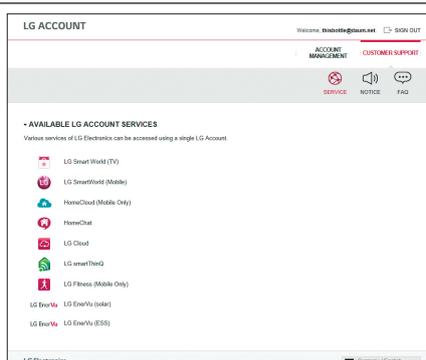
6



Select [SIGN IN] to go to the [SIGN IN WITH LG ACCOUNT] page.

Input your [User ID] and [Password] and select [SIGN IN].

7



Available LG account services are displayed on the screen.

3

Settings

Creating a new account (Installer)

1

On your browser, visit LG EnerVu page at <http://enervu.lg-ess.com>.

Select [Installer]. The [Installer Sign In] page appears.

2

Select [Sign Up]. The [Sign Up] page appears.

Fill your mail address in [Email] field and select [Check].

And then fill the [First Name] and [Last Name] fields.

3

Fill the required information on [Company Details] section.

And then read the [Installer Terms] and [Installer Privacy Policy] carefully. If you agree with every terms and policies, click [I agree] check box in each section. [Submit] button appears on the screen.

4

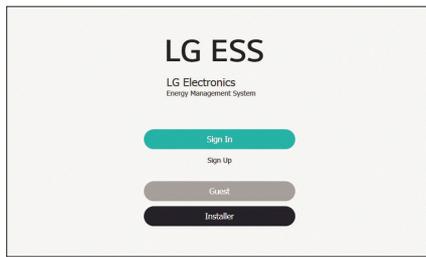
Select [Submit] to complete creating an installer account.

3

Settings

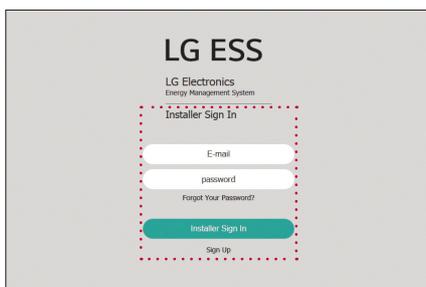
Registering the PCS (Installer)

1



On your browser, visit LG EnerVu page at <http://enervu.lg-ess.com>.

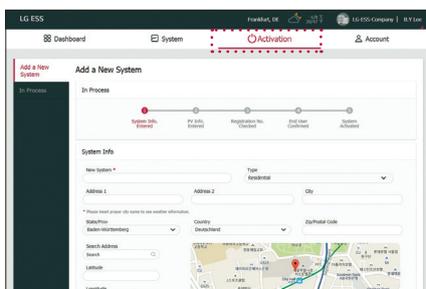
2



Select [Installer]. The [Installer Sign In] page appears. And then input the installer's e-mail address and the password and select [Installer Sign In].

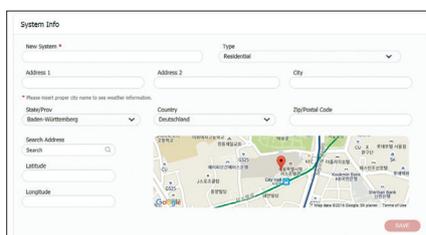
If the installer does not have an account, select [Sign Up] and make a new installer account.

3



Select [Activation] tab. The [Add a New System] screen appears.

4



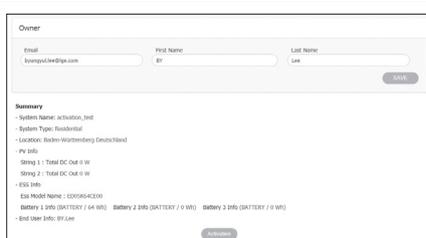
Fill every information in the [System Info] section and select [Save] to save the information.

5



In the [ESS Info] field, fill the product registration number and select [Check]. The ESS information will automatically be filled. Select [Save] to go to the next step.

6



Fill the every information In the [Owner] field and select [Save] to save the information.

And Select [Activation] at the bottom of the page to finish the activation process.

Error Codes and Messages

PCS error codes

Code	Message	Description	Solution
P301	BMS CAN Comm Fault	Communication error with the connected battery for over 10 seconds.	Contact service center.
P302	PMS Comm Fault	Communication error on PCS system.	Fault Reset & Restart
P303	DSP SCI Comm Fault	Communication error with the processing unit for over a minute.	Contact service center
P304	Meter Comm Fault	Communication error with the smart meter.	Stop, Fault Reset & Restart
P305	Grid Relay(L1-1) F	Grid relay is not operable. (L1-1)	Automatically reboot within a minute.
P306	Grid Relay(L2-1) F	Grid relay is not operable. (L2-1)	Automatically reboot within a minute.
P307	Grid Relay(L3-1) F	Grid relay is not operable. (L3-1)	Automatically reboot within a minute.
P308	Grid Relay(N-1) F	Grid relay is not operable. (N-1)	Automatically reboot within a minute.
P309	Grid Relay(L1-2) F	Grid relay is not operable. (L1-2)	Automatically reboot within a minute.
P310	Grid Relay(L2-2) F	Grid relay is not operable. (L2-1)	Automatically reboot within a minute.
P311	Grid Relay(L3-2) F	Grid relay is not operable. (L3-2)	Automatically reboot within a minute.
P312	Grid Relay(N-2) F	Grid relay is not operable. (N-2)	Automatically reboot within a minute.
P315	PCS IGBT Fault	The PCS IGBT is not operable.	Automatically reboot within a minute.
P316	ESS Fan Fault	The cooling fan in the product is in fault.	Automatically reboot within a minute.
P317	Fault Reset Fail	Fault reset has been failed 3 times.	Contact service center.
P318	Fuction Safety F	The processing unit has a hardware fault.	Automatically reboot within a minute.
P320	DSP SCI Comm Error	Communication error with the processing unit for over 5 seconds.	Automatically reboot within a minute.
P321	Grid Conn Fault	Incorrect power grid connection has detected.	Contact service center.

P201	PV A Over Volt P	Voltage level of PV A is higher than the limitation.	Automatically reboot within a minute.
P202	PV B Over Volt P	Voltage level of PV B is higher than the limitation.	Automatically reboot within a minute.
P203	PV A Over Curr P	Current level of PV A is higher than the limitation.	Automatically reboot within a minute.
P204	PV B Over Curr P	Current level of PV B is higher than the limitation.	Automatically reboot within a minute.
P205	PV Insulation P	Insulation resistance level on PV is lower than the limitation.	Automatically reboot within a minute.
P206	Batt Over Volt P	Voltage level of the battery is higher than the limitation.	Automatically reboot within a minute.
P207	Batt Over Curr P	Current level of the battery is higher than the limitation.	Automatically reboot within a minute.
P208	DC Link Over Volt P	Voltage level of the DC Link is higher than the limitation.	Automatically reboot within a minute.
P209	Grid Under Volt P	Voltage level of the grid is lower than the limitation.	Automatically reboot within a minute.
P210	Grid Over Volt P	Voltage level of the grid is higher than the limitation.	Automatically reboot within a minute.
P211	Grid Over Curr P	Current level of the grid is higher than the limitation.	Automatically reboot within a minute.
P212	Grid Under Freq P	Frequency level of the grid is lower than the limitation.	Automatically reboot within a minute.
P213	Grid Over Freq P	Frequency level of the grid is higher than the limitation.	Automatically reboot within a minute.
P214	Residual Curr P	Residual current level is higher than the limitation	Automatically reboot within a minute.
P215	Over Temperature P	The PCS temperature is higher than the limitation.	Automatically reboot within a minute.
P216	Anti Islanding P	There was a power failure.	Automatically reboot within a minute. after the power recovery.
P217	Grid Avg Volt P	An average voltage level within 10 minutes is higher than the limitation.	Automatically reboot within a minute.
P218	Grid DC Curr P	DC offset current is added on Grid	Automatically reboot within a minute.
P219	PCS Starting Error	The Error is happened when PCS is running in the starting sequence.	Automatically reboot within a minute.
P220	Batt Under Volt P	Voltage level of the battery is lower than the limitation	Contact service center
P101	Batt Over Volt W	Voltage level of Battery is higher than the limitation.	Warning

P102	Batt Over Curr W	Current level of Battery is higher than the limitation.	Warning
P103	Batt Under Volt W	Voltage level of Battery is lower than the limitation.	Warning
P104	PV Low Power W	PV power is lower than limitation.	Warning

Battery error codes

B301	Cell OverVolt F	Voltage level of battery cell is higher than the protection limitation.	Contact service center.
B302	Cell OverVolt_2 F	Voltage level of battery cell is higher than the second protection limitation.	Contact service center.
B303	Cell Under Volt F	Voltage level of battery cell is lower than the protection limitation.	Contact service center.
B304	Cell Volt Imbal F	Voltage differences between the battery cells are higher than 3.5 V.	Contact service center.
B305	Pack Over Volt F	Voltage level of battery pack is higher than the protection limitation.	Contact service center.
B306	Pack Under Volt F	Voltage level of battery pack is lower than the protection limitation.	Contact service center.
B307	Over Charge Curr F	Current level of charging is higher than the protection limitation.	Contact service center.
B308	Over Dischar Curr F	Current level of discharging is higher than the protection limitation.	Contact service center.
B309	Over Temperature F	The battery temperature is higher than the limitation.	Contact service center.
B310	Under Temperature F	The battery temperature is lower than the limitation.	Contact service center.
B311	Temp Deviation F	Temperature differences between the battery are over 10 degrees.	Contact service center.
B312	Curr Sensor Offset	Fault has been detected on the current sensor.	Contact service center.
B313	PCS-RBMS LOC	Communication error has been detected between the battery and the PCS.	Contact service center.
B314	Ext 12V Power Error	The power is not supplied to the battery from the PCS.	Contact service center.
B315	RBMS-MBMS LOC	Internal communication error has been detected.	Contact service center.

B316	Curr Sensor Line E	Current sensor line error	Contact service center.
B317	Temp Sensor Error	Temperature sensor error	Contact service center.
B318	MBMS ASIC LOC	Internal error has been detected.	Contact service center.
B319	RBMS Ref V Error	Voltage level of the battery management system is higher than the protection limitation.	Contact service center.
B320	MBMS Ref V Error	Voltage level of the battery management system is lower than the protection limitation.	Contact service center.
B321	MBMS Volt Circuit F	Cannot measure the cell voltage of battery management system.	Contact service center.
B322	RBMS Flash CRC E	Internal memory error has been detected.	Contact service center.
B323	MBMS CVSE	Error has been detected on cell voltage sensing line.	Contact service center.
B324	Cell Sum Volt Dev	Voltage deviation of battery cells differ from the sum of the reference value.	Contact service center.
B325	RBMS-RBMS LOC	Internal communication error has been detected.	Contact service center.
B326	MCU Error	An error has been detected on processing unit.	Contact service center.
B327	RAM Check	An error has been detected on RAM.	Contact service center.
B328	ROM Check	An error has been detected on ROM.	Contact service center.
B329	MBMS Init Error	An error has been detected when resetting the battery management system.	Contact service center.
B330	OBD Fail	OBD Fail Fault	Contact service center.
B331	MBMS Version Error	Battery version error	Contact service center.
B332	MBMS EEPROM E	An error has been detected on EEPROM.	Contact service center.

B101	Cell Over Volt W	Voltage level of battery cell is higher than the protection limitation.	Stop battery powering and Standby
B102	Cell Under Volt W	Voltage level of battery cell is lower than the protection limitation.	Stop battery powering and stand-by.
B103	Cell Volt Imbal W	Voltage differences between the battery cells are higher than 3.5 V.	Stop battery powering and stand-by.
B104	Pack Over Volt W	Voltage level of battery pack is higher than the protection limitation.	Stop battery powering and stand-by.

B105	Pack Under Volt W	Voltage level of battery pack is lower than the protection limitation.	Stop battery powering and stand-by.
B106	Over Charge Curr W	The SOC level of the battery is higher than the protection limitation.	Stop battery powering and stand-by.
B107	Over Disch Curr W	The SOC level of the battery is lower than the protection limitation.	Stop battery powering and stand-by.
B108	Over Temperature W	The battery temperature is higher than the limitation.	Stop battery powering and stand-by.
B109	Under Temperature W	The battery temperature is lower than the limitation.	Stop battery powering and stand-by.
B110	Temp Deviation W	Temperature differences between the batteries are over 5 degrees.	Stop battery powering and stand-by.

- Firmware version, Error codes and Fault conditions on the lists can be accessed on the display. And those can also be accessed from the server.

If you have any technical problem or question, please contact the service center below.

Address : LG Electronics Deutschland GmbH Berliner Straße 93
40880 Ratingen
Germany

Tel. : + 0049 18 06 807 020

E-Mail: b2b.service@lge.de

Maintenance

Cleaning the product

To clean this product, use a soft, dry cloth. If the surfaces are extremely dirty, use a soft cloth lightly moistened with a mild detergent solution. Do not use strong solvents such as alcohol, benzene, or thinner, as these might damage the surface of the product.

Do not use volatile liquids such as insecticide spray near this product. Wiping with strong pressure may damage the surface. Do not leave rubber or plastic products in contact with the product for a long period of time.

When cleaning the air duct, shut off all the systems including PCS, PV module, battery, AC circuit breaker. After that, open the lower cover of the PCS and remove dust on the air duct using a soft brush.

Inspecting regularly

It is recommended to check the operating status and connection status once a year. Contact authorized dealer or where you purchased.

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.

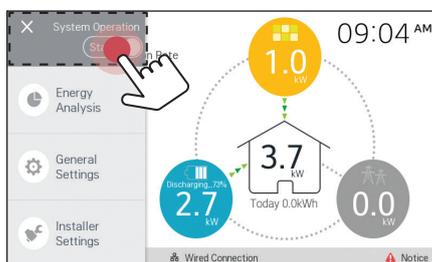
Disassemble the product

You may need to disassemble the product when you move or dispose the product. You must keep the procedure as described, otherwise there may have electric shock or serious burns due to the high voltages.

! WARNING

- All work on the product disassembly must be carried out by qualified personnel only.
- There is high possibility of electric shock or serious burns due to the high voltages in power conditioning circuits.
- Wear rubber gloves and protective clothing (protective glasses and boots) when working on high voltage/high current systems such as PCS and battery systems.

1

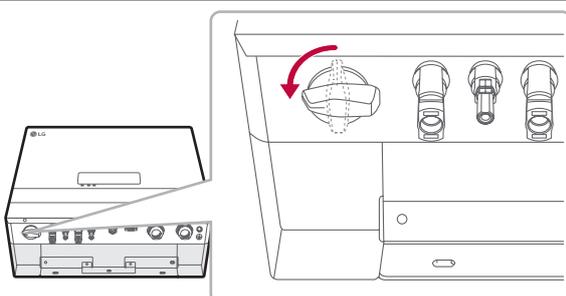


Tab [☰] on the main screen and tab [Start].

A notice appears on the screen.

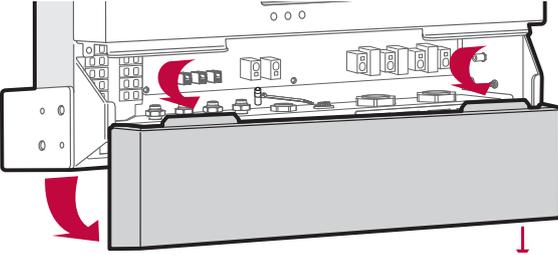
Tab [Accept] to stop operation.

2



Turn off the DC disconnect switch on the bottom of the product. And turn off the DC circuit breaker of the connected battery. Refer to battery manual for more information of turning off the DC circuit breaker.

- 3** Turn off the AC circuit breaker in the distribution box.
And wait at least 10-minute standby period of time to complete discharging this product.

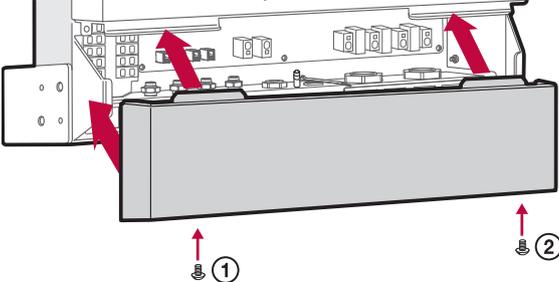
- 4**  Disassemble the lower cover from the product.

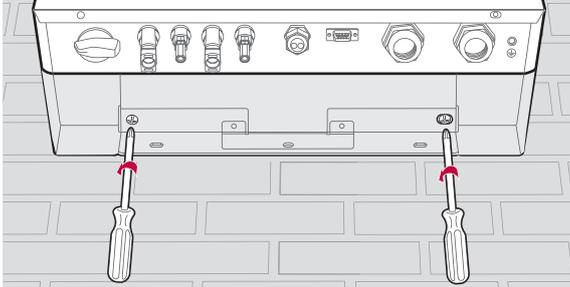
- 5** Disconnect the Ethernet, smart meter, BMS cables from the product.

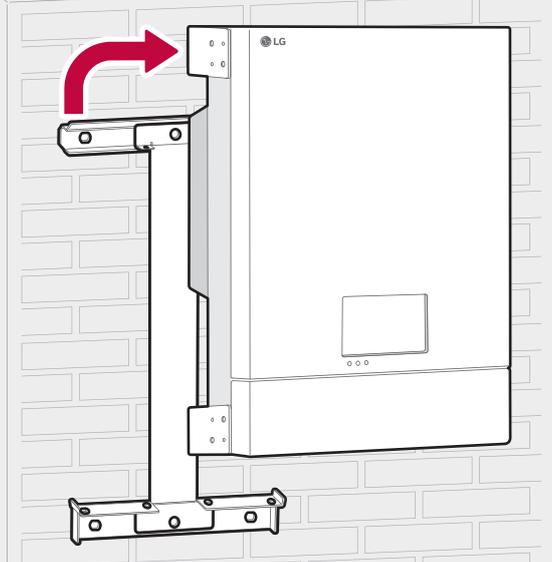
- 6** Disconnect the PV1 and PV2 connector from the product.

- 7** Disconnect the battery DC cables from the product. Use the appropriate size of a flat-head screwdriver when disconnecting.

- 8** Disconnect the AC and grounding cable from the product. Use the appropriate size of a screwdriver when disconnecting.

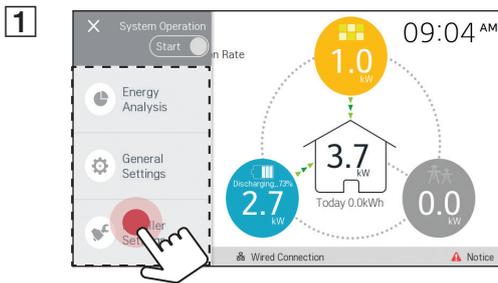
- 9**  Assemble the lower cover to the product.
And then fix the screws in numbering order.

- 10**  Remove the screws from the lower wall bracket.

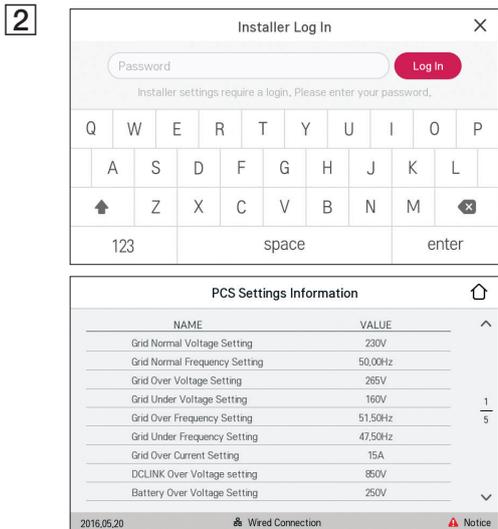
- 11**  Remove the product from the wall. Make sure that at least two persons work together to move the product.

Checking the PCS setting information

Installer can see current PCS settings as below.



Tab [☰] on the main screen and tab [Installer Settings] option.



[Installer Log In] menu appears on the screen.

Input 'pcs' and tab [space] for more than 2 seconds in [Installer Log In] menu.

[PCS Settings Information] appears on the screen.

NOTE

- All the values on the [PCS Settings Information] list can not be edited by user or installer.

NOTE

- Viewable information names are listed below -

Grid Normal Voltage, Grid Normal Frequency, Grid Over/Under Voltage, Grid Over/Under Frequency, Grid Over Current, DCLINK Over Voltage, Battery Over/Under Voltage, Battery Over Current, PV1 Over/Under Voltage, PV1 Over Current, PV2 Over/Under Voltage, PV2 Over Current, Heat-sink Over Temperature, PV Insulation Resistance, Operating Grid Maximum/Minimum Voltage, Relay on Grid Voltage, Operating Grid Maximum/Minimum Frequency, Operating BAT Maximum/Minimum Voltage, Residual Maximum/Minimum Current, RESTART TIME, TRIP TIME, Country Standard Set, PV1 Capacity, PV2 Capacity, PV Feed-in Limit, Battery SOC Maximum/Minimum, Battery SOC Minimum Alert

Specifications

General

Dimensions (W x H x D)	493 mm x 670 mm x 185 mm
Net weight (approx.)	34 kg
Operating temperature	0 °C to 40 °C
Operating humidity	60 %
Max. efficiency (PV to grid)	95.7 %

AC input/output

Rated grid voltage	3-NPE 400 V / 230 V
Power factor range	-0.95 – +0.95
AC voltage range (L-N)	184 – 264.5 V
AC voltage range (L-L)	319 – 458 V
Short circuit current (Isc)	12 A
Current Inrush	73 Aac-peak / 0.05 ms
Max. fault current	83 Aac-peak / 20 ms
Max. output overcurrent protection	12 A
Frequency (frequency range)	50 Hz (47.5 - 51.5 Hz)
Max. AC power (from PV)	5,000 W
Max. AC power (from battery)	3,000 W
Max. output current	8.5 A
Total harmonic distortion	5%
Phases	3

DC input/output

Max. input voltage	800 V
Min. input voltage	210 V
Max. DC power	6,600 W (3,300 W per MPPT)
Input voltage range MPPT at rated AC output power	210-680 V
Number of MPPT	2
Number of string per MPPT	1
Max. input current per MPPT	12 A
Backfeed current	0 A
Short circuit current (Isc) per MPPT	13 A

Battery input / output		
Battery manufacturer	LG Chem	
Battery model name	ED00064CN00.ADG3TUH	
Battery capacity	6.4 kWh	
Rated voltage	207.2 V	
Operating voltage range	168 V to 232.4 V	
Standard charging condition	Constant current / constant voltage 0.3 C (9.45 A) current, charging voltage 232.4 V (at 25 °C)	
Max. charging/discharging current	19 A	
Standard charging conditions (CC-CV)	Charging current	0.3C (9.45A)
	Condition for termination	232.4 V
Standard discharging conditions (CC)	Discharging current	0.3C (9.45A)
	Condition for termination	168 V

Feature & function	
Noise emission	40 dB
Cooling	Forced convection
Topology	Transformerless
Degree of protection	IP21
Max. permissible value of relative humidity (non-condensing)	85 % (Climate class 3K5)
Display	7" Touch LCD
Certification	IEC/EN 62109-1/-2, VDE-AR-N 4105, VDE 0126-1-1
Web monitoring service	Available

- Design and specifications are subject to change without notice.

